



## Journal of Medicines Optimisation

*Developing a patient-centred approach to get best outcomes and value from medicines*

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### LINKEDIN

Readers who use LinkedIn may like to know that there is a JOMO LinkedIn Group. It is a closed group but everyone who requests the JoMO will be permitted to join. Readers are encouraged to comment upon and discuss items about Medicines Optimisation.

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Correspondence may be edited for length, grammatical correctness, and journal style.

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The correspondence, together with a declaration of any interests and any subsequent comment from the author, may be published in the Journal and/or on the website.

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The JoMO aims to disseminate good practice about Medicines Optimisation to pharmacists, doctors, nurses and other healthcare professionals. The focus is on 'optimisation', which relates to quality and improving patient care, rather than cost aspects.

The JoMO aims to follow the 'Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals' published by the International Committee of Medical Journal Editors (ICMJE) and known as 'The Uniform Requirements' and the Committee on Publication Ethics (COPE) 'Code of Conduct'.

Guidance for Authors is available at <http://www.jmedopt.com>.

All material should be sent electronically to the Editor-in-Chief (alex.bower@pharman.co.uk).

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The introduction, a few years ago, of the term 'Medicines Optimisation' heralded a paradigm shift. Quite simply, it puts patients at the heart of the process so that the focus is on getting the best possible and safe clinical outcome from the use of medicines for an individual person. This did happen in many situations previously but having the terminology as a 'banner' has enabled the process to march forward with vigour. There is no doubt that the terminology and its inherent aims are now well embedded into patient care practice and it will be exciting to see the developments that it heralds.

The new JoMO provides a vehicle for pharmacists, doctors, nurses and other healthcare professionals to share and disseminate their work. It provides an opportunity to stimulate ideas in colleagues and/or disseminate good practice that others can adapt or develop to suit their local circumstances. The vision is that it will play an influential and key part in shaping better patient care and the role that medicines can play.

This inaugural edition illustrates some of the good work that has been undertaken. A keynote article reminds us of why the term 'optimisation' emerged. The 'Perspectives and Insights' section indicates, in the words of a patient who has a long-term condition and who is reliant on support workers, what they hope medicines optimisation will mean for them. Other contributions highlight the need for a holistic, multi-disciplinary approach to develop if medicines optimisation is to be fully effective and a need to shift the focus from establishing the optimal clinical regime to using medicines that will best enhance an individual's life and wellbeing - as they see it. The 'Developments in Practice' section shares a project to develop medicines optimisation in care homes, an improved and safer system for mental health patients requiring clozapine and methods to improve adherence to medication regimes for those with cardiovascular disease.

The JoMO will have its own website with opportunities to share and develop views and readers are encouraged to use this to further debate and spread best practice.

You will hopefully find material here to develop your thinking or provide a basis for your own developments in practice.

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# Foreword

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Patients and the public, like you and me, expect safe and effective care. They also expect care to be delivered in a manner which is acceptable. Medicines continue to play a central role in delivering safe and effective care. But since the NHS was created, and particularly over the last 30 years, where medicines are concerned, we have largely focused our efforts on controlling costs, not delivering best outcomes. That's not to say the two aren't related. A poor outcome is not just bad for patients; it's also poor value for the system. But designing ways to deliver best outcomes is hard. It requires much closer working with patients to really understand what they want from their medicines; something our system isn't geared up to do. It's much easier to pick off the low hanging fruit – and that's largely what medicines management did very well. Now we have to do the hard stuff as well, and I call that medicines optimisation. A patient-centred approach to getting best outcomes and value. Safe, effective, evidence-based choice and use of medicines, where outcomes are regularly and routinely monitored, measured and reviewed.

The evidence continues to build for medicines optimisation. Just recently, the National Clinical Director for Learning Disability and I had cause to write<sup>1</sup> to the NHS when we found evidence of unacceptable use of antipsychotics and other medicines in people with learning disability. Powerful medicines started in specialist care and often continued in primary care without review for months and years. If all sectors used the medicines optimisation approach, such an unacceptable state of affairs would be unlikely. Optimising medicines use includes 'deprescribing' where appropriate, in care home residents for example, as demonstrated by Bower in this journal. It also means improving adherence, recognised globally as a significant contributor to value in medicines use.<sup>2</sup> Optimising the use of existing medicines will also help create headroom for those new, innovative medicines that offer value to the whole patient pathway. It will also create a more robust culture of measurement and data capture, enabling a fuller understanding of clinical effectiveness in real life. So as genomics-based use of personalised medicines is introduced, we will be ready to make the most of it. That will also require working closely and transparently with the pharmaceutical and medical device industries to ensure products and services are what patients need.

So what's required to truly implement medicines optimisation? Firstly, leadership that shows the way. That will mean pharmacy, medical, nursing and managerial leaders nationally and locally working collaboratively with patients to transform medicines use. Secondly, getting the workforce skilled up and in the right place. NHS England's initiative to support GPs with clinical pharmacists is designed to help with that. Thirdly, redesigning incentives and systems to integrate primary, specialist and social care.

The Five Year Forward View<sup>3</sup> sets out very clearly the need to transform the NHS, if it is to survive at all. Increasing the focus on prevention and changing structures and systems to deliver higher quality care whilst making it more efficient. Medicines optimisation speaks to all those themes, and no wonder it's also a central theme of Lord Carter's NHS Procurement and Efficiency Programme.<sup>4</sup> Finally, whilst medicines optimisation is not just about the pharmacy profession, if the profession and those who utilise it do not fully embrace medicines optimisation, then the outlook for pharmacy is uncertain. Indeed, embracing medicines optimisation will require bold transformational thinking and action to efficiently deliver the best outcomes that patients deserve and expect.

Dr Keith Ridge CBE

*Chief Pharmaceutical Officer*

*Supporting NHS England, the Department of Health, and Health Education England*

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## Medicines Optimisation ... the story so far

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### Abstract

The achievements made under the Medicines Management banner are noted but ongoing failings in medicines safety, as exemplified by the EQUIP, CHUMS, PINCER and PRACtICE initiatives, are significant and need to be addressed. Additionally, the funding gap for the NHS and the failings that came to light at Mid Staffordshire hospitals (The Francis Report) led to the emergence of Medicines Optimisation.

In May 2013, the Royal Pharmaceutical Society established the principles for Medicines Optimisation. This was followed by the Kings Fund report on the risks of polypharmacy, the development of the NHS England Medicines Optimisation 'dashboard', NICE guidance and a range of local initiatives aimed at improving the way that patients are supported to use their medicines safely and effectively.

**Keywords:** medicines, management, optimisation, dashboard, polypharmacy, patient

### Background

There was much for pharmacists and their teams to be proud of under the term 'Medicines Management'. Across hospitals, primary care and carehome environments in the 1990s and early 2000s, pharmacists worked with doctors, nurses and NHS managers to ensure there was a much greater understanding of the evidence-based use of medicines and the risk of medication safety issues as well as an understanding of the costs associated with poor and inappropriate prescribing. Measurement of prescribing via ePACT and prescribing indicators took us a long way in terms of benchmarking prescribing practices.

Medicines remain the most frequently made healthcare intervention in England. In 2014, over one billion prescription items were dispensed in primary care alone. Data from England shows us that between 2003 and 2013 the average number of prescriptions per year for any one person has increased from 13 to 19. However, whilst the number of prescription items is growing, a number of key concerns have become very apparent and it has become clear that there are some significant failings in medication safety (see the EQUIP study,<sup>1</sup> CHUMS,<sup>2</sup> PINCER<sup>3</sup> and PRACtICE<sup>4</sup>). We know that between 30 and 50% of medicines are not taken as intended. Evidence shows that 5-8% of unplanned admissions to hospital are due to avoidable medication issues and that the risk of people suffering harm from their medicines increases as the number of medicines taken by each patient increases.

There are a number of safety interventions, medication services and improvements that have been shown to support patients to get more from their medicines but these are not being fully utilised. The improved outcomes promised by these medicines at the clinical trial stage are not, therefore, always being realised.

All of these issues demanded a step change in our approach to medicines that has not been delivered under the term 'Medicines Management'. The concept of Medicines Optimisation has been evolving in the NHS in England over the last four years or so. It provides a much greater focus on the patient and begins the transition from thinking of the cost and prescribing of a medicine towards a broader approach that tries to harness the value of a medicine whilst minimising harm for the patient.

### The need for change

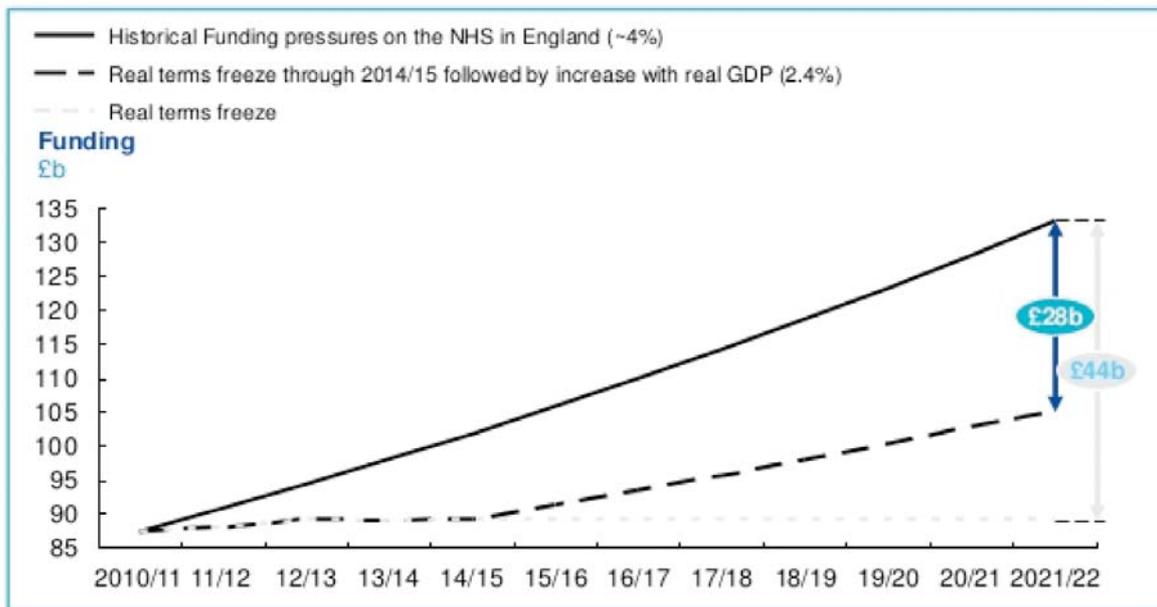
#### *The funding gap*

From around 2008 onwards, the realisation that the NHS would need to do things very differently gained momentum. It was not a new concept since Wanless, in his report 'Securing our Future Health: Taking a Long-Term View in 2002', outlined the size of the financial gap the NHS faced in the years to 2022.<sup>5</sup>

The growing older population, a greater number of people living with long-term conditions, more expensive treatments and a recognition that productivity in the NHS was often poor and hindered by fragmented and disjointed services as well as poor data upon which to commission services created a commonly used 'graph of doom' (see Figure 1).

In short, if the NHS remained as it was, there would be a funding gap in the region of £20 billion. This became commonly known as the 'Nicholson challenge' (David Nicholson was a former leader of the NHS) and was, in reality, the challenge of making efficiency savings of 4% compound a year for four years to save £20 billion. It was recognised that no such considerable efficiencies had been made by the NHS previously (or indeed any other western health service) but the response was the Quality, Innovation, Productivity and Prevention (QIPP) initiative.

# The NHS is facing a serious funding gap



1 The forecast spend assumes pressures continue to rise in line with patterns observed prior to 2010/11 and that policy-makers and managers take no action to improve efficiency and reduce costs. This estimate is based on the rising pressures on the NHS from 1) Demographics (principal population projection from ONS), 2) Health care activity (Chronic demands on acute 04/05-09/10; MH 08-10/11; primary care 95/96-08/09; prescribing 08/09-11/12) and 3) Health care costs (Pay 2% a year over GDP deflator; drugs in line with GDP). Assumes NHS funding continues to grow with inflation (GDP deflator)

SOURCE: Nuffield Trust: The funding pressures facing the NHS from 2010/11 to 2021/22: A decade of austerity?

