

The improving prescribing for the elderly (ImPE) project

Funded by the NIHR CLAHRC for North West London

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Background

Adverse drug reactions (ADRs) are common in the elderly. They are prescribed large numbers of medications with the associated increased risks due to multiple comorbidities, reduced physiological reserves, and altered drug handling. Common ADRs are falls, sedation, and cognitive impairment, which links the topic to major national agenda items such as falls prevention, depression, and dementia. ADRs create health needs in primary and secondary care; for example, about 35% of hospital admissions involving older people are due to inappropriate prescribing, and in a third of these cases ADRs are responsible for presentation, making ADRs one of the most common problems in acute medicine.

Adverse drug reactions have a major impact on both the NHS and the health of the population, accounting for 6% of all hospital admissions, 4 in 100 hospital bed days, and costs of up to £466 million a year.¹⁻³ There is also a significant impact on the care home sector. A report by the chief pharmaceutical officer included in detail the particular types of errors which can occur in the care home setting,⁴ including a lack of review of therapy. The care homes' use of medicines study found that patients were on a mean of 7.2 medicines, therefore demonstrating considerable polypharmacy. In addition, 69.5% of patients had at least one medication error.⁵

The ageing population in the United Kingdom is steadily growing, with the associated increased use of prescription medications. By 2034, 23% of the population is projected to be aged 65 and over.⁶ There has been a steady rise in the use of prescription drugs in the over 60s age group in England since 1997; the overall number of prescriptions dispensed during this period rose by nearly 60%. In England, 796 million prescribed items were dispensed in 2007, while 500 million items were dispensed in 1997.⁷

Project key aims

- To develop a medication review tool, based on the evidence based “STOPP” (screening tool of older persons' potentially inappropriate prescriptions⁸), for routine use with elderly patients across all sectors of care.

- To pilot the use of this new medication review tool to reduce inappropriate prescribing in the elderly.
- To provide patients with better information about their medicines.

Creating the tool

The medication review tool that was created was based on the evidence based STOPP tool. This is a validated research instrument developed to identify and discontinue potentially inappropriate medications (PIMs) in older patients. There has been little work to translate this methodology (65 criteria) into practice to be of practical use in the time pressured high turnover environment of acute hospital care.

In order to create a user friendly medication review form, this extensive list would need to be narrowed by achieving consensus on what is commonly seen in practice. This would be accomplished by conducting a Delphi exercise. We sent out three rounds of questionnaires to healthcare staff to find out what they thought were the most common ADRs seen on presentation and what were the most inappropriately prescribed medications in older people. Each questionnaire round was designed by iterating the results from the previous round before redistributing the questionnaire to the relevant staff members. Of the participants who took part in the survey, 98% agreed that falls/postural hypotension/impaired balance/dizziness/postural instability, constipation, bleeding, confusion/sedation, and dehydration/renal impairment are the most common presenting ADRs seen in the elderly. All participants agreed that diuretics, antihypertensives, benzodiazepines >1 month, and opiate analgesics (for example, morphine, warfarin, and non-steroidal anti-inflammatory drugs) are the main classes of potentially inappropriate drugs in relation to the top five groups of ADRs. Similar culprit drugs and ADRs have been seen elsewhere.

This consensus has been used in the development of a medication review form (figure 1). This work was extended in order to obtain the views of professionals across North West London.

Figure 1: ImPE medication review tool



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Imperial College Healthcare NHS Trust
Central London Community Healthcare NHS Trust

