Medication errors in care homes

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- Differences in administration error rates between tablets and capsules and other formulations
- Training to improve the use of medicines in care homes
- Monitored dosage systems

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Background The Care Homes’ Use of Medicines Study (Alldred et al, 2009) found medication administration errors occur during drug rounds in care homes.

Aim This study aimed to establish if there were differences in administration error rates: between tablets and capsules and other formulations; and between tablets and capsules dispensed in monitored dosage systems and those given out in the manufacturer’s original packaging.

Method Clinical pharmacists observed two drug rounds of care home residents in 55 care homes. They compared the error rates of different formulations and monitored dosage systems.

Results Formulations that are not tablets and capsules, for example inhaled therapy, are particularly at risk of being administered incorrectly.

Conclusion Care home staff need greater support and training to administer formulations that are not tablets or capsules.

In 2009, The Care Homes’ Use of Medicines Study found medication administration errors during drug rounds occurred in one in five residents and in one in eight administrations – for every eight medicines given on the drug round, there was one error (Alldred et al, 2009; Barber et al, 2009). Half these errors were omissions and, in one in five, the wrong dose had been given.

The study made recommendations, and the Department of Health issued an alert to all primary care trusts to reduce errors in care homes (Department of Health, 2010).

It was not clear what influence different formulations – such as tablets, inhalers and liquids – or monitored dosage systems had on error rates, so we conducted research to explore this (Alldred et al, 2011).

Objectives and methods One objective was to determine if there were differences in administration error rates between tablets and capsules and other formulations. We also wanted to find out if there were differences in administration error rates between tablets and capsules dispensed in monitored dosage systems and those given out in the manufacturer’s original packaging.

Clinical pharmacists observed two drug rounds of 233 residents in 55 care homes. We documented the errors, along with the formulation of the medicines and if they were dispensed into a monitored dosage system. We then compared the error rates of the different formulations and monitored dosage systems taking into account:

- Whether the medicine was given regularly or as required;
- The age of the residents;
- Whether residents were in a residential or a nursing home placement;
- The Care Quality Commission’s quality rating of the home relating to medicines.

Results

- Liquids were four times more likely to be administered incorrectly than tablets and capsules in monitored dosage systems.
- Injectable preparations were 20 times more likely and inhalers over 30 more times as likely to be administered incorrectly than tablets and capsules.
- Errors with liquids involved omissions, incorrect doses and not shaking bottles of suspensions. Most topical errors involved eye drops that had expired or were omitted.
- Around one in 10 residents had been prescribed an inhaler for asthma or chronic obstructive pulmonary disease, and one in two inhalers were administered incorrectly. Reasons for this included: not shaking the inhaler; residents not holding their breath (often with powder visibly escaping the mouth); not using a spacer; and administering the wrong number of inhalations.

Two-thirds of tablets and capsules were dispensed into monitored dosage systems. These systems were half as likely to be involved in administration errors as drugs being dispensed in the manufacturers’ original packaging.

Implications for practice

Liquids

Seventy to eighty per cent of older patients are thought to have some form of swallowing difficulty, so liquid medicines are commonly needed in care homes (Wright et al, 2011). When residents are struggling to swallow medication, care home staff should request medication reviews from patients’ GPs or pharmacists.

By undertaking detailed medication reviews, rather than simply switching all tablets to liquids, it may be possible to discontinue medication that is no longer indicated or to use medicines that can be given once a day. Consequently, residents’ medication burden can be significantly reduced.

Many liquid medicines are unlicensed and expensive. Guidelines have suggested...
that GPs examine their prescribing of unlicensed liquids, so they may request that a licensed medicine is used in an unlicensed way – such as opening a capsule or dissolving a tablet – if no licensed preparation is available [Colquhoun, 2010]. Guidelines are available for patients who are unable to swallow solid dosage forms (UKMi, 2011), but we would advise staff to check with a pharmacist before crushing tablets or opening capsules. Instructions to use a medicine in an unlicensed way should always be received in writing from GPs and filed in residents’ records.

Topical and transdermal formulations
Eye, nose and ear preparations expire 28 days after the date they are first opened; expiry dates should be written on the medicine label as soon as they are opened.

Only one drop at a time should be administered into the eye to avoid overloading it. If two types of drops are needed, there should be a five-minute gap before the second drop is administered to prevent the first from being washed out (Clinical Knowledge Summary, 2011).

Staff need to ensure that their training covers the administration of topical medicines correctly. Few transdermal patches are suitable for cutting and care home staff should ensure that instructions to cut a patch have been received in writing from prescribers and filed in residents’ records.

Inhalers
Improving the use of inhalers to relieve breathlessness and prevent exacerbations in this setting is needed.

There are three main types of inhalers: pressurised metered dose inhalers (pMDI); breath-actuated devices; and dry-powder inhalers (DPI). The preferred method of administration for older people is the pMDI with a large-volume spacer (NICE, 2010). Spacers have several advantages. They remove the need to coordinate breathing with activating the device, can be administered with the help of a nurse or carer, and reduce systemic absorption of inhaled corticosteroids (Joint Formulary Committee, 2010; NICE, 2010).

Monitored dosage systems
Although monitored dosage systems have been promoted as being safer for administering medicines in care homes, there is limited evidence to support this.

Our study appeared to demonstrate a reduction in the risk of administration errors in monitored dosage systems. But further research is needed on how monitored dosage systems affect the whole medicines management system in this setting. What is clear is these systems are not a substitute for well-trained staff.

Monitored dosage systems are inflexible to changes made mid-cycle. For example, if bendroflumethiazide is stopped in the middle of the month, it may have already been ordered for the following month, so will appear in the next medication delivery. At best, this means the bendroflumethiazide is wasted – at worst, it will be restarted in error. Systems should be in place to guard against this.

Many medicines are not suitable for dispensing in monitored dosage systems, such as those sensitive to light or moisture (Church and Smith, 2006). “When required” medication is also unsuitable. Medication expires 12 weeks after being packaged into monitored dosage systems, and if it is not used, this results in waste (York Health Economics Consortium and School of Pharmacy, University of London, 2010). Ideally, “when required” medicines should be left in the manufacturer’s packaging.

Training and support
Good-quality medication training is crucial to the safe use of medicines in care homes. There are a variety of training sources available to care home staff, but quality will vary. Training sources include:

» Community pharmacists who dispense to care homes. They will often provide training for staff on the use of medications as part of their supply service;
» Distance learning packages;
» Primary care trusts, local authorities and private companies;

Further and higher education institutions;
» Asthma UK’s website has multimedia instructions on using common inhaler types, including spacers (Asthma UK, 2011).

The Royal Pharmaceutical Society has produced useful guidance on the safe use of medicines in this setting (RPSGB, 2007).

Summary
Medication administration errors in care homes are common and efforts are needed to improve the safety of medicines use in this vulnerable population.

Formulations that are not tablets and capsules are particularly at risk of being administered incorrectly, and care home staff need greater support and training to address this.

This article is a summary of a paper published in BMJ Quality and Safety (Alldred, 2011)

References
UKMi (2011) Therapeutic Options for Patients Unable to Take Solid Oral Dosage Forms. tinyurl.com/therapeutic-options