Figure 1: NHS funding gap

## The emergence of QIPP

For many of us, QIPP meant trying to support patients more to get better health outcomes but with greater efficiencies in the way that had been described by Wanless. Many QIPP programmes did great work in addressing safety and poor practice. However, in fairness, others viewed QIPP as synonymous with cuts, staff reductions and pay freezes and so, on the surface, the NHS did not do things as differently as was required.

## The Francis Report

Matters were brought into a grim focus in 'The Francis Report' into the failings at Mid Staffordshire hospitals, where the consequences of a persistence of oppressive reactions to reports of problems in meeting financial requirements were very clearly highlighted.

## A new focus was needed

Against this backdrop, there was a growing recognition that things needed to change in the medicines world. In some quarters there remained a focus on the cost and volume of prescribing. There was little understanding of the patient's perspective or any measure of the benefits patients really got from their medicines and how close, or otherwise, this came to the inherent promise that was apparent for many medicines at their clinical trial stage. At its worse, some Medicines Management activities were perceived as deliberately blocking access to newer medicines - and so Medicines Optimisation emerged.

## The development of Medicines Optimisation

Medicines Optimisation was a phrase coined by Dr Keith Ridge, Chief Pharmaceutical Officer for England, to address the sub-optimal care that many patients were receiving.

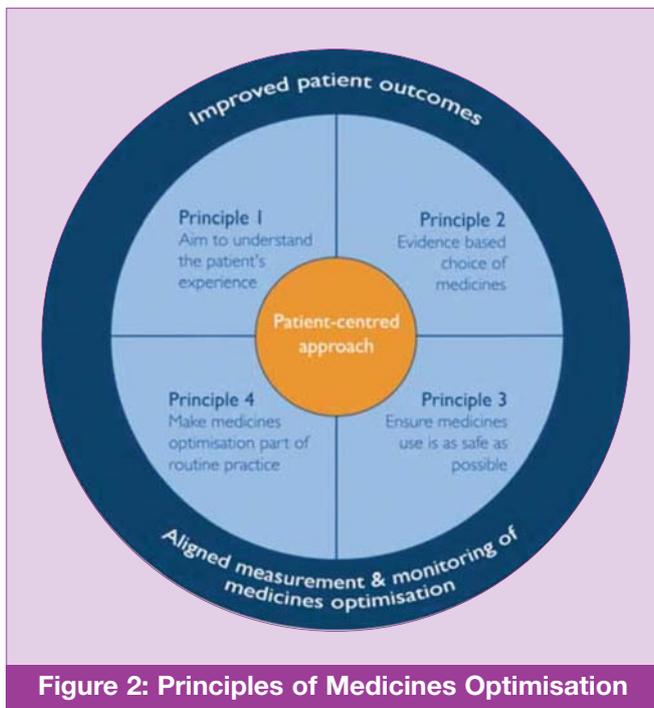
### Medicines Optimisation principles

In May 2013, the Royal Pharmaceutical Society (RPS) published their Medicines Optimisation principles (see Figure 2).<sup>6</sup> Developed in collaboration with a number of patient groups and Royal Colleges, the simple circular diagram highlighting the principles became commonplace and should be familiar to all pharmacists and pharmacy technicians (see Figure 2).

NHS England, whilst only a few weeks old at that point, publicly signed up to the principles and the concept of Medicines Optimisation. Patients were to be at the heart of medicines pathways and the pharmaceutical industry was to be included in the approach to try to optimise the use of medicines in each patient.

### Polypharmacy

The Kings Fund published its report into polypharmacy, where patients receive multiple medications. Whilst noting that there may be situations where it is appropriate for patients to receive multiple medications, the report outlined the consequences of inappropriate polypharmacy.<sup>7</sup> Where problematic or inappropriate polypharmacy occurs the intended benefits of the medicines



**Figure 2: Principles of Medicines Optimisation**

are, at best, not realised. At worse, they cause harm which may be severe or even death.

### Medicines Optimisation dashboard

In June last year, NHS England published the first 'prototype' Medicines Optimisation dashboard.<sup>8</sup> This aimed to be a starting point in the long process of moving the focus away from solely cost and volume of drugs prescribed towards a greater emphasis of measuring how well-supported patients are in using their medicines to get the greatest benefit. Recently, the dashboard has been 'refreshed', following an evaluation by the University of Keele and Clinical Commissioning Groups (CCGs). Trusts and Academic Health Science Networks (AHSNs) can view their data to help shape their local strategies to systematically ensure that the patients in their care get the most from their medicines.

### NICE guidance

The National Institute for Health and Care Excellence (NICE) has recently defined Medicines Optimisation as 'a person centred approach to safe and effective medicines use to ensure that people obtain the best possible outcomes from their medicines.'

Following publication of the NICE guidance on medicines optimisation,<sup>9</sup> it is important that NHS organisations now take a close look at their safety data, their outcome data and how well they use local community-based medicines services to gain greater patient outcomes and a better patient experience.

### Initiatives in practice

There is a growing and strong evidence base from a number of areas including the Isle of Wight reablement project,<sup>10</sup> Community Pharmacy Future<sup>11</sup> work and Community Pharmacy West Yorkshire<sup>12</sup> that, where community pharmacy is properly embedded into the care pathway (especially upon discharge from hospital), patients have fewer medicine related problems, fewer A&E attendances and fewer readmissions. Therefore, can

any NHS organisation in England afford to ignore medicines optimisation and a greater focus on patient-centred care in relation to medicines?

### Declaration of interests

Personal fees from MSD, outside the submitted work.

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## A patient perspective of what is required for effective medicines optimisation

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### Abstract

The requirements, from a patient perspective, for effective medicines optimisation are outlined. Some of the challenges currently experienced by patients are discussed.

The paper provides a brief overview of how the present process of medicines optimisation could be improved and what it may look like in the future.

**Keywords:** patient perspective, medicine, optimisation, effective

### Introduction

For most people, the process of medicines optimisation is simple. They go to a healthcare professional, they get a prescription, it gets dispensed and they take the medicine. However, what if you are one of the '11 million people with a ... long term illness, impairment or disability'?<sup>1</sup> Would that process be quite so easy? Chances are probably not, because at least some of that population are likely to have either a communication difficulty or be reliant on support workers, which could potentially complicate the process. For example, the support worker may not know what medicine is needed,

when it needs to be taken or be able to work out the appropriate and safe dose.

This paper outlines eleven key principles that will help patients optimise their medicines. It also identifies some of the key problems faced by those with disabilities in relation to medicines and proposes what could be done differently to improve medicines optimisation.

It is written from my own perspective as a patient with a long-term condition who is reliant on support workers. I can communicate effectively but I still experience problems.

Problem	Description
A lack of understanding	Support workers, carers and patients sometimes do not understand what different medicines are for, etc.
A lack of appropriate communication	Healthcare professionals don't always effectively communicate with everybody involved in the patient's life. Interestingly, it has been inferred that only 7% of communication is verbal (words), <sup>3</sup> perhaps meaning that it is not 'what is said' but 'the way it is said'. This can also apply to patients i.e. a patient may not know how to describe the side-effects of a particular drug or they may feel that the healthcare professional knows best.
The making of assumptions	People often make assumptions about the patient or the carer. One of the most basic assumptions we make as a society is that all people can read. This is not the case - in fact around 16 percent, or 5.2 million adults in England, can be described as 'functionally illiterate'. <sup>4</sup>
Silo working	In theory, the NHS is one big, national agency. In practice, this is not the case; it's made up of lots of little departments all working, it would appear, autonomously.
The reluctance to embrace technology	The uptake of new technology is slow or problematic, for example the failure of the National Programme for Information Technology (NPfIT).

**Table 1: Current barriers that prevent the optimal use of medicines from a patient's perspective**

## Barriers to optimal medicines usage

The main barriers, from a patient's perspective, that prevent the optimal usage of medicines are shown in Table 1.

## Examples of problems experienced personally in practice

The following provides a couple of examples of what it feels like for a patient when things do not go as they should.

### Problem 1

I remember, on one occasion, being given somebody else's antibiotic (penicillin, to which I'm allergic). It was a liquid medication so I could taste I shouldn't have had it. However, the spoon had been put in my mouth and I had already taken the medication off the spoon so, whilst I could taste it was the wrong medicine, I could not spit it out. As a result of this I was scared as I've had bad reactions in the past. The support worker at the time knew she had administered the wrong drugs because I was able to communicate verbally and say "I shouldn't have had that medicine, it tasted like the one I'm allergic to." She then looked at the label and realised her mistake. You cannot imagine the fear I felt. It was as though I was looking over a cliff with something terrible about to happen. Luckily, I was at a residential college that had 24 hour nursing care attached to it so I just had to go and sit with the nurse for a few hours. I had no long lasting side-effects so, whilst it was annoying and inconvenient, nothing serious occurred. The support worker had her right to administer drugs temporarily suspended and an accident report was made. My trust in that support worker was damaged, so much so that I did not work with her again.

#### *How could this have been avoided?*

Well, quite simply, the support worker did not read the label. If she had she might have realised that it wasn't my antibiotic. Also, the medicines could have been double checked; and unqualified support workers should not, in my opinion, be permitted to administer medication.

#### *What's the lesson here?*

The administration of medication should never be rushed. Great care must be taken. Also, great attention to detail is needed. The five 'rights' of medicine administration, which could be used as a checklist, are:

- right patient
- right time
- right drug
- right dose
- right route.<sup>2</sup>

In the above problem, if this checklist had been used, the support worker may have realised it was the wrong patient.

### Problem 2

On another occasion my live-in support worker was assisting me to dispense my evening medications. I direct this procedure by saying to them "This is medication 'a' - I need one of these, this is medication 'b' - I need two of these and so on." However, on this occasion, she objected to me helping her stating that she knew what she was doing. For the sake of good relations I allowed her to continue. When I was taking the medicine I realised that she had misread a box as quetiapine when it actually said co-codamol. Fortunately, I realised she had given me the wrong medication and spat it back into the cup, put it back into the box, made sure that I got out the correct medication and took it myself. Luckily, due to my ability to recognise her error I was able to prevent it. It made me feel annoyed that the support worker hadn't listened but I suffered no long lasting effects. Because I was able to manage it, I did not report the administration error to either the support worker or the care agency involved. I just decided to administer my own medication without the assistance of the support worker for the rest of that week.

#### *How could this have been prevented?*

Quite simply, the support worker failed to do two things; she failed to read the box and failed to listen to a given direction from her client who was, in this case, well able to communicate his needs.

#### *What's the lesson here?*

Check, check and check again. Make sure you clearly read the box and understand its directions. If you don't, seek help. Also, listen to patients who clearly understand their medications. In this situation you could again use the five 'rights' checklist and easily see that the wrong drug was administered.

## Effective medicines optimisation from a patient's perspective

The principles, from a patient's perspective, that may improve medicines optimisation are shown in Figure 1. The following considers each of these in turn from the point of view of what should happen theoretically but then considers what it really looks like from the perspective of a patient.

### 1. Effective communication with multiple stakeholders

#### *In theory*

All stakeholders involved with the patient must communicate effectively by using appropriate language for the person/audience they are talking to. Poor communication could have serious implications, for example, over dosing because what was said wasn't understood.

#### *From the patient's perspective*

This happens most of the time without incident. However, it can and does go wrong (see problems 1 and 2). When problems do occur they can be serious and life threatening just because somebody didn't communicate correctly.



**Figure 1: Some key principles from a patient's perspective that may improve medicines optimisation**

## 2. Access to training for support workers and carers

### *In theory*

Pharmacists and other healthcare professionals should offer basic training to people involved in the patient's life, for example, support workers, family members, etc. A vehicle for delivery of such training could be a Medicines Use Review (MUR).

### *From the patient's perspective*

This doesn't happen unless you are able to communicate and ask for it. I can think of one occasion in my 31 years, when I have been approached to review my medicines by a pharmacist.

## 3. Guidance, advice and knowledge

### *In theory*

It is often said that 'knowledge is power'.<sup>5</sup> Pharmacists and other healthcare professionals have a vital role to play in terms of passing on knowledge to their patient's family members and support workers; this will then empower people to take responsibility for their own medicines regime.

