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Polypharmacy and medicines optimisation: best practice for care homes

Background

Medicines prevent, treat or manage many illnesses or conditions and are the most common intervention in the NHS. According to the Health Survey for England 2016, 48% of adults had taken at least one prescribed medicine in the last week, a figure that increased to more than 90% in those aged over 75 years (Health and Social Care Information Centre, 2017). The financial cost of prescribed medication to the NHS is significant. In 2016/17, approximately £9 billion was spent on prescribing in primary care in England (NHS Digital, 2017).

Medicines have a huge potential to do good and without medicines many older people would function less well, have a reduced quality of life or die at an earlier age. For example, the seasonal influenza vaccination can protect against acute respiratory infections caused by the influenza virus, statins can reduce cardiovascular morbidity and mortality, antibiotics and corticosteroids can be effective in managing exacerbations of chronic obstructive pulmonary disease, and strong opioids can relieve severe pain at the end of life.

Despite these benefits, older people are at increased risk of medicines-related problems. Drug treatment is made more complex by the ageing process. The risk of iatrogenic injury is increased by changes in the ability of the body to absorb, distribute, metabolise and eliminate medicines (pharmacokinetics). Similarly, the risk of injury is increased by differences in how drugs effect older people compared to younger people (pharmacodynamics). These pharmacokinetic and

pharmacodynamics changes are responsible for greater and more prolonged drug effects in older people. Premarketing drug trials often exclude older people and approved doses may not be appropriate. Many medicines need to be used with special caution in older people. Drugs that are poorly tolerated in frail older people include antipsychotics, nonsteroidal anti-inflammatory drugs, digoxin (250mcg or more), benzodiazepines, anticholinergics, and combination analgesics (NHS Scotland, 2015).

The ageing process also increases the likelihood that an older person will need concurrent medication for more than one long term condition. As the number of medicines a person is taking increases, so does the possibility of adverse drug events. Such events result in significant morbidity, mortality and healthcare costs. Studies in general adult populations indicate that 6.5% of hospital admissions are due to adverse drug events, with over 73% these either definitely or possibly avoidable (Pirmohamed et al., 2004).

In March 2017, the World Health Organization launched the *Global Patient Safety Challenge: Medication without Harm*, which aims to reduce severe avoidable medication harm by 50% in the next five years. This paper takes up the challenge and considers medicines use in care homes and the evidence informing best practice in polypharmacy and medicines optimisation.

[Defining polypharmacy and medicines optimisation](#)

The term polypharmacy is used to describe the concurrent use of multiple medication. The most commonly reported definition is the use of five or more medicines a day (Masnoon et al., 2017). The Kings Fund (2013) present two discrete concepts: appropriate polypharmacy and problematic polypharmacy (see

Box 1). This distinction acknowledges that polypharmacy has the potential to be beneficial for some patients, but also harmful if poorly management.

Medicines optimisation is defined by UK Medicines Information as: *an approach that seeks to maximise the beneficial clinical outcomes for patients from medicines with an emphasis on safety, governance, professional collaboration and patient engagement* (UK Medicines Information, 2012: P. 1). The Royal Pharmaceutical Society (2013) elaborate and describe a process focused on ensuring that the right patients get the right choice of medicine at the right time; a process that may involve stopping some medicines (deprescribing) as well as starting others, and the consideration of lifestyle changes and non-pharmacological options to reduce the need for medicines. It should be noted that medicines optimisation is not synonymous with medication management, it has a more holistic focus such that medication management might be seen as a subcomponent within the broader concept of medicines optimisation.

[Medicines use by older people in care homes](#)

The majority of older people living in care homes have high levels of dependency, cognitive impairment, multi-morbidity and polypharmacy. For example, a recent study of 227 residents across eleven care homes in the UK found that the average age of residents was 85 years, each with six separate diagnoses and eight different medicines (Gordon et al., 2014). A number of research studies have highlighted prescribing and the management of medicines as key areas for quality improvement in care homes. For example, Barber et al (2009) examined medication errors amongst 256 residents across 55 care homes in the UK. They found that 69% of residents (n=178) had been exposed to one or more medication error. These included errors in administration, dispensing, prescribing, and monitoring. The most

common errors in prescribing related to omission of strength or route, unnecessary medicines, incorrect dose or strength, and omitted drugs. It is not known whether or not these errors would necessarily have caused harm. It is also important to note that the results of this study may not be representative of all care homes in the UK. However, problems relating to the prescription of unnecessary medicines in care home residents have been reported in other studies. For example, Parsons et al (2012) examined medication records for instances of inappropriate prescribing for older people with dementia in six care homes in the UK. Medication records were scrutinised at two time points: at the first, 119 records were examined and 46% of residents (n=55) were found to have been prescribed one or more potentially inappropriate medicine and at the second, 110 records were examined and 40% of residents (n=45) were prescribed one or more potentially inappropriate medicine. At both time points, antipsychotics were the most frequently prescribed potentially inappropriate medicine; in 26% of cases, patients did not need the medicine and in 58% of cases, the risks of taking the medicine were felt to outweigh the benefits.

