

MEDICINE COMPLEXITY

Complex medication regimens are burdensome for residents and for nursing staff in residential aged care homes.

Complex medication regimens increase the risk of medication administration errors and may be associated with medication non-adherence, adverse drug events, hospitalisation, hospital readmission and mortality among aged care home residents.

Polypharmacy is common in residential aged care, with the majority of residents taking five or more medicines, and up to three-quarters taking nine or more medicines.

Five or more daily medication administration times are common for residents in aged care homes. Residents who are frail and dependent in activities of daily living are more likely to have complex medication regimens. Increasing frailty and dependence may necessitate changes to routes of administration of medications, such as crushing medications and mixing with thickened fluid to aid swallowing.

Polypharmacy is only one contributing factor to medication regimen complexity. A high level of medication regimen complexity should be a trigger for a pharmacist-conducted residential medication management review (RMMR). RMMRs can target medication complexity with the goal of simplifying a resident's regimen.

Recent Australian recommendations for the prevention of injury-related deaths in residential aged care services support the need for medication regimen simplification and the development of standardised procedures to achieve medication simplification.

Medicines complexity

A simple medication count ignores medication regimen complexity. Residents with longer lengths of stay, more dependent in activities of daily living and most frail tend to have the most complex medication regimens. Residents with higher medication regimen complexity are more likely to have diabetes, heart failure and chronic obstructive pulmonary disease (COPD).

Medication regimen complexity has been shown to influence patient outcomes, including hospital admission and readmission, decreased quality of life, decline in functional status, adverse drug events and mortality.

Focusing on unnecessary medication regimen complexity in RMMRs is a relatively simple intervention, likely to improve resident outcomes, reduce medication errors and reduce the burden of administration times.

Medication regimen complexity comprises the number of medications and incorporates additional medication use complexity through additional factors including:

- dosing frequency (regular and prn)
- dosage form
- additional dosing instructions

Special instructions for medication administration such as to crush tablets, take with food, on an empty stomach or with a specific fluid, contribute to medication complexity.

Complex medication regimens can be challenging for aged care staff to administer and may increase the risk of administration errors.

Medicines simplification

Medication regimen simplification is important at an organisational level to minimise the risk of harm from medication errors. The increased focus on medicines safety in residential aged care homes has highlighted the need for both facility-wide quality use of medicines services and individual medication reviews.

Medication simplification has been described as the process of consolidating reducing medication complexity through strategies such as administering medications at the same time, standardising routes of administration, using long-acting formulations in preference to shorter-acting agents, and switching from multiple single-ingredient preparations to a combination formulation where possible.

Many multidose regimens can be converted to once-daily dosing, and tablet splitting can be replaced with lower-strength medicines.

Medicines administered several times a day may be able to be switched to longer-acting products administered once or twice daily.

continued over

Inhalers used for the treatment of asthma and COPD now are available as dual and triple combination products.

Some inhalers may be prescribed as maintenance and reliever therapy, reducing the number and type of inhalers required.

MRS GRACE

The Medication Regimen Simplification Guide for Residential Aged CarE (MRS GRACE) is a validated 5-item tool to reduce medication regimen complexity in aged care.

It comprises five questions about:

1. The resident
2. Regulatory and safety requirements
3. Drug interactions
4. Formulation
5. Facility and follow-up considerations

Consideration can be given to administering all medications at the same time each day unless the following apply:

1. Is there a resident related factor that precludes simplification?
2. Is there a regulatory or safety imperative that precludes simplification?
3. Is simplification likely to result in any clinically significant drug–drug, drug–food, or drug–time interactions?
4. Is there no alternative formulation available that can support less complex dosing?
5. Is simplification likely to result in any unintended consequences for the resident or facility?

The likelihood that a medication regimen can be simplified increases as the number of dosing times increases. In a sample of 50 residents in Australian aged care homes, simplification of medication regimens was possible for all residents with five or more administration times.

In another study in 8 residential aged care homes, pharmacists simplified medication regimens for 65% of residents using the MRS GRACE tool. Study participants were taking a median of nine regular daily medications. Most recommendations focused on changing the time of medication administration, formulation and dose frequency.

This one-off application of the tool resulted in a significant reduction in the number of administration times at 4 months in the intervention arm. This benefit was maintained at 8 and 12 months.

As medication administration is one of the most time consuming tasks, freeing up staff time has significant benefits for resident care and staff availability.

The reduction in medication administration times through a one-off intervention was sustainable over 12 months.

The simplification intervention had no negative impact on resident's quality of life, satisfaction, hospitalisation rates or mortality.

Summary

Medication regimen complexity is a term used to describe multiple characteristics of a person's drug regimen, beyond just the number of medications.

Medication complexity assessment includes factors such as number of doses per day, number of units per dose, dosage forms, and additional instructions.

Simplification of a complex medication regimens for patients is an important part of pharmacist-led comprehensive medication reviews and facility-wide quality use of medicine activities.

All residents with five or more administration times could have their medication regimens simplified. Medication simplification guided by a structured validated tool such as MRS GRACE should be considered for all residents in aged care homes at least annually.

References

- J Am Med Dir Assoc* 2015;16. 535.e531–512.
- Eur J Clin Pharmacol* 2017;73:1475–1489.
- Clin Interv Aging* 2018;13:975–86.
- Clin Interv Aging* 2019;14:1783–95.
- Clin Interv Aging* 2020;15:1–13.
- J Am Med Dir Assoc* 2020;S1525-8610(20)30186-9.
- J Clin Med* 2020;9:1053.

The Webstercare Consultant Pharmacist Continuing Education Service come to you each month from your pharmacist. If you would like extra copies please visit www.webstercare.com.au or ask your pharmacist.