### *From the patient's perspective*

I have no problems accessing the internet or asking for advice and guidance from the pharmacist or doctor. However, I can communicate well and am knowledgeable. I wonder if this would be quite so easy if I had difficulty in communicating.

## 4. Access to both medicines and support when they are needed

### *In theory*

Does this situation sound familiar? Perhaps you are on holiday or visiting relatives, you think you've packed enough medication - turns out you haven't. Pharmacists can help here; a person may not be able to get an appointment with their General Practitioner (GP) or may not want to sit in Accident & Emergency or a Walk-in Centre for several hours just to get a prescription but they may just tolerate going to see the pharmacist who has known them for years.

### *From the patient's perspective*

If you are well-known to the pharmacist you are usually able to get emergency supplies. However, if you are not known to the pharmacist, which happened to me recently, they will need a prescription even to give you emergency supplies. This may get better with the advent of e-prescribing but it will not solve the problem if somebody is on holiday and runs out of medication. A partial solution may be for the person to carry their latest repeat prescription form with them.

## 5. Regular Reviews

### *In theory*

Things change over time, as does our need for medicines but some people are scared to go to the doctors or maybe just can't communicate that one of their medicines actually has terrible side-effects. Pharmacists can conduct regular reviews.

In addition to this, according to Direction 4(2) of The Pharmaceutical Services Directions (2013), regular reviews can help by:

- (a) ...establishing the patient's actual use, understanding and experience of taking drugs;
- (b) identifying, discussing and assisting in the resolution of poor or ineffective use of drugs by the patient;
- (c) identifying side-effects and drug interactions that may affect the patient's compliance with instructions given to them by a healthcare professional for the taking of drugs; and
- (d) improving clinical and cost effectiveness of drugs prescribed to patients, thereby reducing the wastage of such drugs.<sup>6</sup>

#### ***From the patient's perspective***

This needs to be improved; I have only ever been approached once for a MUR.

### **6. Advocacy**

#### ***In theory***

Pharmacists have a role here. They will probably see the patient fairly regularly, at least once a month and maybe more. So, if they think something's not quite right or the patient tells them something that they think other healthcare professionals should know, would it not be sensible to say something?

#### ***From the patient's perspective***

Pharmacists do communicate with doctors, but usually only when there is a problem on the prescription. They often tell people to go back and see their doctor if the person has a problem with the medication.

### **7. All professionals to understand the patient's lifestyle and context**

#### ***In theory***

Get to know your patients a bit; what they like, what they don't like, etc. It may help you to understand why they manage their medicines in the way they do.

#### ***From the patient's perspective***

This does happen; pharmacists often ask how I am. Indeed, the pharmacist who has known me since I was a little boy still asks my mother for updates about me, even though I have moved away to University.

### **8. All professionals to be friendly and approachable**

#### ***In theory***

The body language and tone you use is important. If someone is frowning and talking down to you, would you feel like you could approach them? Remember, '... the total impact of a message breaks down like this: 7 percent verbal (words), 38 percent vocal (volume, pitch, rhythm, etc.) and 55 percent body movements (mostly facial expressions).'<sup>3,7</sup>

#### ***From the patient's perspective***

Most professionals have been friendly and approachable. If they don't appear to be it's usually because they are busy or do not understand what they are being asked.

### **9. All professionals to be pro-active in promoting good medicines optimisation**

#### ***In theory***

Be pro-active, use the knowledge you have to promote good medicines optimisation and stop people slipping into bad habits. A report by the Department of Health estimates that unused medicines cost the NHS around £300 million every year.<sup>8</sup> In a time of austerity this is not acceptable; a pro-active approach may reduce or eliminate waste.

#### ***From the patient's perspective***

This doesn't happen, as I've said twice previously, I've only ever been offered an MUR once.

### **10. A person-centred approach**

#### ***In theory***

'Person-centred care aims to ensure a person is an equal partner in their healthcare. The individual and the health system benefit because the individual experiences greater satisfaction with their care and the health system is more cost-effective...'<sup>9</sup> Medicines help people get well; how can they be managed effectively if those people aren't at the centre of everything healthcare professionals do?

#### ***From the patient's perspective***

This does happen but it seems to me people struggle when the person has severe additional needs e.g. they can't communicate or they have a learning disability.

### **11. Clear and correct labelling**

#### ***In theory***

This is vital to ensure that people understand what the medicine does, the doses they should be taking and how often they should take it. Unclear or incorrect labelling will undoubtedly lead to errors in medicines administration.

#### ***From the patient's perspective***

This is something pharmacists, in my experience, do well. I can never recall having a box of medicine that has been incorrectly labelled or where the instructions were not clear.

## **Conclusions**

It's not all about big complex initiatives. Perhaps it's more about communicating in ways users of the NHS understand; providing simple things like a Medicines Use Review, asking simple questions, like 'How are you?' and 'Did you get any side-effects from the new medication?'

Everybody has a role to play in medicines optimisation by:

- being pro-active
- being approachable
- being a good advocate

- embracing technology and change; for example, electronic prescriptions
- not being afraid to speak up if they see something that could be improved
- reducing waste - if this can be reduced it will save money that can be put back into the NHS.

### Declaration of interests

Honorarium: Pharmacy Management Regional Roadshow (London), May 2015.

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# Medicines Optimisation in frail, older adults with Multiple Long Term Conditions

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## Abstract

Frail older people are the most vulnerable of patients with multiple long term conditions (mLTCs). Reducing polypharmacy (deprescribing) is an important component of medicines optimisation in such patients. A personalised, holistic, multi-disciplinary, flexible and co-ordinated approach needs to be used to address the whole system and improve care.

The Guy's and St Thomas' NHS Trust (GSTT) Community Health Services model, which applies the four principles of medicines optimisation in practice, is described. This includes the involvement of an Integrated-care Clinical Pharmacist (ICP) receiving referrals from health care practitioners and undertaking domiciliary medication reviews and co-ordinating medicines related care for frail older people identified as having medicines related risks.

**Keywords:** medicines, optimisation, frail, multiple long term conditions, holistic, polypharmacy

## Introduction

Frail older people with multiple long term conditions (mLTCs) should be considered as a priority for medicines optimisation.

The existence of mLTCs, which refers to the co-existence of two or more LTCs, is increasingly becoming the norm in primary care. It is not exclusive to older people but more prevalent in that group.

Frail older people are the most vulnerable of patients with mLTCs. They take many medicines (polypharmacy) and are at higher risk of adverse drugs effects (ADEs). In addition, they are less resilient to ADEs, which can lead to rapid deterioration in their health status, frequent hospital admissions and longer recovery times.

The safe reduction of polypharmacy (deprescribing) is an important component medicines optimisation, which can have a particularly high impact on patient experience, health outcomes and costs<sup>1,2</sup> in frail older people. Practitioners often see deprescribing as rationalising the use of medicines by research evidence (either practitioner specialist knowledge or use of a validated tool such as the **S**creening **T**ool of **O**lder **P**erson's **P**rescriptions/**S**creening **T**ool to **A**lert doctors to **R**ight **T**reatment (STOPP/START). However, to ensure that medicines optimisation is effective in this cohort, deprescribing must be carried out in a holistic and patient-centered way to include everything else going on with the patient.

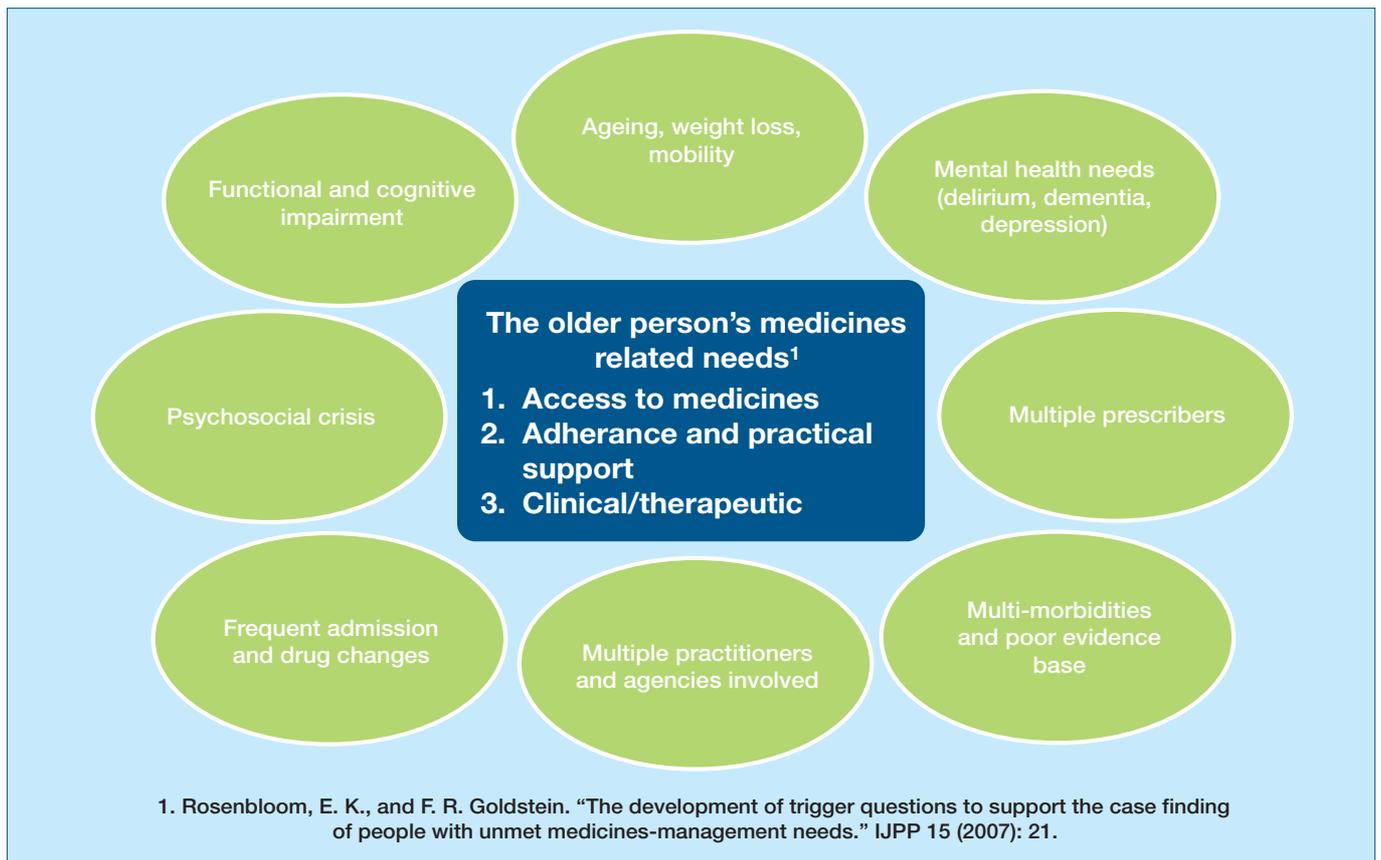
## Medicines Optimisation

Medicines optimisation utilises an outcome focused approach to safe and effective use of medicines that takes into account the patient's values, perception and experience rather than just

clinical indicators or biochemical markers such as target blood pressure. It is in accord with the definition of evidence based practice,<sup>3</sup> which gives equal considerations to patients' values and preferences, best research evidence and clinician expertise. In frail older people, taking this approach is imperative as the research evidence for prescribing is not particularly robust. Many patients will rationalise their use of medicines but, because of the increased pill burden in people with mLTCs, it is a particularly common occurrence. Frail older people constantly rationalise and make choices about what medicines to take.

These issues are important to all people but, in frail older people and those with mLTCs, they become exaggerated for many reasons. The net consequence becomes problems that might be ignored in others but which, in frail older people, need to be addressed through medicines optimisation.

