Medicines optimisation in the care home setting

Rupert Payne PhD, FRCPE, MRCGP and Martin Duerden, BMedSci, FRCGP, DRCOG, DipTher, DPH

In this the fifth and final article in the series the focus is on medicines optimisation in the care home setting and looks at the particular challenges in this area.

Why is the care home setting important?

In this series of articles Prescriber has examined a number of important issues relating to polypharmacy, as originally highlighted in the King’s Fund, Polypharmacy and Medicines Optimisation report. This series began by looking at the epidemiology of polypharmacy, followed by the distinction between appropriate and problematic pharmacy. We then moved on to discuss the principles of medicines optimisation, and then the issue of deprescribing. In this final article, we consider the specific case of polypharmacy in the care home setting.

More medicines means more adverse effects; a US study found such events to occur twice per 100-resident-months, with polypharmacy a major driving factor. However, care home residents may also be particularly vulnerable due to pharmacokinetic (“what the body does to the drug”) and pharmacodynamic (“what the drug does to the body”) differences when compared to younger, less frail individuals. Patients are more likely to experience reduced renal or hepatic function, reduced haemostatic reserve and have increased sensitivity of drug receptors. For example it has been estimated that, in an elderly population, two out of an average seven daily medicines should have dose adjustment made for renal impairment, and renal insufficiency is a recognised risk factor for adverse drugs reactions in the elderly. Reduced lean

Figure 1. Polypharmacy is common in the care home population

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body mass, reduced body water and lower serum albumin may also alter drug distribution. If not accounted for, these issues may result in more frequent and more serious adverse effects in an already vulnerable group.

**Medication errors**

As with all cases of polypharmacy, errors increase with the number of drugs. CHUMS found two-fifths of care home residents to be affected by a prescribing error, with common problems including omission of strength or route (38 per cent), unnecessary medication (24 per cent), incorrect dose or strength (14 per cent) and omitted drugs (12 per cent). A further 10 per cent of residents experience monitoring errors.7 However, importantly, a key difference between this environment and patients’ own homes is that medication administration is usually provided by nursing and other care staff. Despite this supervision, administration errors are common and include residents being given the wrong drug or dose, medications being administered at the wrong time, or the drug being omitted completely.7,15 One study of English care homes found 90 per cent of all residents to be exposed to at least one administration error in a three month period; these were considered serious in over half of cases.15 The CHUMS study differentiated administration and dispensing errors, finding 22 per cent and 37 per cent of residents to be affected respectively.7

A number of factors contribute to the occurrence of medication errors in the care home setting.7 Patient factors include confusion and lack of awareness of medications; this is particularly true for severe dementia, despite complex medication regimens being commonplace in this group.6 Physical difficulties such as arthritis or swallowing may hamper drug administration, as does simply locating a patient when the drug round is being carried out. A number of other factors relate to the processes of prescribing and drug administration. This includes the availability or otherwise of computer support tools, access to the clinical record, lack of availability of medication, absence of protocols, and inadequate staff experience. Although at first sight a monitored dosage system (MDS) may be of value, it is essential they are fit for purpose. An MDS can lead to omission of liquid medications if unable to hold such preparations, and staff may be unable to identify which individual drugs within a single compartment may have been taken. Organisational factors may also lead to errors; examples include inaccurate drug administration charts, inadequate communication between staff and teams, busy staff being interrupted, distracted or conducting competing tasks, and a lack of co-ordinated management oversight. These issues are all likely to be compounded by increasing degrees of polypharmacy and therapeutic complexity.