[Improving medicines outcomes for older people in care homes](#)

Quality improvement endeavours should be underpinned by the best available evidence. The National Institute for Health and Social Care Excellence (NICE) has produced two salient evidence based guidelines: *Managing Medicines in Care Homes* (NICE, 2014), and *Medicines Optimisation: The safe and effective use of medicines to enable the best possible outcomes* (NICE, 2015). The latter make seven recommendations for health and social care in England (see **Box 2**).

Practitioners need to know and understand these guidelines in order to determine whether current ways of working must change to ensure the best care is provided to patients. This paper will consider the application of a selection of the

recommendations contained within the medicines optimisation guidelines in the context of improving medicines outcomes for older people in care homes.

Systems for identifying, reporting and learning from medicines-related safety incidents

As previously reported, medication errors are all too frequent events in care homes. NICE (2014; 2015) recommend that systems are put in place to identify medication errors. These systems include health record review, patient surveys, and direct observation of medication administration. Such systems should be in place in all care homes where medicine is administered.

As soon as an error is identified, immediate medical assistance should be sought to ensure the safety of the resident. Incidents should then be reported internally and to relevant external organisations where appropriate. Incidents will not normally need to be reported to the Care Quality Commission (CQC) unless they result in death or injury, relate to allegations of abuse, or are incidents reported to or investigated by the police (CQC, 2018a). Such incidents are known as notifiable incidents and need to be submitted in writing within a predetermined timescale.

Regardless of circumstances, all medication errors should be recorded in the resident's records and logged locally in a manner that ensures records are accessible for external stakeholder review. Duty of candour requires that as soon as practicable, the resident or the person acting on their behalf should be informed that an incident has occurred. Some medication events should be reported to the local authority as adult safeguarding incidents. Such events include: deliberate withholding of medicines without a valid reason, incorrect use of medicines for reasons other than the benefit of the patient, deliberate attempts to harm through the

use of medicine, and accidental harm caused by incorrect administration or medication error (CQC, 2018a).

Once an incident is reported, an investigation should be initiated to trace the error back to its root causes and to identify how a similar error could be prevented in the future, or actions to minimise the impact should such an error occur. There is an expectation that regular meetings should be held with everyone involved with medicines in the care home team to share learning from these investigations and ensure necessary changes are put into practice. Lessons should also be circulated to other care homes as appropriate.

Medicines-related communication systems when patients move from one care setting to another

Research indicates that care home residents are at increased risk of hospital admission. For example, using Hospital Episode Statistics and information held on the CQC database of registered care home providers for older people, Quality Watch (2015) estimated that care home residents had between 40 and 50% more emergency admissions and accident and emergency attendances than the general population aged 75 and over. Given high rates of hospital admission and attendances amongst this population, inter-institutional transfers and ensuring patient safety across settings is of paramount importance. The absence of complete and accurate medicines information can lead to prescribing errors during hospital admission and on return to the care home.

When a person moves from one care setting to another, NICE (2014; 2015) recommend that relevant information about medicines should be shared with patients, their family members, and between health and social care practitioners.

Providers should ensure that a clear and up to date list of current medicines accompanies the patient. The electronic transfer of this information is encouraged; however, the use of faxes should be avoided due to the potential for breaches in patient confidentiality and because faxes can be hard to read (Royal Pharmaceutical Society, 2016).

Medicines reconciliation

Older people are often prescribed complex medication regimens. For example, regimens that include more than one prescribed medicine, medicines that are taken regularly as well as some that are only taken when required, doses of medicine that are not constant but depend on the results of blood tests, and medicines prescribed by more than one prescriber (Royal Pharmaceutical Society, 2007). The complexity of these regimens is often compounded the use of complementary medicines and the addition of new medicines.

Medicines reconciliation is a concept that was first proposed by the US Institute for Healthcare Improvement (2004). It is defined as *the process of identifying an accurate list of a person's current medicines and comparing them with the current list in use, recognising any discrepancies, and documenting any changes, thereby resulting in a complete list of medicines, accurately communicated* (NICE, 2015: 20).

The importance of medicines reconciliation in avoiding medicines is emphasised by NICE (2014; 2015). The CQC (2018) propose that a clear and up to date list of current medicines should be produced for each resident when they are first admitted to the care home, when they are discharged from hospital, when their treatment changes, and before the first dose is administered or as soon as possible afterwards. When discrepancies are identified, there is an expectation that the person

undertaking the reconciliation process will consult an appropriate healthcare professional to ensure these discrepancies are resolved.