Every encounter we have with these patients should be seen as a means to achieve a positive outcome. Outcomes should reflect what matters most to patients. Meaningful outcomes include improved quality of life, independence, physical functioning, emotional wellbeing, dignity, choice and control.<sup>4,5,6</sup> This way of working requires a paradigm shift in how we have traditionally assessed the effectiveness of therapeutic interventions. As a start, we can individually proactively seek opportunities in day to day practice to link medicines use with these patient centred outcomes e.g. thinking beyond pain scores to the patient's ability to perform daily activities of their choice when taking analgesics or beyond prescription 'synchronisation' to relieving patients' anxieties about running out of medicines for symptomatic relief when setting up repeat prescribing processes.



**Figure 1: Impact of frailty on medicines use**

One major challenge with optimising medicines use in this patient cohort is addressing the impact of the complex, multivariate, interconnected factors associated with frailty on how patients access, adhere to and respond to the therapeutic effects of medicines. A more holistic approach to care should take into account other common risk factors such as falls and psychosocial distresses (Figure 1).

Consideration must be given to the combined effects of the interactions, synergies and conflicts between these factors on therapeutic outcomes for each individual according to their

medical, functional and psychosocial circumstances. Current interventions that seek to resolve discrete parts in isolation are less likely to work than those which offer a personalised, holistic and co-ordinated approach to address the whole system. For example, focusing on prescribing or medication reviews without due attention to how medicines are administered or ensuring adequate communication between the patient and relevant practitioners can lead to poor adherence and therapeutic failures (Figure 2).

### Male patient, lives alone, six LTCs, fairly independent

- Referred by specialist diabetic nurse; long term non-adherence (4 doses taken in 2 months)
- 2 hospital admissions - Acute decompensated CHF
- T2DM: BG 33mmol/L. HbA1c 12.9%
- Maximum oral antidiabetic drugs and refusing insulin
- Poor knowledge about medicines and conditions due to poor engagement
- Overwhelmed by pill burden and negative effects on social life (17 doses/day)

#### Outcome following clinical pharmacist visits and interventions

- 5 medicines, 6 doses, 1 PRN
- Improvement in patient's perception of his well being, and biochemical markers
- 0 to 50% adherence, conditions stable and no worsening of symptoms
- Continuity of care provided by local community pharmacy liaising with GP



**Figure 2: The need for adequate communication**

Although there is limited research on effective interventions for this complex group, emerging evidence shows that incorporating a holistic personalised, multidisciplinary approach into ongoing care that is flexible, improves care<sup>7,8,9</sup> Also, strategies that ensure continuity of care and care co-ordination with case finding, patient centred assessments and joint care planning are successful.<sup>7,8,9</sup>

There is general consensus that tackling polypharmacy is a big challenge and a range of guidance has been made available in recent times to help address the issue. To assist practitioners, a seven step guide based on recently published evidence and current practice has been developed to provide a patient-centred, structured approach to deprescribing (safe withdrawal of medicines).<sup>10</sup>

## Guy's and St Thomas' NHS Trust (GSTT) Community Health Services model

The GSTT model of care, which is now established in practice and has been subject to a favourable evaluation, successfully applies the principles and strategies described so far (Figure 3) to deliver all four aspects of medicines optimisation in community settings. It draws on different pharmacists' skill sets and matches the older person's need to the appropriate level of expertise to build capacity and sustainability.

The GSTT model involves an Integrated-care Clinical Pharmacist (ICP) receiving referrals from health care practitioners and undertaking domiciliary medication reviews for frail older people identified as having medicines related risks. The ICP jointly agrees a care plan with the patient and takes the lead to coordinate and monitor its implementation by liaising with the GP and others. Once stable, the patient is transferred their local community pharmacist for ongoing care to optimise their medicines use. Evaluation of the model after usage with over 400 patients has shown that, as a result, patients have a better understanding of their medicines and experienced better outcomes. There has been a reduction in polypharmacy and medicines waste as well as improved pharmacist: pharmacist working and multidisciplinary working. Findings and resources from the initiative have been showcased and disseminated widely to support other across NHS organisations.

All medicines related care starts with and focuses on the patient. The level of engagement, patient priorities and goals

are established early on in the encounter. They are given the essential information they need to engage in discussions. Simple and open questions that invite them to share their values, perspective and experience from taking medicines and communicate their priorities are asked. For example, "Tell me how you get on with your medicines", "Explain to me how your medicines fit in with your life". Relevant information is gathered and shared at all stages through close collaboration of pharmacists with GPs, referrer and relevant others.

Processes have been developed to ensure that vulnerable patients are proactively identified as part of routine care and referred appropriately to pharmacists. Case-finding criteria go beyond specific diseases, specific drugs or number of drugs to those centred on the patient needs or experiences, such as increasing frailty or vulnerability during care transitions, significant changes to life situations or medicines regimen, new diagnosis or rapid deterioration in health status.

Face-to-face reviews in the patient's home environment with sufficient time to address mLTCs allow the consultations to focus the patient's needs and not just a list of drugs. The assessment tools are designed to consider the whole range of patient's medicines needs and decisions about deprescribing incorporate evidence based practice. Interventions are considered in the context of the patient's overall treatment goals and functional abilities. The pharmacists act as patient advocates, helping to manage their anxieties on various aspects of medicines use and navigating them through the system. The Community Matron co-ordinates all aspects of the patient's care but, where patients are identified as being vulnerable or at high risk to medicines related problems, the pharmacist takes the lead in co-ordinating these aspects. Feedback from Community Matrons was obtained during the evaluation process through telephone interviews. This indicated that, while they are experienced practitioners and prescribers in their own right, the nature and complexity of medicines use in this cohort takes them beyond their expertise and they highly valued the pharmacist as the expert to resolve medicine issues. Similar feedback was obtained from GPs.

The care plan aligns the patient (and carers) needs with specific agreed outcomes. The pharmacists take the lead to ensure that the changes, communication and monitoring needed to implement the care plan happen in a safe and timely manner. Through referral and signposting they ensure that patients have access to the range of tailored interventions from local agencies to support medicines

### Optimising Medicines Use in mLTCs

- Patient centred and holistic medication review and assessments
- Structured approach to deprescribing
- Care coordination and continuity of care led by pharmacists
- Multidisciplinary working and shared records
- Improved communication during transfer of care

**Figure 3: Principles and strategies to optimise medicines use in mLTCs**

## Final thoughts

By applying the general principles and strategies that have been shown to improve outcomes for frail older people, pharmacists in all settings can successfully lead the delivery of medicines optimisation in this patient cohort. However, it will require a radical change from current models of care that are more suited to patients with single long term conditions or taking specific medicines.

## Declaration of interests

Honoraria: Pharmacy Management Regional Roadshows (London/Manchester), May 2015.



# How insights into what matters to people can help us optimise medicines

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## Abstract

Medicines optimisation builds on the premise that the medicines a person takes should be tailored to their needs but the focus tends to be on the optimal clinical regime for the person rather than the medicines that will best enhance life and wellbeing. For instance, does a diuretic look like such a cost effective choice if taking it means an older person loses the confidence to go out because of fear of being 'caught short' and, as a result, becomes socially isolated and lonely?

The Experience Led Commissioning (ELC) Programme works with commissioners across the NHS to make sense of, and respond to, peoples' stories of care. Some of these are positive and teach us about the life transforming potential when medicines are right for the person but others tell us how the current approach is not yet working for them. The support provided by health professionals and psycho-social aspects are important. Insights from patients can be used to improve the medicines optimisation process.

**Keywords:** medicines, optimisation, well-being, psycho-social, insights

## Background

The NHS is moving towards an outcomes based approach to improvement. Policy underlines the importance of person centred care.

Medicines optimisation builds on the premise that the medicines the person takes should be tailored to their needs. The National Institute for Health and Care Excellence (NICE) has recently published guidance on the topic.<sup>1</sup> There is a significant body of research into peoples' experiences of taking medicines. Yet, when we talk about designing medicines optimisation, the focus tends to be on the optimal clinical regime for the person – rather than the medicines that will best enhance life and wellbeing. This may be a subtle difference, but it is a fundamental shift that requires clinicians to re-evaluate the value that medicines actually add. For instance, does a diuretic look like such a cost effective choice if taking it means an older person loses the confidence to go out because of fear of being 'caught short' and, as a result, becomes socially isolated and lonely - a mental state that we know has the same impact on health outcomes as smoking 15 cigarettes a day?<sup>2</sup>

Professionals will not recognise these dilemmas unless they walk in the shoes of those taking medicines. To get medicines optimisation right, that is where we need to start.

The Experience Led Commissioning (ELC) Programme works with commissioners across the NHS to make sense of, and respond to, peoples' stories of care. Over the course of five years, we have worked with people and families all over England. Many have told us about their experiences of living with medicines. Some of these stories are positive and teach us about the life transforming potential when medicines are right for the person. Others tell us how the current approach is not yet working for them.

It is not only medicines that matter. It is also the support that people get from the professionals who support them with their medicines - that is mainly GPs and pharmacists. The relationships people have with both help them cope or leave them feeling alone and helpless.

Finally, our work shines a light on the psycho-social impact of living with medicines and how taking medicines long-term impacts on peoples' identity.

## How can we use this insight?

*"Patient perception is very different. Patient expectations and outcomes are not aligned with prescribers' expectations"*

Working with around 120 pharmacy stakeholders at four Pharmacy Forum workshops in November 2014 and May 2015, we explored the value of insights for the pharmacy profession and how having insights could support the implementation of medicines optimisation. People were clear that, currently, we are designing medicines optimisation systems through a professional lens. Particular issues that surprised participants are described below.

## Impact on family of long-term health issues

Our insights consistently show that families play a critical role in supporting people – especially those living with long-term health issues. For instance, research shows that parents' beliefs about inhalers may be a significant determinant of children's asthma outcomes.

Likewise, professionals often forget that family carers are usually acting as unpaid care navigators. Yet family carers tell us that health professionals often ignore them and do not involve

them in discussions in their loved one's care. This is a waste of resource and fails to build on the contribution that families want to make.

## Experience of diagnosis

*“Understand how the patient feels about being diagnosed before starting to explain medications”*

Professionals are surprised to hear that, for people with long-term conditions, every diagnosis is a blow – and it doesn't get easier. Each diagnosis is harder than the last - another 'nail in the coffin'.

Getting care right at diagnosis, recognising its emotional impact and being aware of how the patient is feeling is critical to great medicines optimisation.

This insight underlines the importance and potential value of the New Medicines Service (NMS) if it is designed to work with people and families to explore their feelings and beliefs about medicine and knowledge of their diagnosis.

## The importance of follow up and reassurance

Insights show that reassurance is key in driving outcomes. In relation to medicines, regular review and follow-up is critical in reassuring people.

## Is it about about money or me?

People are suspicious. They have lost some trust in the NHS and professionals when it comes to medicines. They believe that professionals focus on cost rather than getting the best medicines for the person. Prescribing generics reinforces this belief. They do not understand the choices that professionals make and need to be involved so that they trust that the medicines prescribed are the right ones for the person.

## Implementing medicines optimisation

Participants in the Pharmacy Forum workshops told us that having access to insights could help at a strategic level and by redesigning : the consultation process.

### Strategic level

#### Different outcomes

*“We should design and fund services for the outcomes we want from them; apply patient-centred outcomes”*

Putting person-centred outcomes in place that reflect what matters to people will be especially important to drive medicines optimisation. For instance, outcomes such as:

- How effectively do prescribers and pharmacists reassure people?
- How confident and safe do people and their families feel about their medicines?
- How involved do family carers feel in managing medicines?

### Commissioning differently

*“We need to commission services to achieve this and involve patients in care pathway commissioning*

To get medicines optimisation working at scale, the way we commission medicines, pharmacy and general medical services needs to change. Co-commissioning provides a vehicle. Including person-centred outcomes in contracts would be a great start.

Based on insights, a priority is systematic follow-up and review of medication in primary care for those with long-term conditions. This adds highly valued reassurance, reduces anxiety and makes people feel safe.

Participants also told us that there needs to be a change in care experience. Most people thought that the most important use of insights was to inform professional practice. Participants highlighted:

### Redesign of consultation experiences

People wanted to see the following changes:

**Focus on what is important to the patient:** people recognised that when medicines optimisation is working well, people would have the right to say no to medicines. Pharmacists would agree individual goals that matter to the patient. The patient, GP and pharmacist would share decisions. It would be 'their choice – not our choice.' Professionals would seek to understand patients' beliefs, fears and values and prescribe in a way that improves patient confidence in the medication and the professional. Patients would be experts in their own condition.