MEDICATION REVIEW FOR THE ELDERLY (ImPE) Please complete for all patients over 70 years old and ensure drug history confirmed by pharmacy (<i>where appropriate</i>)		
Date	Patient Label	Patient location <input type="radio"/> AMU (HH/CXH/SMH) <input type="radio"/> Falls Clinic (HH/CXH/SMH) <input type="radio"/> Care UK <input type="radio"/> GP
Presentation		<i>Fall, SOB, chest pain etc</i>
How many medicines was the patient taking regularly prior to presentation? <i>Include all regular and as required ("prn") oral medicines. Exclude topical and herbal medicines</i>		
MEDICATION REVIEW		
Does the patient have any of these clinically significant Adverse Drug Reactions (ADR's)? <i>Please tick all that apply</i>	<input type="radio"/> Falls including postural hypotension, impaired balance, dizziness	<i>Consider stopping any fall related drugs(s) (see list overleaf)</i>
	<input type="radio"/> Bleeding	<i>Consider stopping warfarin, NSAIDs</i>
	<input type="radio"/> Confusion/sedation	<i>Consider stopping any psychoactive drug(s) (see list overleaf)</i>
	<input type="radio"/> Metabolic disturbance such as dehydration, renal impairment, electrolyte disturbance	<i>Consider stopping diuretics, antidepressants, antihypertensives (see list overleaf)</i>
	<input type="radio"/> Constipation	<i>Consider stopping opiate analgesics (see list overleaf)</i>
	<input type="radio"/> Other (please specify):	
Is the patient on one or more of the following potentially inappropriate drugs? <i>Please tick all that apply</i>	<input type="radio"/> Diuretics	<i>Can cause falls and metabolic disturbances. Consider indication</i>
	<input type="radio"/> Anti-hypertensives	<i>Can cause falls, metabolic disturbances (some) and constipation (some). Consider need</i>
	<input type="radio"/> Benzodiazepines > 1 month, Hypnotics	<i>Can cause falls, confusion and sedation. Consider alternatives</i>
	<input type="radio"/> Opiate analgesics	<i>E.g. codeine, morphine, tramadol. Can cause falls, confusion, sedation and constipation. Consider alternatives</i>
	<input type="radio"/> Warfarin, NSAIDs, Antiplatelets	<i>Consider bleeding risk</i>
	<input type="radio"/> Other (please specify):	
ACTION FOLLOWING REVIEW		
Following review were any medicines stopped/ reduced?	<input type="radio"/> No What are the reasons for not stopping potentially inappropriate medications	<i>Possible reasons include 'benefit outweighs risk', 'patient preference', 'GP to review'</i>
<input type="radio"/> Yes, permanently. Please list all medicines permanently stopped	<input type="radio"/> Yes, temporarily. Please list all medicines temporarily stopped and for how long	<input type="radio"/> Dose reduction. Please list medicines dose reduced and for how long
Has this been documented in medical record and/or drug chart?	<input type="radio"/> Yes <input type="radio"/> No	
Has the patient/carer been given a medication passport?	<input type="radio"/> Yes <input type="radio"/> No	<i>Possible reasons for not giving may include 'patient already has one' or 'not appropriate'</i>
SIGNATURES		
Sign / Name / Status	Bleep / Extension	Consultant / Team

Introducing the intervention using quality improvement methodology

An action effect diagram (or modified driver diagram, shown in figure 2) was used to break down the primary aim into realistically achievable objectives. Process mapping (figure 3) was used to derive an overview of the complete process and determine points in the process where the intervention can potentially be introduced. Using the model for improvement and plan-do-study-act (PDSA) cycles, the various points of introducing the medication review were tested to determine at what point in the patient journey the intervention was best placed. Regular measurement of predefined outcomes was used to plot run charts with statistical process control to see what changes lead to improvement.

Results

To date, a medication review using the ImPE tool was initiated for 1368 patients (aged over 70 years) across Imperial College Healthcare NHS Trust (ICHT). The average age of the patient was found to be 83 years (59-100), and each patient was on an average of 8.4 medicines (2-15).

A total of 965 patients (70.5%) indicated at least one ADR. The types of ADRs seen were confusion (18.4%; n=252), falls (33%; n=451), constipation (7.2%; n=98), metabolic disturbances (30.3%; n=415), bleeding (6.3%; n=86), and “other” (8.8%; n=121).

A total of 1331 patients (97%) indicated at least one PIM. The types of PIMs seen were antihypertensives (69.1%; n=945), warfarin/non-steroidal anti-inflammatory drugs/platelets (38.4%; n=525), opiates (11%; n=21), diuretics (40.6%; n=555), benzodiazepines/hypnotics (16.2%; n=221), and “other” (33.1%; n=453). The “other” category predominantly included antidepressants, antipsychotics, proton pump inhibitors, and statins. A total of 2820 PIMs were seen, with an average of 2.1 PIMs per patient.

Of the 1368 completed medication reviews, 52% (n=714) lead to at least one change being made in the patient’s medication (either a permanent or temporary discontinuation or a dose reduction). There were no changes made in the remaining 48% of reviews; the overwhelming reason documented was that the benefit outweighed the risk.

