

ROME PAD (Review Of Medicines for Elderly Patients After Discharge): A pilot study in domiciliary and care home settings

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Abstract

Title

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Introduction

There is a need to improve the follow-up of medicines-related care in high-risk older people post-discharge. The extent to which this can be done by holistic, patient-centred, clinical medication reviews post-discharge has been assessed in a pilot study. The benefits in terms of patient experience, medicines rationalisation, reduction in emergency department attendances and re-admissions to hospital have been identified.

Method

Hospital-based clinical pharmacists identified older people who were at high risk of medicines-related problems post-discharge. A Consultant Pharmacist conducted 36 clinical medication reviews in domiciliary settings (26 patients) and care home settings (10 patients) using a patient-centred and holistic approach involving multi-disciplinary and multi-agency working.

Results

The quality of care and patient safety was improved. On average, 2.5 medications were stopped, 0.4 medicines were started and 5 pharmacist contributions to patient care were made for every patient reviewed. GP acceptance of recommendations was good and 92% of recommendations were actioned. Although numbers are small, data for 28 patients followed up for 6 months post-review showed a trend towards reduced emergency department attendances and hospital re-admissions and a neutral effect on GP contacts. Patient experience feedback was good. The focus of the project was on improving quality of care and medicines safety but, nevertheless, a cost saving of £212 per patient, on medicines alone, was achieved.

Conclusion

The project demonstrated an increase in the quality of care and the safety of medicines use for high-risk older people post-discharge. The evidence obtained suggests that the provision of clinical medication reviews post-discharge should be further developed.

Keywords: medicines optimisation, polypharmacy, patient questionnaire, clinical medication review.

Introduction

Risks post-discharge

The risks that may occur when hospital inpatients are transferred to primary care and the risks for new residents in care homes have previously been reported.^{1,2}

A large study found that medicines were the cause of 6.5% of hospital admissions³ but this percentage may be higher in older people.⁴

Despite the improvement in timely, electronic transfer of

information over recent years and national guidance,⁵ transferring people between care settings continues to pose risks to patient safety, quality and continuity of care. A recent national audit report on medicines-related communication when patients move between care settings indicates that there is room for improvement in terms of the information provided about medicine changes supplied by hospitals and the pathways and processes to deal with discharge information in primary care.⁶

The audit, which was based on 1,454 patients prescribed over 10,000 medicines, showed the following:

- on average, each patient was taking 6.9 medicines
- allergy status was only fully documented in 76% of cases
- 79% of patients had at least one new medicine started but the reason for initiation was only stated in 50% of cases
- 27% of patients had at least one medicine stopped as an inpatient but the reason for stopping the medicine was only documented in 57% of cases
- 23% of patients had the dose of at least one medicine changed
- apparent unintentional omissions of pre-admission medicines were noted in 33% of patients
- intentional changes were not actioned on the GP system within 7 days of discharge for 13% of patients
- medicines reconciliation in primary care was mainly completed by the GP, Clinical Commissioning Group or practice pharmacist or the practice receptionist
- at least one change was incorrectly actioned in 6% of patients post-discharge.⁶

Previous work

Leeds Teaching Hospitals NHS Trust (LTHT) has reported on work to improve medicines information and support for older people at the time of discharge and post-discharge. This showed an improvement in the quality of care and medicines safety for patients and an apparent reduction in re-admissions to hospital.^{7,8,9}

Leeds West Clinical Commissioning Group (LWCCG) has shown in their 'Care Homes And Medicines Optimisation Implementation Service' (CHAMMOIS) that patient-centred, holistic clinical medication reviews (CMRs) can improve the quality of care, medicines safety and reduce medicine costs for care home residents.¹⁰

Aims

Our primary aim was to build on the previous transfer of care and care homes work to improve the quality of care and the safety of medicines for older people living in **both** domiciliary and care home settings following discharge from hospital through:

- the identification of patients at high risk of medicines-related problems post-discharge by clinical pharmacists in secondary care
- the delivery of post-discharge, holistic, patient-centred Level 3 CMRs.^{11,12} 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'.¹¹
- a focus on the management of problematic polypharmacy^{13,14,15,16}
- the process of minimising medicines (deprescribing).^{12,16}

ROMEPAID was a proof-of-concept project to determine if timely, holistic, patient-centred CMRs for high-risk older people post-discharge improved quality of care, medication safety and

readmission rates, resulting in a reduction in medicines-related attendances to the emergency department and/or hospital.