**Change questions to patients:** pharmacists recognised the need to use open questions and for professionals to understand the right questions to ask. Insights help shape these questions. For instance, pharmacists undertaking NMS should be asking patients how they feel about taking new medicines. Patients would also be asking more questions: What is the medicine for? What are the side effects?

**More time?** people had mixed views on whether this would take more time

**Organise for continuity of care:** people recognised that equal, collaborative relationships with patients support medicines optimisation. This meant pharmacy organising itself around the principle of continuity of care – especially for those with long-term conditions. Technology might help, but it would not replace face-to-face conversations.

**Change language:** insights show that patients do not always understand what professionals say - especially when the language they use is medical. Removing this language barrier and giving information in plain English with no abbreviations was critical to the success of medicines optimisation. Professionals also need to avoid assumptions about what people know or believe.

**Improve information:** to support them to take control, people needed consistent messages re-enforcing the positive benefits of medicines, especially when newly diagnosed. Families need

simple, easy to read leaflets and support from peer networks and their family.

## Underpinning factors

The following are required to underpin changes:

**Different education and training:** people recognised that this new approach would need to improve consultation skills. Education and training needed to touch patients, carers, medical professionals as well as pharmacists.

**Improved communication and relationships:** everyone had to take responsibility and communicate better: professional to professional; patient to professional and visa versa. Building relationships was very important:

*“We have a medicine management pathway but we need an integrated communication pathway alongside it that clarify roles and responsibilities”*

## Declaration of interests

Honorarium: Pharmacy Management Regional Roadshow (London), May 2015.

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## CHAMOIS project (Care Homes And Medicines Optimisation Implementation Service)

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### Abstract

#### Introduction

There is a need to improve the management of medicines in care homes. This was done through holistic, patient-centred medication reviews.

#### Method

Clinical pharmacists specialised in long-term disease management and medicines usage in older people provided medication reviews to patients in care homes and developed a holistic approach to patient care through multi-agency and multi-disciplinary working. An animation using a fictitious character (Doris) was used to demonstrate the impact that the approach could have in practice.

#### Results

1,102 patient reviews were conducted. 2,499 recommendations were made to GPs regarding changes needed to medication (93% of these were accepted) and 1,398 tests and observations were carried out. 28% of residents required a follow-up medication review. 125 medicine-related errors or near-miss events were identified and reported. The average net cost saving was £110 per resident review.

#### Conclusion

The project demonstrated an increase in the quality of care and the safety of medicines use for care home residents.

**Keywords:** care homes, medicine, optimisation, review, recommendations

### Introduction

The need to improve the management of medicines in Care Homes has been highlighted<sup>1,2,3,4,5,6,7</sup> as have the risks that may occur when hospital inpatients are transferred to primary care or for new residents in care homes.<sup>3,7</sup>

Medication risk is greatest when medicines are changed or when care is transferred between settings, which may occur when hospital inpatients are transferred to primary care or with new residents in care homes.<sup>3,7</sup> Issues that can arise include unclear indications for changes, unintentional changes or omissions in medicines and doses, which can be overcome by accurate and prompt medicines reconciliation.

Following a pilot project in 2012, Leeds West Clinical Commissioning Group (CCG) provided funding to employ specialist clinical pharmacists to provide annual medication reviews to the care home residents of the 38 member GP practices.

Our primary aim was to build on this wealth of guidance to improve the quality of care and the safety of medicines for our care home residents through:

- the delivery of holistic, patient-centred medication reviews (Level 3)<sup>9,8</sup>
- a focus on the management of polypharmacy<sup>10,11,12,13</sup>
- the process of deprescribing.<sup>14,15</sup>

This was to be achieved by utilising the principles of medicines optimisation<sup>16</sup> (see Figure 1) to provide a cost effective medication review service linked to the CCG's strategic priority health goals in areas including cardiovascular disease, respiratory disease, diabetes, mental health and dementia.

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'.<sup>9</sup>

This article outlines the project and the outcomes achieved over a 21 month period commencing in July 2013.

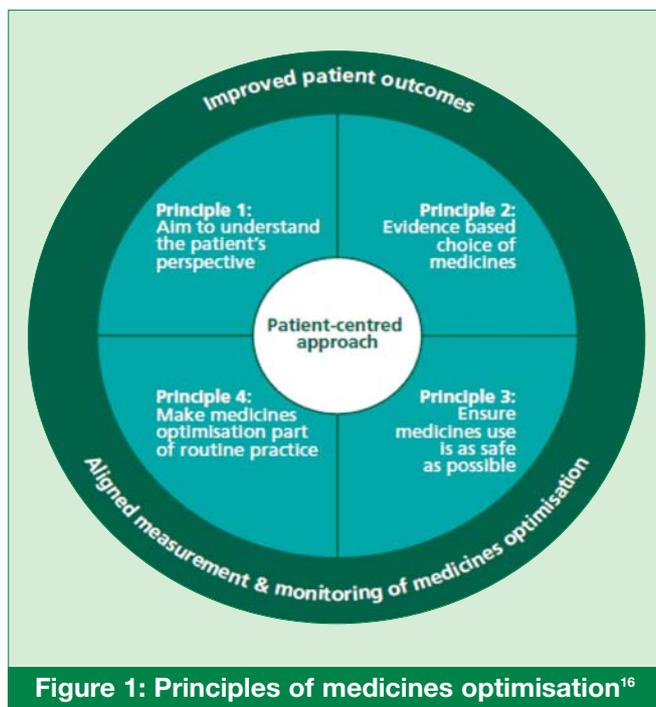


Figure 1: Principles of medicines optimisation<sup>16</sup>

## Method

### Staffing

Three pharmacists (2.4 WTE) were recruited with a varied range of previous experience but who all had specialised in long-term disease management and medicines usage in older people. They provided patient-centred medication reviews for highly complex, frail adult patients living in nursing and non-nursing (residential) care homes. When a pharmacist left the project for a career change, a pharmacy technician was recruited to reduce medicine and dressings waste in the care homes.

### Priority areas

Medicines optimisation was focussed on the following five areas:

- personalised and holistic reviews
- CCG priority disease areas
- specific high risk medicines
- deprescribing of less beneficial medicines
- appropriate monitoring.

### Standard Operating Procedure (SOP)

A SOP was developed to ensure consistency of service provision and recording.

A clinical medication review tool was then developed based around the PREVENT tool (**P**hysical impairment, **R**isk from specific medicines related admissions, **a**dherence issues, **c**ognitive impairment, **n**ew diagnosis/exacerbation of disease, **c**ompliance support, **s**ocial),<sup>17</sup> which included elements of the Common Geriatric Assessment (CGA), polypharmacy/deprescribing guidance, and the STOPP/START criteria (**S**creening **T**ool of **O**lder **P**erson's **P**rescriptions/**S**creening **T**ool to **A**lert doctors to **R**ight **T**reatment).<sup>18</sup>

### Process

A systematic approach was adopted that involved:

- review of GP practice patient medical records
- requesting appropriate monitoring, observations or tests
- visiting the care home, viewing records and talking to the carer
- reconciling medicines administration record (MAR) charts with current repeat medicines on the GP system
- talking with residents and engaging with family members
- liaising with other healthcare team members and non-medical prescribers
- recording findings in GP practice records
- making recommendations to GPs for medicine changes, monitoring tests and care planning
- communicating the agreed medicine changes, monitoring criteria and personalised care plans in writing to the resident and the dispensing community pharmacist as part of the process to ensure the safe management of medicines at all stages<sup>1,2,3</sup>
- following up patients to ensure that the care plan has been implemented, is acceptable to the resident and is producing the intended outcomes.

### Data collection

A data collection tool was developed to collect data and outcomes. This recorded details about the patient, tests requested/actioned, medicines taken, recommendations made and whether or not these were accepted, follow-up, Datix reports and cost information.

### Multi-disciplinary and multi-agency approach

Appropriate links were already established with care consultants for older people and clinical pharmacists at the acute and mental health trusts. However, in view of the need to improve the quality of holistic patient-centred care and facilitate care coordination,<sup>19,20,21</sup> links were established with a wide range of teams involved in the care of residents e.g. the eating and drinking team, memory services team and mental health team. Links were also developed with the community continence, chronic pain, tissue viability, heart failure and diabetes services. This is represented diagrammatically as the Care Jigsaw in Figure 2.

To ensure that they maintained best practice and as part of the quality assurance system, the pharmacists also participated in regular local and national peer review meetings.

### Patient experience

With the support of the CCG's communications team, an animation (Doris) was developed to highlight the medicines issues in care homes (Figure 3). This animation was used throughout the project to demonstrate the impact that holistic patient-centred medication reviews could have in practice.

To see the public version of Doris go to:

<http://www.leedswestccg.nhs.uk/news/leeds-care-home-patients-benefit-medication-review-service/>

## The Care Jigsaw

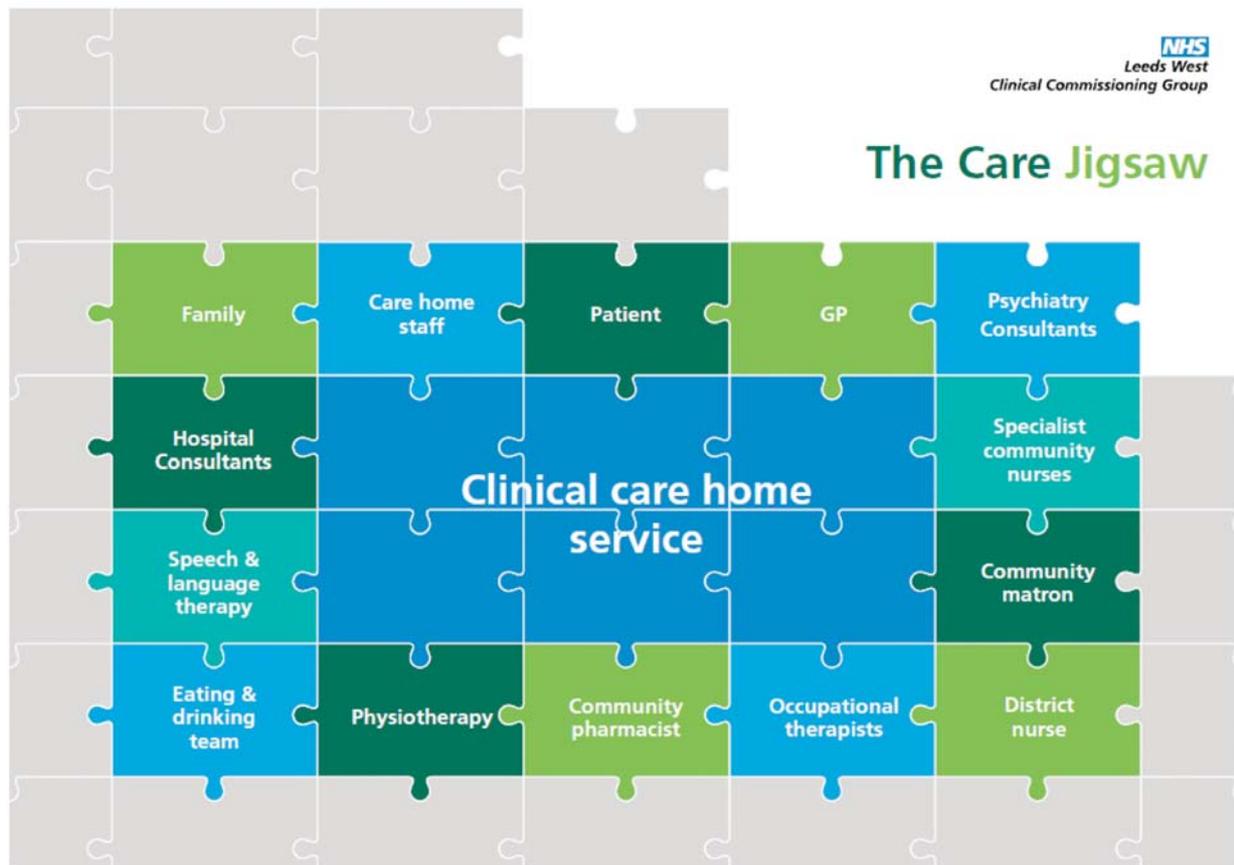


Figure 2: The Care Jigsaw

### Outcomes

The following outcomes relate to a period of 21 months, at which time a total of 1,102 patient reviews had been conducted.