**Interventions**

The issues discussed above highlight a number of potential areas which might be targeted in an effort to reduce the adverse consequences of polypharmacy in the care home setting. Some of these are highlighted in Table 1. NICE has published recommendations on the management of medicines in care homes.16

One approach is to focus on optimising prescribing by doctors. This might involve improved training for GPs, and the provision of dedicated medication reviews. Many medication optimisation issues will be pertinent to all cases of polypharmacy, but certain aspects are particularly relevant in the care home setting. End-of-life care will probably be encountered more frequently, and the benefits of long-term preventative therapies may be less likely to be realised. Opportunities to reduce or stop medications should not be overlooked.5 Cognitive impairment is a common problem, which has the potential to hinder identification of adverse effects or patient concerns, and may result in inappropriate medication use by confused patients. Clinicians also need to be aware of the increased risk of adverse reactions, and remember to make appropriate dose adjustments, as well as being wary of potential interactions which might usually be dismissed in other patients. Doctors should take advantage of the opportunity for using feedback from care home staff to inform decision making; this may be particularly relevant in terms of medication adherence or adverse effects. Finally, remote
access to computerised clinical systems, such as prescribing decision support tools and the electronic medical records, may help reduce inappropriate prescribing.

**Improve documentation**

Interventions based around nursing home staff themselves are also worth considering. This could include training in matters such as safe and appropriate drug administration, or awareness of adverse effects. Improving documentation would be of value, ideally using computerised systems to facilitate audit, to record problems or concerns, and to improve communication between staff. Such systems should also extend to recording of drug administration and medication stock control, ideally linked to medical and nursing records. Barcode medication administrative systems have also been explored as ways to reduce administration errors.15

Clinical pharmacists are almost certainly underused in the care home setting. They can be an indispensable source of advice on both prescribing and drug administration issues, conducting medication reviews alongside nursing staff, and potentially contributing to staff training programmes and the development of support tools. The Royal Pharmaceutical Society has recommended pharmacists having overall responsibility for medicines in care homes, as well as leading medication reviews in this setting, and has suggested one community pharmacy and one GP surgery should be associated with each home to improve coordination and standards of care.17 Other experts in management of polypharmacy may also be of use; for example, there is evidence that care facilities with access to a geriatrician have lower rates of excessive polypharmacy.9

Finally, it is important to consider the role of patients and their families. A substantial proportion of care home residents have both the capacity and desire to make decisions about their medicines, and patients’ wishes are an important reason for cessation of treatment.18 Yet shared decision making often does not happen; health professionals’ time is one key barrier, as may be the misconception that residents are generally incapable of making such decisions. NICE recommends residents being involved whenever possible in their medication use, not just in decision-making processes, but also in terms of self-administration.16 The latter helps empower patients, and is more “homely”, but complexity of treatment regimens in this population must be considered, and there is the potential to add to the complexity of medication recording systems.

Unfortunately, the evidence for effective strategies for optimising care home prescribing and polypharmacy is relatively poor and this area needs further research. A Cochrane systematic review was published in 2013 examining the efficacy of eight randomised interventions to improve prescribing for older (≥65 years) people in care homes.19 These were complex interventions, heterogeneous in nature, and included multidisciplinary care conferences, education for care home staff and computerised clinical decision support. Seven of the interventions had a medication review component. Overall, these interventions led to improved identification and resolution of medication-related problems, but there was limited evidence of cost effectiveness, and no evidence of a reduction in adverse drug events, hospitalisation or mortality.

**Conclusion**

Polypharmacy is an extremely common issue in residential and nursing care homes, and is a critical factor contributing to adverse effects and medication errors in this environment. Importantly, patients in this setting are especially vulnerable to medication problems. Furthermore, administration of drugs by nursing staff raises particular issues around dispensing, administration and monitoring of treatment, as well as staff training. Approaches to address the adverse consequences of polypharmacy in the care home setting are likely to be multifaceted in nature although, to date, the cost effectiveness and efficacy of such programmes remains unproven. Nevertheless, the potential problems of polypharmacy in this setting need to be highlighted to GPs, appropriate training for nursing staff must be encouraged, informatics solutions should be more widely employed, and advantage should be taken of the expertise of clinical pharmacists and other specialist clinicians to optimise medication regimens in these patients.

**References**


**Declaration of interests**

None to declare.

Dr Payne is clinical lecturer in general practice, University of Cambridge, and honorary consultant clinical pharmacologist, and Dr Duerden is a part-time GP in North Wales, and clinical senior lecturer, Bangor University.