This article outlines the project and the outcomes achieved over a 12 month period commencing in February 2015.

Method

Staffing

A Consultant Pharmacist (i.e. one of the authors) was seconded by LWCCG for one year on a 0.4WTE basis.

An initial role involved establishing the project and obtaining access to SystmOne and EMIS systems in GP practices.

Patients were identified for review by clinical pharmacists in LTHT and these patients were then referred to the Consultant Pharmacist-Older People/Interfaces of Care. The Consultant Pharmacist then provided face-to-face, patient-centred CMRs for highly complex, older people living in either care home or domiciliary settings.

The review of GP records prior to visits initially took about 1.5 hours but this became less as familiarity was gained with SystmOne and EMIS. Travel to/from the domiciliary or care home setting care ranged from 20 minutes to 1 hour. Visits at the domiciliary or care home setting took 20 minutes to 1 hour with the latter reducing to about 30 minutes as more experience was gained. Follow-up, including the time to record the consultation on the GP system, ranged from 30 minutes to 1 hour depending on the number of issues that needed to be resolved.

Once the project was established, the Consultant Pharmacist then trained medicine optimisation pharmacists to undertake the role and supported them whilst they obtained the necessary experience by providing advice when sought and reviewing their recommendations post-CMR where appropriate. During this phase, the Consultant Pharmacist undertook case-finding at LTHT of suitable patients for the project and encouraged clinical teams to refer appropriate patients.

Priority areas

Medicines optimisation was focussed on the following five areas:

- personalised and holistic reviews
- specific high-risk medicines
- medicines minimisation (deprescribing) by discontinuing less beneficial or unwanted medicines
- appropriate monitoring.

Standard Operating Procedure (SOP)

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

Domiciliary visits

Patients/informal carers were contacted in advance to explain that the purpose of the visit was to discuss their medication following their recent discharge from hospital. They were informed that the visiting pharmacist would have a clear identification badge to confirm who they were.

Patients had the option to decline a visit. This was taken up by two patients - one had Intermediate Care Team members going in four times a day after a fracture and did not want an additional person coming in although she was happy to talk on the phone. The other patient who declined a visit was profoundly deaf and also had cognitive impairment.

Visits were conducted in accordance with the LWCCG lone worker policy, which includes making contact with a 'buddy' before and after a visit to maintain the personal safety of the visiting pharmacist.

Some patients had key safes, which is usually highlighted on GP records, in which case it was necessary to obtain the access code prior to the visit.

Some of the most vulnerable patients had Community Matrons (CMs) who were helpful in terms of getting consent from the patient for the visit. The CM also provided reassurance for the patient during the visit, actioned agreed changes afterwards and provided any follow-up/monitoring required e.g. reviewing pain control, inhaler technique, rechecking blood pressure (BP).

Process

The judgement of clinical pharmacists at LTHT was used to identify older people who were at high risk of medicines-related problems post-discharge. The reasons for referral related to polypharmacy, potentially inappropriate medicines and/or medicines support needs (adherence issues).

A systematic approach for the CMR was adopted based on that previously adopted in LWCCG for care home residents in the CHAMOIS project. This approach involved:

- review of GP practice patient medical records
- requesting appropriate monitoring, observations or tests
- measurement of BP, heart rate and/or postural BP where appropriate
- for patients in care homes, visiting the care home, viewing records and talking to the carer
- for patients in care homes, reconciling medicines administration record (MAR) charts with current repeat medicines on the GP system
- talking with residents and engaging with family members
- establishing a list of medicines, doses and frequencies that the older person is actually taking for older people living in their own homes
- 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
- liaising with other healthcare professionals involved with the older person's care where appropriate
- communicating the agreed medicine changes, monitoring criteria and personalised care plan to the older person or their informal carer
- liaising with the community pharmacist where appropriate to ensure safe management of medicines and continuity of care

- following up patients to ensure that the care plan had been implemented, was acceptable to the older person and was producing the intended outcomes.