#### Recommendations made

- 2,499 recommendations were made to GPs and 93% of these were accepted
- 1,398 tests and observations were carried out
- 28% of residents required a follow-up medication review. In the first year, 15% of dementia patients treated with anticholinesterases were lost to follow-up and needed to be reconnected with the service. This increased to 30% in the subsequent period due to a significant decrease in memory nurses.

### Medication changes

The following changes to medication were made:

- 25% of residents started on calcium and vitamin D
- 40% of residents required a change to their inhaler or an additional aid
- 45% of proton pump inhibitors (PPIs) were stopped or doses reduced
- 14% of residents were started on a PPI
- 40% of sedative drugs were stopped or doses reduced
- 23% of antipsychotic drugs were stopped or doses reduced
- 50% of oral nutritional supplements (ONS) were stopped or reduced.

#### Clinical considerations during medication review

The key issues that need to be considered at the time of medication review were identified for medicines in the following categories:

- calcium and vitamin D
- cardiovascular
- respiratory
- diabetes
- opioids
- benzodiazepines and antipsychotics

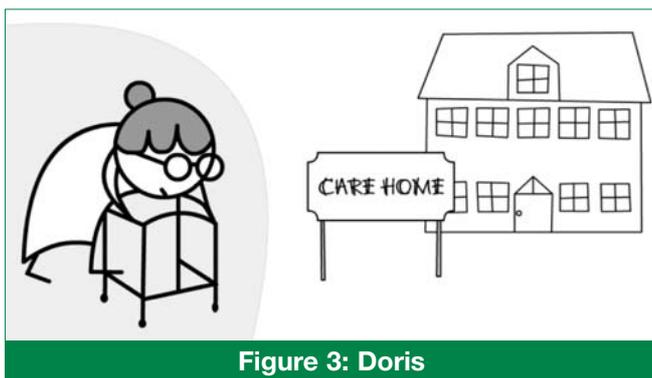


Figure 3: Doris

- anticholinergics
- anticholinesterase inhibitors
- proton pump inhibitors
- oral nutritional supplements

### Referrals

A total of 16% of residents required a referral. In the first year, 15% of dementia patients treated with anticholinesterases were lost to follow-up and needed to be reconnected with the service. This increased to 30% in the subsequent period due to a significant decrease in memory nurses.

### Patient safety

- 20% of patients had mismatched allergy records
- 125 medicine-related errors or near-miss events from GP practices, care homes and community pharmacies were reported into the local medicines risk team. Consistent documentation by the GP, community pharmacist and care home is an essential component of a safe system

GP practices and care home staff were provided with educational sessions aimed at enhancing patient safety.

### Costs

The net saving was £121k despite an additional £35k incurred in medicine costs.

An average net cost saving of £110 resulted resident review.

### Feedback

Some of the feedback we have received is shown in Figure 4.

## Case studies

Care home staff approached the pharmacist about a 90 year old lady prescribed donepezil who had been getting increasingly agitated and calling out to staff from her room. Staff were asking for lorazepam to be started. The pharmacist spoke to her daughter and considered that her agitation was possibly due to her husband passing away and a change in environment. Staff were asked to spend some additional time with her and a radio was turned on when she was on her own. BPSD (Behavioural and Psychochological Symptoms of Dementia) do not always require antipsychotics and hypnotics that have been associated with increased mortality.

An 82 year old lady was diagnosed, in hospital, with a fast heart beat that was being treated with digoxin. On review at the care home, the pharmacist advised that a digoxin level should be taken because of a concern that the dose prescribed may be too high for the patient in light of their other medical conditions. A blood test was taken and the digoxin level was found to be significantly high. The dose was reduced by the pharmacist. If a dose change had not been made, the patient might have needed to be readmitted to hospital.

## Discussion

The current service has resulted in new partnerships, workstreams and changes to the commissioning of services to care homes. The current service focused on improving the quality and safety of patient care but it also reduced prescribing costs by an average of £110 per annual review by ensuring that:

- medicines prescribed are clinically indicated with optimal dosing



- medicines (and diseases) are appropriately monitored to ensure they are effective and not causing harm including avoidance of falls and falls-related injury
- preventative medicine is increasingly used where appropriate
- formulations and timing schedules are acceptable to residents and carers
- medicines are ordered in appropriate quantities each month to minimise waste
- the medicines used offer the best value for money.

The project has been cost neutral in terms of spend when staffing costs are taken into account to provide the service. This project used a non targeted approach.

## The future for the CHAMois project

Permanent posts were advertised and successfully filled in April 2015. From August 2015, the team will expand its work in line with the guidelines for medication review outlined in the British Geriatric Society (BGS) 'Commissioning Guidance'<sup>22</sup> and 'Fit for Frailty' publications.<sup>23,24</sup>

Medication reviews will be carried out for patients new to care homes, post discharge and annually, with targeted 6 months reviews as part of a multidisciplinary team including a consultant geriatrician, GPs, physiotherapists and occupational therapists. Links will be established with work that will be undertaken on 'winter pressure' and 'admission avoidance' plans. Residents and family members will also be more involved in reviews to embed patient-centred care even further. Different mechanisms to facilitate this, including pharmacist led medicine surgeries in the care home, pre-review questionnaires and communications such as posters and leaflets to increase awareness and knowledge of the service to families will be explored.

Further prescribing guidance will be produced for:

- calcium and vitamin D
- opiate patches
- COPD rescue pack

and care pathways/processes will be reviewed for:

- pain
- diabetes monitoring service
- GP processes (e.g. GP record keeping, prescribing systems, GP admission avoidance plans in the over 75s).

Following the launch of the NICE guidance on managing medicines in care homes,<sup>3</sup> the team is working alongside CCG managers and Local Authority commissioners to set quality standards for medicines in care homes to further develop the multi-disciplinary and multi-agency approach. Provision of education and training sessions will be the foundation of new quality of care.

## Conclusion

The project has demonstrated an increase in the quality of care and the safety of medicines use for our care home residents through holistic, patient-centred medication reviews.

## Declaration of interests

Sally Bower: None

Helen Whiteside: Honorarium: Pharmacy Management Regional Roadshow (Gateshead), May 2015.

## Acknowledgments

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# Medicines Optimisation for patients with Treatment Resistant Schizophrenia: designing and implementing an automated clozapine prescription ordering system

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## Abstract

### Introduction

Clozapine is the only antipsychotic that is licensed for use in Treatment Resistant Schizophrenia. There are several practical issues with regard to clozapine supply, namely that treatment is long term and repeat prescriptions are required every 6 months. In Devon, around 365 patients are prescribed clozapine. The previous supply process had a number of concerns that meant patient safety could be at risk. A process for transitioning to an automated system to reduce system error and improve patient safety was devised.

### Methods

The change to a fully automated electronic system was done in three steps:

- Requesting new prescriptions go direct to the mental health trust pharmacists allowing:
  - proactive management of the 'soon to expire' lists
  - a meaningful clinical screening using the electronic notes
  - checks for a valid medical review within the last 12 months
- Replacing the monthly manual expiry checks with a date-ordered filing system.
- Replacing the manual filing system with a more secure and efficient electronic system.

The team involved with the design and implementation of the new system consisted of two pharmacists, one technician and one member of the IT team.

### Results

The new automated system was successfully implemented resulting in a number of improvements. A safer system was created by having a clinical screen completed with access to patients' notes; serious errors were detected and corrected quickly. Fewer prescriptions go out of date and soon to expire prescriptions are known in advance. Time dedicated to clozapine increased due to clinical screening however time spent chasing prescriptions dramatically decreased. Time use was therefore most cost efficient and appropriate. Patients benefited from fewer prescribing errors, supply delays and more accurate recording.

### Conclusion

An automated system to ensure up to date and appropriate clozapine prescriptions was successfully designed and implemented. This has multiple system process benefits but also, more importantly, benefits to patient safety.

**Keywords:** clozapine, treatment resistant schizophrenia, medicines optimisation

## Background

Clozapine is the only antipsychotic that is licensed for use in Treatment Resistant Schizophrenia<sup>1</sup> (TRS) – defined as when at least two other antipsychotics have been tried at an adequate dose for an appropriate amount of time without a satisfactory response.

After clozapine's initial introduction onto the market in 1971 it was discovered that it could cause neutropenia and agranulocytosis - a sudden and potentially fatal decrease in white blood cells.

Agranulocytosis occurs in approximately 0.7% of patients treated with clozapine,<sup>1</sup> the majority of cases occurring within the first year. Clozapine was withdrawn and then subsequently reintroduced to the market in 1989 with a new UK licence that stipulates that the individual, responsible consultant and supplying pharmacist must all be registered with the manufacturer and the individual must undertake regular blood monitoring as outlined in Table 1. In Devon we are registered with the Clozaril Patient Monitoring System (CPMS).

Clozapine can cause a number of other serious side-effects that require careful monitoring in order to minimise their impact on the individual's quality of life (see Table 2).<sup>2</sup> Although agranulocytosis is now well detected and managed by regular blood tests, constipation and cardiac side effects can also result in death – clozapine induced gastrointestinal obstruction occurs in approximately 3 cases in 1,000<sup>3</sup> and myocarditis in between 0.7-1.2%.<sup>4</sup> Regular medical reviews are therefore warranted.

Despite the side-effect burden, clozapine remains the only antipsychotic with proven efficacy in TRS and, therefore, it has a unique and valuable role in its management.

There are several practical issues with regard to clozapine supply:

- Treatment is long term and repeat prescriptions are required every 6 months.
- Doses need to be titrated up slowly over a number of weeks to avoid complications from over-sedation and postural hypotension.
- If doses are missed for more than 48 hours, treatment needs to be re-titrated.
- Medical reviews with a doctor must happen at least once a year (this is a Trust standard).
- Clozapine cannot be released by the pharmacies without an in-date prescription and an in-date blood result showing that white blood cell levels are within range.

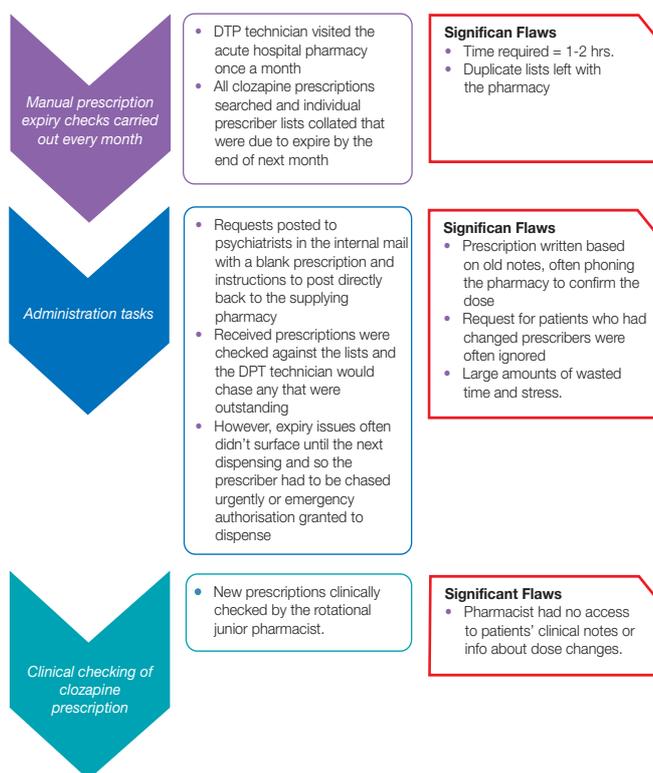
## Local Issues

In Devon (as in most of the UK), consultant psychiatrists are responsible for the repeat prescriptions and the pharmacies registered for clozapine supply are based in acute NHS Hospital Trusts (four locally). At Devon Partnership NHS Trust (DPT) there are over 365 clozapine patients (from a population of 850,000):

- 168 patients in Exeter, East and Mid Devon
- 107 patients in South Devon
- 23 patients in West Devon
- 67 patients in North Devon