Medication review

As we have seen, many medicines need to be used with special caution in older people because of age related pharmacokinetics and pharmacodynamics. A structured medication review is defined as *a critical examination of a person's medicines with the objective of reaching an agreement with the person about treatment, optimising the impact of medicines, minimising the number of medication-related problems and reducing waste* (NICE, 2015: 22).

There is an expectation that medication reviews will be carried out at least annually for older people in care homes and more frequently as required (NICE, 2014).

Triggers for more frequent reviews include when a resident has been recently diagnosed with a long term condition, experienced a suspected adverse drug event, or requested that a medicine be stopped. The National Prescribing Centre (2008) advice that either a prescriber (medical or non-medical prescriber) or a specialist practitioner (e.g. diabetic nurse specialist, or community pharmacist accredited to provide a clinical medication review as an enhanced service) conduct these reviews. Furthermore, NICE (2014) recommend that the review of any resident in a care home should involve the wider multidisciplinary team.

According to NHS Scotland (2015) medicines review involves seven key steps: identify aims and objectives of drug therapy, identify essential drug therapy, establish whether the patient is taking unnecessary drug therapy, assess whether therapeutic objectives are being achieved, establish whether the patient is at risk of adverse drug events or is suffering actual adverse drug events, consider whether drug

therapy is cost effective, and explore whether the patient is willing and able to take drug therapy as intended. To further guide the conduct of medication reviews, the Screening Tool of Older Person's Prescriptions (STOPP) and the Screening Tool to Alert doctors to Right Treatment (START) (Gallagher et al., 2008) were developed to provide explicit, evidence based rules to avoid commonly encountered instances of potentially inappropriate prescribing and potential prescribing omissions. These tools recognise the potential to not only taper, withdraw, discontinue or stop medicines (de-prescribe) but also add new prescription medicine as required. NICE (2015) advocate the use of use of the STOPP/START criteria in medication reviews and a recent systematic review of randomised controlled trials involving these tools found their use in both acute and long-term care reduced falls, delirium episodes, hospital length-of-stay, care visits (primary and emergency) and medication costs (Hill-Taylor et al., 2016). It did not however find evidence of improvements in quality of life or mortality.

Medicines-related models of organisation and cross-sector working

NICE (2015) recommend that organisations consider new cross-sector models of care for patients to optimise their medicines. Cross sector service provision is defined as *independent, yet interconnected sectors working together to better meet the needs of patients and improve the quality and effectiveness of service provision* (Winters et al., 2016: 1). One such model is the deployment of expert pharmacy teams to work in care homes (NHS England, 2018). Deployment is intended to provide care home residents with equity of access to a clinical pharmacist prescriber as a member of the multidisciplinary team, and care homes with access to pharmacy technicians who will ensure the efficient and supply and management of medicines within the care home. An exemplar is provided by the Proactive Care Homes

Pharmacists Project, which was commissioned by North West London Integrated Care Programme Innovation Fund. This project aimed to standardise provision of care and target the causes of non-elective preventable hospital admissions. Local evaluations highlight the benefits of the project, including the early identification of prescribing errors, inadequate patient monitoring, adverse drug reactions, and suboptimal prescribing (Goh et al., 2017). A reduction in ambulance call outs and falls were also reported (Central London Community Healthcare NHS Trust, 2018).

Summary

Older people in care homes often experience polypharmacy and suboptimal medication outcomes. Efforts to improve medication outcomes should be underpinned by the best available evidence. Recommendations for improving outcomes include systems for identifying, reporting and learning from medicines-related patient safety incidents, medicines reconciliation, medication review, and medicines-related models of organisation and cross-sector working. Everyone involved in medicines has a part to play in medicines optimisation. Practitioners working in care home settings must reflect on whether current ways of working need to change to ensure the best care is provided to patients.

Box 1: Defining Polypharmacy (Kings Fund, 2016)

Appropriate Polypharmacy	Problematic polypharmacy
Prescribing for an individual for complex conditions or for multiple conditions in circumstances where medicines use has been optimised and where the medicines are prescribed according to best evidence	Problematic polypharmacy is the prescribing of multiple medications inappropriately, or where the intended benefit of the medication is not realised

Box 2: Recommendations for Medicines Optimisation (NICE, 2015)

- Systems for identifying, reporting and learning from medicines-related patient safety incidents
- Medicines reconciliation
- Medication review
- Self-management plans
- Patient decision aids used in consultations involving medicines
- Clinical decision support
- Medicines-related models of organisation and cross-sector working

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