Where the patient had a CM, a number of joint visits were conducted by the Consultant Pharmacist and Medicines Optimisation Pharmacists with the CMs. This improved communication of medicine changes and follow-up and enabled changes to be made in a timely manner. Informal feedback suggested that the CMs found the pharmacist reviews helpful and informative and that they believed the reviews resulted in improved patient outcomes e.g. reduction in adverse drug reactions or medicines-related re-admissions.

Patients were left with a card containing the name and contact details of the visiting pharmacist in case they had any questions after the visit.

Data collection

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

Multi-disciplinary and multi-agency approach

Appropriate links were already well established with elderly care consultants and clinical pharmacists at the acute and mental health trusts. The Consultant Pharmacist also had previously established links with CMs in Leeds and community technicians from Leeds Community Healthcare Trust. These technicians provide telephone and domiciliary medicines support for patients across Leeds as well as training staff who support medicines administration in domiciliary settings.

In view of the need to improve the quality of holistic patient-centred care and facilitate care coordination,^{17,18,19} links had already been made with specialist teams and the multi-disciplinary neighbourhood teams during the pharmacist-led work in care homes in LWCCG. These links were strengthened further during the project and the Consultant Pharmacist liaised with a wide range of teams involved in the care of older people during the course of the CMRs e.g. anticoagulation clinic, arrhythmia team, mental health team, Parkinson's disease (PD) team and community continence, heart failure and diabetes services.

Patient experience

Patient experience questionnaires were given to patients who had received a clinical review by the Consultant Pharmacist and who were able to complete the questionnaire. 14 questionnaires were completed.

All patients felt that information was given in a way they could understand and that they received all the information they wanted. 6 patients felt the CMR helped a lot, 7 patients felt it had helped to some extent and 1 patient was unsure.

All patients rated the Consultant Pharmacist highly for politeness, bedside manner and knowledge of medicines.

Outcomes

Over a 12 month period between February 2015 and February 2016, 36 post-discharge CMRs were completed by the Consultant Pharmacist. A total of 26 were in a domiciliary setting and 10 in a care home.

The outcomes were:

- 91 medicines were stopped (2.5 medicines/patient on average)
- 14 medicines were started (0.4 medicines/patient) e.g. bone protection for patients at high risk of fracture
- BP and heart rate (HR) was checked for 10 patients
- 185 recommendations were made to GPs and 171 (92%) were accepted and actioned
- A total of 189 contributions were made (5.25/patient on average) including medicine changes, rationalisation of medicines e.g. to fit in with daily routines or reduce the number of times medicines were taken each day, referrals to other healthcare professionals such as a patient with PD who had been newly moved to a care home but had been lost to follow-up by the PD team, provision of education and advice for older people, informal carers or the wider healthcare team
- GP acceptance of recommendations was good and 92% of recommendations were actioned
- 28 patients were followed up for 6 months after their CMR (others were lost to follow-up as they had moved area or died). For these 28 patients, the number of admissions, Emergency Department (ED) attendances and GP contacts before and after the CMR is shown in Table 1. Figures for a year prior to review were included to show that the 6 month position was fairly typical and highlights that the patients referred were high-risk patients with a high usage of services.
- 5 patients required post-review follow-up of lying and

standing BP and/or HR and 1 patient required rechecking of their urea and electrolytes.

Medicines stopped related to potentially inappropriate medicines such as benzodiazepines as published by O'Mahony et al in the STOPP criteria,²⁰ unnecessary medicines e.g. proton pump inhibitors originally prescribed for gastroprotection versus antiplatelets where the patient was no longer taking the antiplatelet and medicines where the patient had made an informed decision to stop taking or using e.g. analgesics, calcium supplements and laxatives.

Medicines started consisted of bone protection for patients at high risk of fracture and gastroprotection versus long-term antiplatelets.

Referrals

7 older people (19%) required an additional referral, 2 patients required referral to their GP, 1 patient complained of chest pain and 1 patient expressed a desire to harm themselves during the pharmacist visit. Other referrals included referral to Audiology, PD specialist nurse, Psychiatry, Leeds Eating & Drinking Service and the Respiratory Clinic.

Patient safety

3 medicine-related errors, e.g. inaccurate doses on medicines reconciliation post-discharge in the community, were reported into the local medicines risk team.