## The historical supply pathway

Prior to the Medicines Management (MM) team's intervention, the supply pathway in Exeter, East and Mid Devon was as follows:



Time after starting clozapine	Full blood count monitoring frequency
First 18 weeks	Weekly
Week 19 – 52	Fortnightly
Week 52 onward (while maintained on clozapine)	4 weekly

**Table 1. Blood monitoring requirements with clozapine**

Frequency (% of patients treated)	Side-effect
Very common (>10%)	Drowsiness, tachycardia, constipation, hypersalivation
Common (<10%, >1%)	Weight gain, blurred vision, tremor, hypertension, postural hypotension, nausea
Uncommon (<1%, >0.1%)	Agranulocytosis
Rare (<0.1%, >0.01%)	Diabetes mellitus, myocarditis, blood clots
Very rare (<0.01%)	Thrombocytopenia, cardiomyopathy, cardiac arrest, obsessive compulsive symptoms

**Table 2. Potential side-effects of clozapine (not exhaustive)**

## Ongoing safety concerns

Clearly this pathway had a number of flaws that resulted in both wasted time and safety concerns, namely:

- As new prescriptions were returned directly to the pharmacy, the DPT MM team were unaware of what had been received and were unable to proactively chase outstanding prescription requests.
- As all prescriptions were physically located at the acute Trust, the mental health team (pharmacists and consultants) had no access to the information contained on them after posting.
- The pharmacists' clinical check of new prescriptions was not fit for purpose due to lack of access to the patients' clinical notes, meaning that the pharmacist was unaware of any recent clinically significant changes including new medications, side-effects, blood assay results or smoking habits.
- The supply of the prescription was not connected to the annual medical review and, therefore, many requests for dose changes were received outside of the prescription renewal system and many people did not receive a regular annual review as there was no prompt for psychiatrists to carry them out.
- Potential delays or interruption in supply could result in missed doses and subsequently a destabilising of the patients' mental health. This could result in patients requiring re-titration onto clozapine and possible admission to an inpatient ward

## Aim

The DPT Medicines Management team wanted to improve the efficiency and governance of the system by introducing automated systems where possible and ensuring that staff had access to appropriate information to enable them to carry out their roles proficiently. Additionally, and more importantly, the team wanted to avoid the potential harm and impact to patients of running out of clozapine and the impacts of this including loss of psychiatric control, possible need to re-titrate dose and, therefore, potential re-admission to inpatient wards. There was a high risk of patient care being compromised by inefficient systems.

The specific aims for the project were to:

- reduce the number of prescriptions that expired prior to receipt of replacement prescription
- improve the quality of clinical screening
- ensure staff have access to the information they need to carry out their role proficiently including timely reminders for prescription rewrites and medical reviews.

## Method

It was recognised that the best way to achieve the necessary changes with the system would be via small, stepwise improvements at one site (Exeter, East and Mid Devon). The changes were therefore broken down into three distinct stages:

### Step 1

- Request prescriptions go direct to DPT pharmacists allowing:
  - proactive management of the 'soon to expire' lists
  - a meaningful clinical screening using the electronic notes
  - checks for a valid medical review within the last 12 months.

### Step 2

- Replace the monthly manual expiry checks with a date-ordered filing system that enables a more robust repeat prescription system.

### Step 3

- Replace manual filing system with a more secure and efficient electronic system.

The team involved with the design and implementation of the new system consisted of two pharmacists, one technician and one member of the IT team.

### Step One: Transferring responsibility for the clinical screen to the DPT pharmacists

The greatest concern with the original pathway was with the standard of the clinical screen. It was decided that a specialist DPT pharmacist with full access to the patients' electronic clinical notes must replace the junior acute Trust dispensary pharmacist. This would ensure all new prescriptions were checked against reports of changes in the person's mental state, reports of side-effects, interactions, smoking behaviour, assay results and any unexpected changes in doses. If the DPT pharmacist had any concerns they could document these in the person's electronic notes and contact the prescriber.

After clinically checking the prescription, the pharmacist would then deliver the prescription to the pharmacy, at the same time communicating any important information.

This step was successfully implemented with minimal disruption. Initially, some prescriptions continued to go directly to the acute Trust hospital but these quickly stopped. This change resulted in a large number of errors being addressed which previously would have been missed (see Figure 1). It was also noted by the DPT pharmacists that the number and severity of errors significantly decreased after 6 months (i.e. once all prescription had been through the new system).

Additionally, the checking pharmacist could now check via the electronic records when the last medical review was and could prompt the psychiatrist's secretaries to make appointments for those who hadn't had a review in the past 12 months.

- *Prescription written for a patient de-registered on CPMS*
- *Prescription written for 400mg nocte when dose should have been 250mg nocte*
- *Dose continued for a patient with an assay level of 0.07mmol/ml (range 0.35-0.5mmol/ml)*

**Figure 1: Examples of errors detected by the clinical screening of prescriptions**

## Step Two: Replacing the monthly manual prescription checks with a date ordered filing system

The next step was to develop a robust repeat prescription system that did not rely on physical visits to the acute Trust pharmacy. The initial iteration of this system involved a card-based system, which contained basic details such as name, dose and expiry date of the prescription (see Figure 2). The DPT technician updated the information on the cards after each clinical screening. Patients were filed according to the month their prescription renewal was due creating six sections: January/July, February/August, March/September, April/October, May/November and June/December.

As the card system was with the DPT team, it was possible to proactively chase prescriptions before they expired without needing to visit the acute Trust, thus saving time and improving efficiency.

Whilst this system had a number of advantages, there were still some drawbacks. For example, it was not easy to find a specific patients details without searching through all the patients.

Once we were confident that the card data was accurate it was transferred onto an Excel spreadsheet that could be hosted on the MM shared drive. This spreadsheet benefited from being fully searchable and accessible from any networked computer.

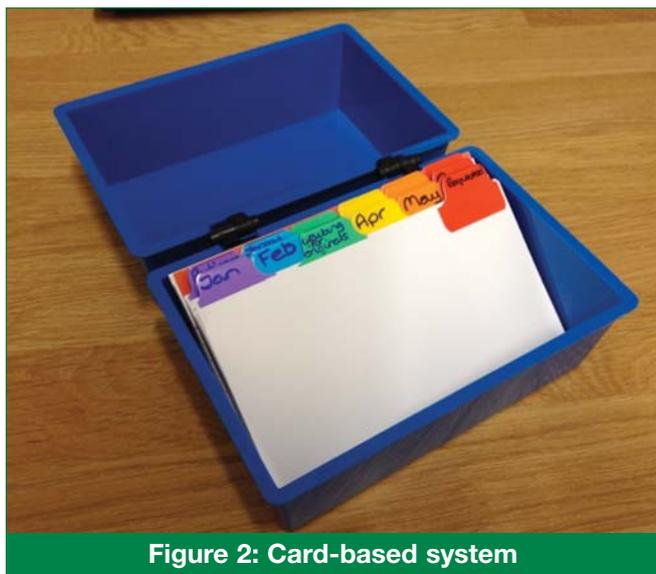


Figure 2: Card-based system

Whilst safety concerns for the ordering of clozapine prescriptions had now been addressed, the amount of time required to send the prescription requests and maintain the database was still an issue.

## Step Three: Replacing the spreadsheet with a more secure and efficient automated system

At this point, the DPT performance team became involved and we progressed from a spreadsheet to the Trust's SharePoint database hosted on the Trust's 'Orbit' site – a cloud-based data-hosting site. The 'live' system runs by automatically counting down to when a prescription is due to expire. When a prescription is within four weeks of expiry, the system automatically sends an email to the consultant and their secretary with the patient's details requesting a new prescription. The consultant then completes a prescription,

uploads a copy to the patient's electronic notes and emails a specific clozapine email address verifying its completion.

The DPT pharmacist completes the clinical screening using the patient's notes resolving any issues directly with the consultant. They document the process in the patient's notes, print out the prescription, sign to confirm the clinical check and deliver it to the acute Trust pharmacy. Finally, the pharmacist updates the database with the new expiry date of the prescription (along with any additional information found whilst screening), resetting the countdown in the process. The process is repeated every six months or after a dose change.

If the expiry date has not been updated within seven days of prescription expiry, the system will automatically send daily reminders to the consultant, copying in the Medicines Management team. Through this process the MM team are informed of all soon to expire prescriptions and proactively chase them before they expire.

A screenshot of the 'Clozapine Register' is provided in Figure 3. The system contained the same data fields as the Excel spreadsheet but also extra space for recording when medical reviews have been conducted, results of clozapine assay tests and a free-text comments box.



Figure 3: The 'Clozapine Register'

## Practical improvements

### First wave

Monthly prescription requests were generated automatically, with daily reminders if necessary.

Consultants, pharmacists and clozapine clinic nurses can all access the register and read/write access levels can be set to maintain integrity. A full history of all edits to data provides firm governance and audit reassurance.

The new system enabled the introduction of a new electronic clozapine prescription that could be uploaded onto patients' electronic clinical notes. This significantly reduced time delays from postage as well as reducing paper waste and ensuring that everyone involved in the individual's care could see the most up to date prescription.

### Second wave

The medical review date was added to the reminder letters to give the prescribers advanced warning of when a new medical review was required. This reduced the screening pharmacists' workload as without this intervention they would screen the new prescription but short-date the expiry of the prescription to one

month to provide opportunity for the medical review. Although this process ensured that there was an in-date prescription and an annual medical review it did mean that two clinical screenings took place so the advanced notice to the prescribers helped to reduce this occurrence.

We were aware of incidents where the GPs were not aware that their patients were prescribed clozapine as it was not listed on the GP's prescribing screen. We therefore designed a standard letter to advise all GPs to add a note on their prescribing screen for each patient and recorded the delivery of this letter on the database. Checking this had been done has become a standard part of the pharmacists' clinical check. This is a further patient safety feature to prevent potential missed doses on admission to hospital and avoid the risk of inadvertently prescribing interacting medicines.

## The practical benefits of the new system

- **Safer.** Having a clinical screen carried out by a pharmacist with access to patient's notes results in serious errors detected and corrected quickly.
- **Fewer out of date prescriptions.** Importantly, expired or soon to expire prescriptions are known to the team in advance. Previously, the Mental Health team were only made aware at the time of dispensing.
- **More efficient input from Mental Health Team.** While time dedicated to clozapine has increased due to clinical screening, the time spent chasing prescriptions and searching paper records has dramatically decreased. Time used is, therefore, more cost-efficient and appropriate.

## Patient focused benefits of the new system

- **Safer.** Clozapine use is safer; reported side effects are now proactively chased with the consultant by the screening pharmacist. Changes in smoking habit that have not been followed up can be flagged and assay results can be used to recommend dose increases or decreases. All of these benefits have resulted in a reduced number and impact of side effects, therefore improving quality of life.
- **Reliable supply chain.** Avoiding supply problems has meant that patients are spared having to make multiple journeys to collect their medication. This also reduces the risk of missing doses and the potential knock-on effects on mental state and possible re-titration.
- **Error prevention.** Actively detecting and rectifying dose change errors before they are supplied prevents patients being accidentally under-dosed and the potential of symptom control problems or overdose and associated additional side effects.
- **Accurate recording.** GPs accurately recording the use of clozapine on their systems will reduce the risk of prescribing interacting medicines and also reduce the risk of clozapine being missed on admission to hospitals.

## Problems created

- **Doctors.** Whilst not a new problem, prescribers getting used to new systems of working initially created a few problems including continuing to post prescriptions to the wrong acute hospital, not uploading prescriptions correctly and electronic signatures.
- **Electronic systems.** General issues around the database including associated IT issues and lack of IT skills of prescribers.
- **More clinical screening.** The creation of an additional 168 prescriptions to clinically check every six months results in additional time and, therefore, cost pressures. The workload is currently spread between three pharmacists.