Figure 2: Action effect diagram

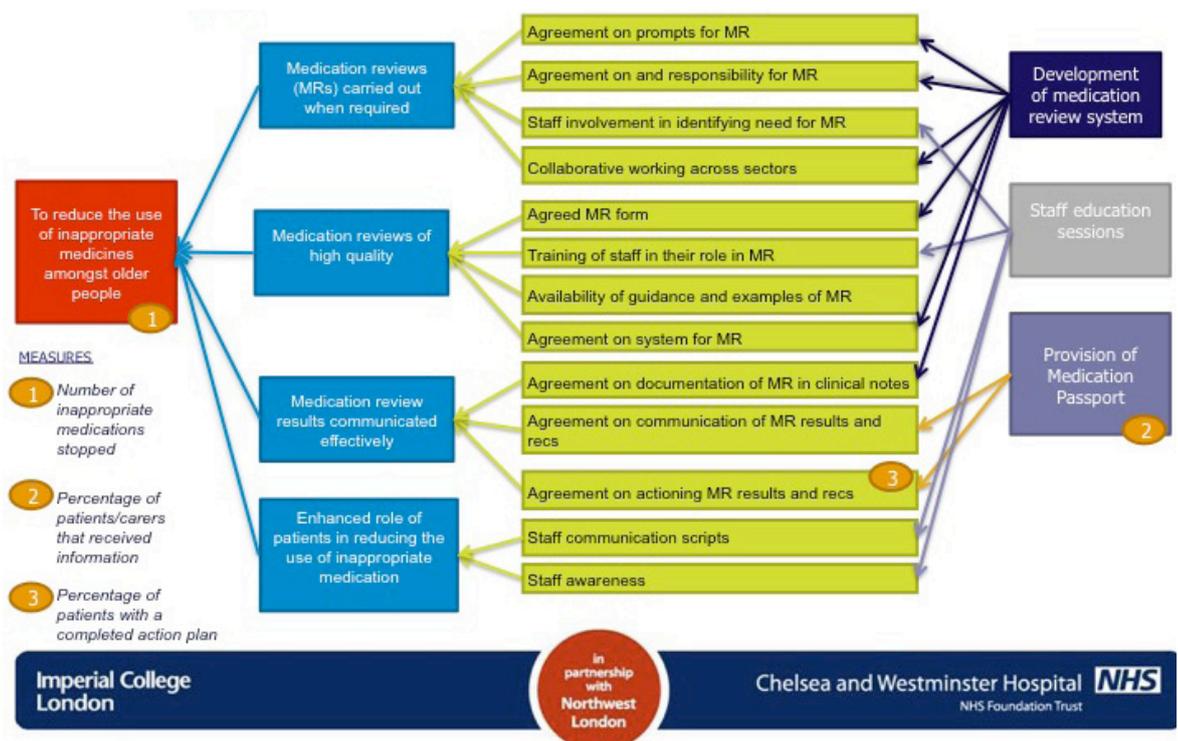
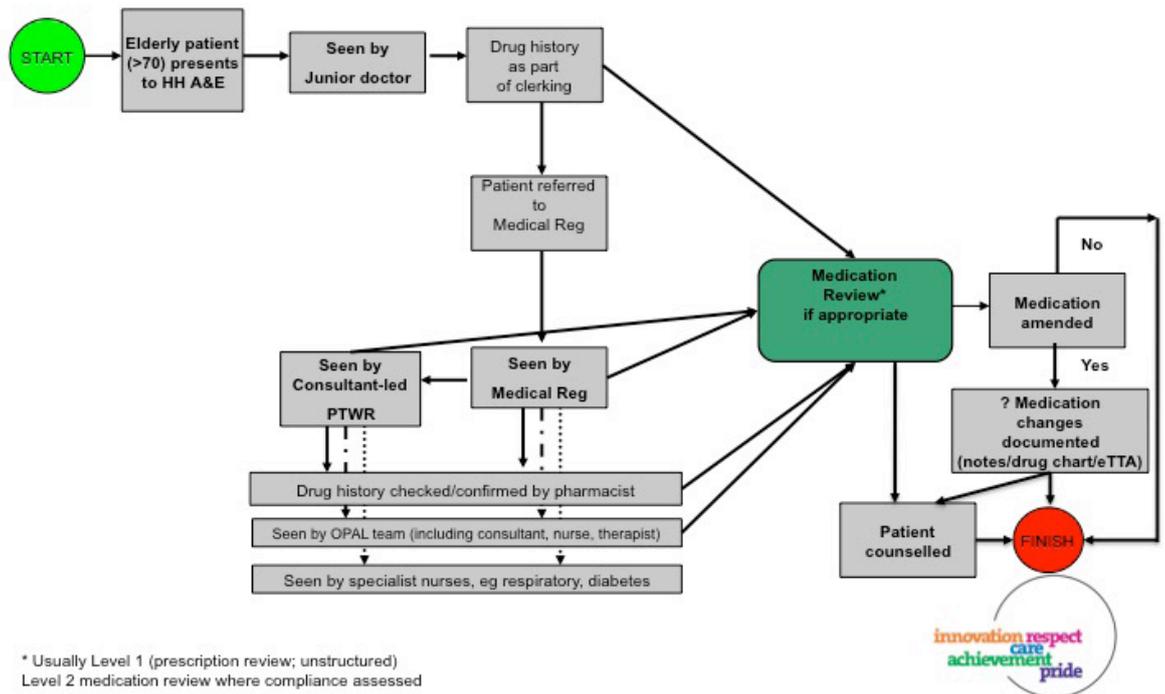