Costs

Total cost savings for the 36 CMRs was £7,624. This was despite additional costs incurred on medicines that were started. An average net cost saving of £212 per CMR was achieved.

Case studies

Patient Story 1

PS1 is an 86 year old man who lives alone. He has a cardiac pacemaker and a past history of Type 2 Diabetes Mellitus, Chronic Obstructive Pulmonary Disease (COPD), chronic kidney disease, ischaemic heart disease, myocardial infarction x 2, benign prostatic hyperplasia and urinary tract infections (UTIs). He was referred due to concerns about adherence particularly with his inhalers. PS1 did not have symptoms from his COPD despite not using his Seretide inhaler and had no recent exacerbations or admissions secondary to COPD so the Seretide inhaler was discontinued. PS1 had a compliance aid but tamsulosin and ferrous sulphate were not in the compliance aid and PS1 was forgetting to take these so these were added to the compliance aid (a recent ferritin level was low). PS1 was taking trimethoprim and amoxicillin as rotating prophylactic antibiotics to prevent UTIs. He had not had a UTI recently and recent urine cultures obtained in secondary care showed that organisms present were resistant to both trimethoprim and amoxicillin. After discussions with Microbiology, the antibiotics were stopped. Omeprazole was reduced from 20mg bd to 20mg od as there was no indication for the high dose but PS1 was taking aspirin regularly. PS1 had several items on repeat that he wasn't taking or using (Movicol, E45 cream and piroxicam gel) so these were removed from his repeat prescription list on the GP system.

Admissions	
Admissions 1 year prior to review	87
Admissions 6 months prior to review	61
Admissions 6 months post review	31
Emergency Department (ED) Attendances	
ED attendances 1 year prior to review	126
ED attendances 6 months prior to review	77
ED attendances 6 months post review	56
GP Contacts	
GP contacts 1 year prior to review	413
GP contacts 6 months prior to review	231
GP contacts 6 months post review	219

Table 1: Number of attendances before and after CMR

Patient Story 2

PS2 is a 79 year old lady who had recently been admitted to hospital with hyperglycaemia. PS2 lives alone and has Alzheimer's Disease. She was taking a total of 16 medicines, was struggling to manage her medicines and had difficulty swallowing larger tablets. She was seen at home by the Consultant Pharmacist during a joint visit with her community matron. PS2 wanted to reduce the number of tablets she took every day and following discussion with PS2 and the CM, folic acid and ferrous sulphate were stopped (recent haematinic results were well in range). Thiamine was stopped as PS2 no longer drinks alcohol. Amitriptyline was reduced with a view to reducing gradually over several weeks before stopping due to potential adverse cardiac effects and risk of falls. The community diabetic team reviewed PS2 the following day and stopped her oral hypoglycaemics and started insulin which is being administered by district nurses.

Patient Story 3

PS3 is an 85 year old gentleman living in a residential home. He was recently admitted to hospital with a urinary tract infection, fall and acute kidney injury. He has a past medical history of dementia, chronic kidney disease stage 3, hypertension, stroke, atrial fibrillation, fractured neck of femur and left ventricular systolic dysfunction. The Consultant Pharmacist visited PS3 at the residential home and discussed his medicines with him. The following changes were made with PS3's agreement. Ferritin level was normal so ferrous fumarate was stopped. PS3 was not requiring Laxido prn so this was stopped. PS3 was taking citalopram 20mg od and mirtazapine 15mg nocte. The doses were cross-tapered to reduce then stop citalopram and increase mirtazapine to 30mg nocte as he had prolonged QT on his ECG and postural hypotension in hospital. PS3's mood was quite low at the time as his son had moved away from the local area recently. Aspirin was stopped as not indicated but PS3 had a history of previous ischaemic stroke so clopidogrel was started. Anticoagulation was not started due to the high risk of falls. Lansoprazole 15mg daily was added for gastroprotection. PS3 was also taking atorvastatin 10mg at night. This was stopped as the dose was low and was unlikely to result in long-term benefit. PS3 was taking Fortisip 125ml tds and Calogen Extra 40ml bd but his appetite was good, he was eating well and his weight had increased significantly over the past month. A referral to the Eating & Drinking Service was made as PS3 should be able to stop some nutritional supplements.