## The Future

Going forwards, there are minor improvements that could be done to further advance the system:

- Minimising pharmacist input into the system to just the clinical screening and dealing with clinical queries will improve the cost effectiveness of the system.
- Community mental health teams and prescribers should be able to take ownership of parts of the system and update data for their individual patients. This had already begun to some extent with the specialist clozapine nurse now responsible for the uploading of blood assay results onto the system and contacting prescribers with any issues.
- Electronic transmission of the prescriptions through to the pharmacies would be advantageous so that the final printing out stage after the screening could be avoided. This would enable one Devon-wide screening service.
- Seamless data transfer between the Trust's electronic patients notes and the database is a current aspiration. Although not possible with our current system, the Trust is introducing a new system this summer and we hope to be able to progress with this.
- Once the above point has been achieved we would like to investigate how we can pull through physical health monitoring data into the database, not only from within DPT but from Primary Care. This may be possible in the short term using hand held 'Wellbeing Passports' that we have recently developed.

The feedback from the consultants has been excellent. At first they were not enthusiastic about the automated electronic nagging but within the one prescription cycle (6 months) they began to understand the benefits and we have had regular comments such as "I have no idea how we ever managed to keep up to date in the past". It has also saved individual mental health community teams time as many of them had developed their own databases in an attempt to manage the workload but struggled to keep these up to date.

## Conclusion

In conclusion, an automated system to ensure up to date and appropriate clozapine prescriptions was successfully designed and implemented. This has multiple system process benefits but also, more importantly, benefits to patient safety. The system is now running in the Exeter, East, Mid, South and West Devon areas and, currently, we are in the process of setting this up in North Devon. The aim is to soon roll this out to include the local forensic unit to ultimately include all patients prescribed clozapine in the county.

## Declaration of interests

None

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# Medicines Optimisation in Cardiovascular Disease. We are not there yet!

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## Abstract

### Introduction

Despite improvements in healthcare, cardiovascular disease is still responsible for significant mortality and morbidity. Data from the Quality and Outcomes Framework indicates there is a substantial opportunity to improve medicines use in patients with CVD to deliver better patient outcomes.

### Methods

Improving medicines use requires a multifactorial approach from the development and implementation of local guidelines to the management of individual patients.

### Results

Data is submitted for a total of 1,079 patients at baseline (Apr–Sept 2013) and after the intervention period (March 2014). Of these, 281/1079 (26%) patients did not respond to repeated invitations for a BP review from the practices. Of the remaining 798 patients, the average baseline sBP was 170.8mmHg (range 122 to 229mmHg; median 169mmHg) and dBP was 94.8mmHg (52 to 144mmHg; median 98mmHg).

BP reductions were achieved across the cohort of 798 patients who the practices were able to engage for BP review resulting in achievement of key BP targets in a significant proportion. 688 patients had a sBP $\geq$ 160mmHg at baseline with an average reduction in sBP of 26.9mmHg. The resultant average blood pressure across the cohort at the end of the project was sBP was 152mmHg (range 100mmHg to 223mmHg; median 150mmHg) and dBP was 84mmHg (range 39mmHg to 139mmHg; median 86mmHg).

### Conclusion

Successful examples of how pharmacists can contribute to better patient care through supporting medicines optimisation are presented, including the direct management of a complex patient cohort by independent pharmacist prescribers and the use of a virtual clinic model to improve the practice of other healthcare professionals, such as GPs and practice nurses.

**Keywords:** medicines optimisation, cardiovascular, hypertension, prescribing, adherence

## Background

Despite improvements in the management of cardiovascular disease (CVD) over the past two decades and a resulting reduction in overall mortality, CVD remains the most common cause of premature mortality (death below the age of 75 years) in the UK, with coronary heart disease alone accounting for more than 46,000 premature deaths per annum.<sup>1</sup> In terms of medicines, one in every three primary care prescriptions issued in the UK is for a cardiovascular (CV) drug, costing the NHS £1.2billion per year.<sup>2</sup> Evidence suggests that up to half of these CV drugs are never taken as prescribed.<sup>3</sup> Strategies to improve adherence to drug therapies would have a bigger impact on outcomes than any new medical advance.<sup>4</sup>

## The Current Situation

Data from the Quality and Outcomes Framework (QOF) 2014 indicates that there are still substantial opportunities to improve the use of medicines for patients with CVD:

- Hypertension: Nationally there are over 1.6 million people with known hypertension not achieving a blood pressure (BP)  $\leq$  150/90mmHg, the QOF audit standard, and over 3.4 million people with known hypertension not achieving a BP  $\leq$  140/90mmHg, the clinical BP target. High blood pressure comes second only to tobacco usage as the lead risk factor causing death in high income countries and, as such, managing high BP should be a priority for the NHS.<sup>5</sup>
- Heart Failure: Heart failure (HF) is associated with significant morbidity and mortality and is one of the most

common reasons for emergency hospital admission (second only to COPD in most Clinical Commissioning Groups (CCGs)). Robust evidence demonstrate that the use of ACE inhibitors (ACEI) or angiotensin receptor blockers (ARB) and beta-blockers in heart failure due to left ventricular dysfunction reduces the risk of death by up to 63%, with an associated reduction in HF hospitalisations. Despite this, only 23% of patients on the HF registers in the UK are on an ACEI or ARB, and only 15% on an ACEI or ARB and a beta-blocker (QOF 2014).<sup>5</sup>

- Atrial Fibrillation: AF related strokes represent a significant burden to patients, their carers and the NHS. New NICE guidance has emphasised the importance of undertaking stroke risk assessment and the initiation of anticoagulant therapies to reduce this burden. Currently in England there are over 150,000 patients with AF and known to be at high risk of stroke who are not anticoagulated. Treating this cohort with anticoagulation could prevent up to 6,000 strokes per annum.<sup>5</sup>

The data clearly shows there are many opportunities to improve medicines use and outcomes for patients with CVD. Pharmacy should play a key role in delivering this medicines optimisation challenge. There is no single method to address the unmet need highlighted above, and a multifactorial approach will be required to address clinical issues and patient factors, from ensuring the implementation of up to date guidance across primary and secondary care and education of health care professionals to supporting GPs and practice nurses in managing individual patients, or running clinics as a pharmacist prescriber (Table 1).

## Pharmacist Prescribers

Locally, I have been involved in supporting GP practices in a number of ways. Recruited to work in primary care as a cardiac specialist pharmacist to support improvements in blood pressure management, I initially ran my own hypertension clinics in individual GP practices that were identified as failing to achieve the QOF targets, then went on to supervise others seeking to extend their role as pharmacist prescribers in this setting. This evolved into a South London wide project drawing together the activities of seven pharmacist prescribers running hypertension clinics to assess the outcomes of their work. The project, focussing on managing patients with poorly controlled hypertension, demonstrated a significant improvement in blood pressure control over the course of a six month period, with

79% of the patients managed achieving the QOF audit standard of a BP  $\leq$  150/90mmHg and 56% of patients achieving the clinical BP target of  $\leq$  140/90mmHg.<sup>6</sup> As a result of the project, two boroughs have now commissioned a pharmacist-led community based hypertension service, to which all practices have the opportunity to refer difficult to manage patients. This service focuses on managing patients with adherence issues and those with multiple drug intolerances.

## Virtual Clinics

Despite this work, there remained a large cohort of patients with high blood pressure – for example, in Lambeth CCG there were over 8,000 people on the hypertension register with BP  $\geq$  150/90mmHg at the end of 2013. This was addressed by the CCG Medicines Optimisation team, which developed a quality improvement scheme, aiming to improve the management of hypertension by focusing on a high risk cohort with documented sBP  $\geq$  160mmHg and/or diastolic BP (dBP)  $\geq$  100mmHg recognising that:

- QOF targets are unattainable in a proportion of patients
- Patients at greatest risk of cardiovascular (CV) events are those with the highest BP - lowering BP in this cohort, regardless of whether specific BP targets are achieved, will reduce the risk of CV events.

A multifactorial approach was adopted to support practices, including standardised searches to identify target cohort, provision of local management guidance, in-practice specialist support in the form of virtual clinic review of a proportion of patients and provision of pharmacist-led locality-based hypertension clinics for patients with difficult to manage hypertension (Figure 1).

The project was implemented across 37 practices with data submitted for a total of 1,079 patients at baseline (Apr–Sept 2013) and after the intervention period (March 2014). Of these, 281/1079 (26%) patients did not respond to repeated invitations for a BP review from the practices. Of the remaining 798 patients, the average baseline sBP was 170.8mmHg (range 122 to 229mmHg; median 169mmHg) and dBP was 94.8mmHg (52 to 144mmHg; median 98mmHg).<sup>7</sup>

BP reductions were achieved across the cohort of 798 patients who the practices were able to engage for BP review resulting in achievement of key BP targets in a significant proportion. 688 patients had a sBP  $\geq$  160mmHg at baseline with an average reduction in sBP of 26.9mmHg. The resultant average blood

Clinical issues	Patient factors
Lack of patient follow up	Lack of engagement with healthcare systems
Clinical inertia (failure to act)	Non-adherence or poor adherence
Poor knowledge and awareness of guidelines	Poor understanding of disease and/or drug benefits
Lacks of understanding of outcomes of drug therapies	Lifestyle factors
Workload and capacity	Health beliefs

**Table 1: Examples of issues affecting medicines optimisation in CVD**

pressure across the cohort at the end of the project was sBP was 152mmHg (range 100mmHg to 223mmHg; median 150mmHg) and dBP was 84mmHg (range 39mmHg to 139mmHg; median 86mmHg).<sup>7</sup>

This virtual clinics model has previously been successfully used to review heart failure management across a number of CCGs and is currently being applied to address the under-utilisation of anticoagulation in patients with AF at risk of stroke.

## Conclusion

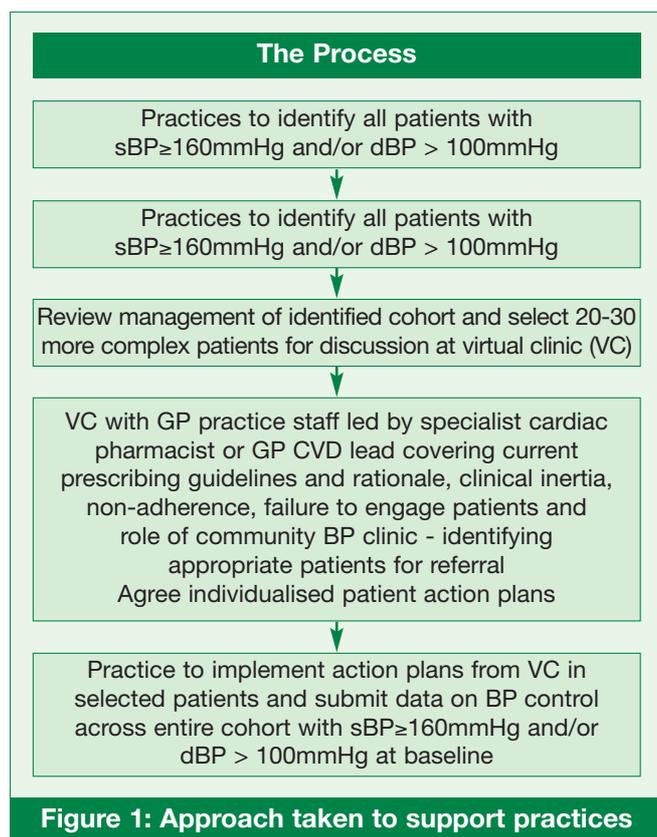
There is a clear need to address medicines optimisation in cardiovascular disease in order to improve patient outcomes. Evidence of sub-optimal use is available across all elements of CV care, with a large number of patients with hypertension requiring better therapy, sub-optimal use of evidence based therapies in heart failure and failure to optimise anticoagulation in people with AF at risk of stroke. There is no doubt that better medicines use would deliver significant savings the NHS, not least in terms of reduced costs associated with acute CV events. Pharmacy has the opportunity to play a pivotal role in delivering against this medicines optimisation challenge. There is an opportunity to deliver better care to patients through the use of innovative models, including embedding pharmacist prescribers in clinical practice across primary and secondary care or the use of the virtual clinic model to bring specialist pharmacist support into GP practices.

## Declaration of interests

Honoraria: Pharmacy Management Regional Roadshow (Manchester), May 2015. Personal fees from Boehringer Ingelheim, Bayer, BMS/Pfizer, Daiichi Sankyo, Servier, outside the submitted work.

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**Figure 1: Approach taken to support practices**

