





Developed by the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists



# the prescribing cascade

**Recognise and stop** A prescribing cascade occurs when a new medicine is prescribed to 'treat' an adverse reaction to another drug in the mistaken belief that a new medical condition requiring treatment has developed. Prescribing cascades should be avoided because they are associated with adverse outcomes due to the second or additional drugs, which places the patient at risk. One example of a prescribing cascade is when a patient is prescribed a non-steroidal drug for pain, and is then prescribed proton pump inhibitors (PPIs) to reduce the risk of stomach side effects caused by the first prescribed drug.

> As prescribing cascades are precipitated by adverse drug reactions, they can be prevented by avoidance and early detection of the initial adverse drug reaction. For instance, many adverse drug reactions in the elderly are dose-related. It is advised that starting treatment at low doses and titrating to effect may reduce their risk. Most adverse drug reactions occur within a few months of starting a medicine. Clinicians should consider the potential for an adverse drug reaction to be the cause of any new symptoms, particularly if a drug has been recently started or changed. Patients should be asked about new symptoms, as many patients do not report adverse drug reactions. When such reactions occur, non-drug treatment strategies should be considered as the most appropriate first-line management, rather than starting a second medicine to counteract adverse effects.



Reduce the use of medicines when there is a safer or more effective nonpharmacological management strategy

Pharmacological treatments should be avoided or minimised if safer or more effective nonpharmacological alternatives are available. Pharmacological treatments may become a panacea for chronic lifestyle-related problems, and may detract from behaviour management tools that have proven effective in managing these same problems.

There is also a risk of adverse effects from particular pharmacological treatments which may be avoidable by using non-pharmacological management strategies. For instance, physiotherapy should be used instead of oxycodone for addressing non-cancer pain, because of the risk of adverse effects. Another example is the use of psychotropic medicines for behavioural and psychological symptoms of dementia when nonpharmacological management strategies are both more effective and safer.







**Avoid using a higher** or lower dose than is necessary for the patient to optimise the 'benefit-to-risk' ratio and achieve the patient's therapeutic goals

Therapeutic dosage should be adjusted to optimise the benefit-to-risk ratio of the treatment. Dosage should be no higher or lower than needed to achieve the patient's therapeutic goals. As patients become more frail, potential harms usually increase and potential benefits usually decrease for a given dosage of pharmacological treatment. For example, carefully assessing the risk and benefits when initiating non-steroidal inflammatory drugs in elderly patients is important, because of the increased risk of stroke associated with NSAID therapy; and use of proton pump inhibitors in the elderly should be stepped down after an initial course of therapy. Related to this, high drug doses are not necessarily more effective than low doses. An example of this is the relationship between doses of a selective serotonin re-uptake inhibitor for patients with major depressive disorder and useful clinical improvements.



**Stop medicines when** no further benefit will be achieved or the potential harms outweigh the potential benefits for the individual patient

Pharmacological treatments should cease when there are no further benefits to be achieved from the treatment, or when the potential harms from the treatment start to outweigh the potential benefits. This is particularly pertinent for elderly patients with a limited life expectancy where the treatments are unlikely to prevent disease events, and may in fact lead to adverse effects that reduce quality of life. These patients are at an increased risk of polypharmacy and increased drug events. For example, bisphosphonate treatment should not be administered to patients living in residential aged care facilities when these patients are already too frail to swallow drugs or have a life expectancy which is significantly less than 12 months.



multiple concurrent therapeutics (hyper-polypharmacy)

**Reduce use of** Polypharmacy — defined as five to nine medications taken regularly — is common among elderly patients. However, patients who are prescribed with multiple, concurrent therapeutics (i.e. hyper-polypharmacy) may be on ten or more drugs at time.

> Research has confirmed a significant association between polypharmacy and adverse outcomes among older people living in the community because the toxicities and side effects associated with prescribed drugs are accrued over

Polypharmacy in older people is associated with decreased physical and social functioning; increased risk of falls, delirium and other geriatric syndromes; hospital admissions; and, death.





# SUPPORTING EVIDENCE

1.

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Declercq T, Petrovic M, Azermai M, et al. Withdrawal versus continuation of chronic antipsychotic drugs for behavioural and psychological symptoms in older people with dementia. Cochrane Database Syst Rev 2013;3:CD007726.

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#### 4.

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#### 5.

Davies EC, Green CF, Taylor S, et al. Adverse drug reactions in hospital in-patients: A prospective analysis of 3695 patient-episodes. PLoS ONE 4(2):e4439.

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# HOW THIS LIST WAS MADE

A working party of members of the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT) was established to propose an initial list of recommendations. ASCEPT's membership was then invited to participate in an online survey to comment on the appropriateness of the proposed recommendations and suggest additional items for consideration.

Based on the survey responses, six recommendations were shortlisted. Following an evidence review the top 5 list items were selected. The final list was signed off by the ASCEPT President in April 2016.

Last reviewed: August 2016

# **About Choosing Wisely Australia**

Choosing Wisely Australia® is enabling clinicians, consumers and healthcare stakeholders to start important conversations about tests, treatments and procedures where evidence shows they provide no benefit and in some cases, lead to harm. This initiative is being led by Australia's medical colleges, societies and associations and is facilitated by NPS MedicineWise.

# About the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT)

The Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT) is the professional and independent society in Australia and New Zealand with expertise in the use and toxicity of medicines and chemicals.

### **About NPS MedicineWise**

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