Figure 3: Process mapping



Sustainability

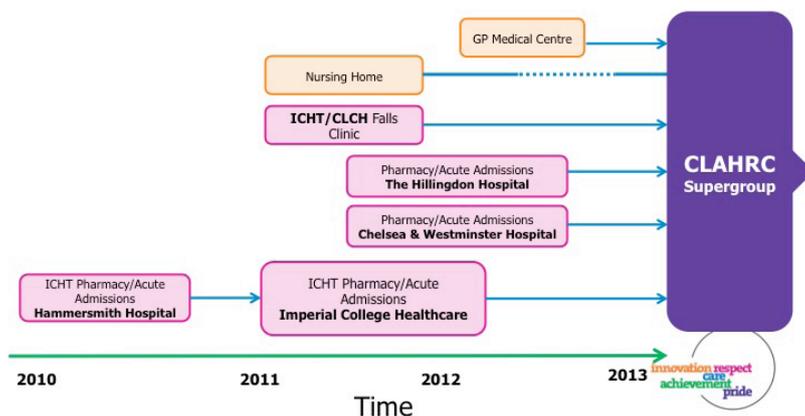
Sustainability of the system has been assessed at all critical stages of the project using the Institute for Healthcare Improvement sustainability tool. The sustainability tool was used every quarter by all project members with action plans. In addition, the core team had experience of creating sustainable solutions from service development projects. The issue of sustainability was considered at all project group meetings, during which small group work was used to produce sustainability action plans for all the domains of sustainability. The project is ongoing, suggesting a sustainable model of medication review with evidence of spread (figure 4).

Patient and public involvement (PPI)

Poor communication of medication changes across interfaces is a well recognised issue within the NHS. Whenever a patient transfers from one care setting to another there is a risk that information regarding their medicines will either not be transferred or will be inaccurately transferred. In addition, there are instances where a patient's care is being managed simultaneously by multiple healthcare professionals and medicines may be commenced or discontinued by any one of them. At all these transfer points and interfaces there is an obvious risk to the patient's safety in cases where prescription drug information is transferred incorrectly or not at all. In particular, there is a need to communicate any changes to medication as a result of the patient undergoing a medication review.

As part of the patient and public involvement (PPI) work stream of the project, the idea of a "medication passport" arose to enable better communication about medication use. The team employed a range of methods to ensure patient and public involvement, including a focus group, PPI leadership, stakeholder involvement, a reader group, the project team, and a final consultation.

Figure 4: Spread and sustainability



The result of this patient and public engagement has been the production of a medication passport in a format that is easy to understand for patients. The passport allows patients and carers to keep an up to date list of the patient's medications by recording the medicine name, dose, and timings for all their regular and as needed medicines. Other details pertinent to their health and/or specific medical condition such as allergies and sensitivities, dates of vaccinations and screenings, home treatments, and medication aids, as well as hospital information, can also be stored. Of use at any point in the patient's care, in the community or hospital setting, My Medication Passport provides the user with easy to retrieve key information that can be communicated to healthcare professionals, thus saving time for both parties and ensuring the accurate transfer of information.

National interest has resulted in the passport being launched across North West London in the form of a booklet as well as a smartphone application (available on iPhone and Android devices). The booklet and electronic passports are supported by an ongoing evaluation programme which focuses on the use of the passport in practice and the impact it has on patients and healthcare professionals.

Fran Husson, patient representative with the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care (NIHR CLAHRC) for North West London, has said: "Patient and public involvement informs all CLAHRC activities and projects to improve health care using innovative methods. It is therefore not surprising that a group of patients working very closely with frontline medical staff on quality improvement projects developed My Medication Passport, which brings a new dimension to care by empowering the patient to understand and manage medications across different care settings."

Conclusions

- More than 1600 ICHT patients over 70 years of age across North West London have had medication reviews undertaken using the ImPE tool.
- On average across community and acute sites, 52% of those patients reviewed had changes to their medication, with a number of these changes including medicines being discontinued or doses reduced.
- Work is currently being undertaken to ensure the sustainability of the review process.
- Future work involves exploring outcomes such as a reduction in hospital admissions and GP attendances, disseminating work in a wider area across North West London (and the North West London integrated care pilot), and identifying potential cost savings of stopping drugs.
- My Medication Passport has been launched across North West London, with a large scale evaluation planned along with a potential rollout across the NHS as a whole.

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