Discussion

The current service has resulted in improved partnerships, pathways and workstreams for older people post-discharge from hospital.

The number of patients was too small to show a causative effect on ED attendances and re-admissions to hospital but there was a trend towards reductions in both these aspects in the 6 months post-CMR compared to the 6 months pre-CMR (27% in ED attendances and 49% for re-admissions for the small number of patients who were followed up). There was no corresponding increase in GP attendances after the CMRs, which was reassuring for GP colleagues who may have been concerned about an increase in workload resulting from

medicines minimisation activities.

The study focused on improving the quality and safety of patient care but it also reduced prescribing costs by an average of £212 per CMR 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
- the views of older people and/or their carers are taken into account so that older people are only prescribed medicines that they are willing to take and that formulations and timing schedules are acceptable to them
- preventative medicine is used where appropriate
- medicines are ordered in appropriate quantities each month to minimise waste
- the medicines used offer the best value for money.

Overall, integration between pharmacy teams from different organisations and different sectors has been improved during the project. For example, links have been strengthened with the Intermediate Tier Technician Team from Leeds Community Healthcare Trust.

Pharmacists in LWCCG have integrated into the neighbourhood teams and have developed closer working relationships with the healthcare professionals within these teams e.g. community matrons. Direct referrals from the teams for CMRs have also increased.

ROMEPADE developments

During the pilot study, 4WTE Grade 8a pharmacists were recruited to provide holistic CMRs for patients with long-term conditions cared for by groups of GP practices.

LWCCG clinical pharmacists received further training in polypharmacy, CMRs and consultation skills and the Consultant Pharmacist completed a number of joint patient visits/CMRs with these pharmacists.

Patients were then referred to the LWCCG pharmacists rather than the Consultant Pharmacist for CMR.

Peer review sessions for the medicines optimisation pharmacists to review cases were also delivered during the project. This involved pharmacists reviewing the pre-CMR GP records of older people who had participated in CMR consultations with the Consultant Pharmacist. The Consultant Pharmacist then facilitated workshops where the pharmacists discussed how they would approach the consultation and the medicines optimisation options for each patient could be further explored.

Patient Information leaflets (PILs) are available in some local polypharmacy documents to help prepare people for a CMR. These were not used in the pilot study but will be considered in the future to develop the service.

To ensure that they maintained best practice and as part of the quality assurance system, the pharmacists also participated in regular local and regional peer review meetings. Later in the project, the pharmacists discussed cases that they had reviewed themselves with the group, to highlight areas of good practice and any contentious issues, problems or alternative options that may not have been fully considered. Regional meetings included peer support meetings facilitated by the Consultant Pharmacist and an experienced care home and practice pharmacist, which are held quarterly for pharmacists working in domiciliary and care home settings in the North of England.

This paper only reports outcomes from the CMRs conducted by the Consultant Pharmacist but it is noted that the other pharmacists conducted 48 CMRs during the project period.

The future for the ROMEPAD project

In the future, the medicines optimisation pharmacists in primary care could triage referrals and re-direct these to community pharmacy and/or the intermediate tier technician team where appropriate.

During the pilot study, all referrals were received and passed on to the relevant teams by the Consultant Pharmacist. A generic e-mail has now been set up at LTHT to accept referrals and clerical staff forward these referrals to the relevant CCG generic e-mail address. This should improve the efficiency and timeliness of referrals. Other healthcare professionals, e.g. medical staff, are now also able to refer patients who would benefit from a CMR on to primary care.

Work is also on-going within Leeds Teaching Hospitals NHS Trust to implement an electronic referral system from secondary care to community pharmacists.

Discussions have taken place with the Heads of Medicines Optimisation at Leeds North and Leeds South & East CCGs. Referrals for CMRs are now being received from secondary care across Leeds and this has become mainstreamed and is now 'business as usual'.

Conclusion

The pilot study has demonstrated an increase in the quality of care and the safety of medicines use for older people through holistic, patient-centred medication reviews. The evidence obtained in the pilot study suggests that the approach to provide CMRs post discharge merits further development in the interests of improving patient care.

Declaration of interests

The authors have nothing to disclose.

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