

Anticholinergic burden program

Presentation Template
NPS MedicineWise



**Anticholinergic burden...
What comes to mind?**

Anticholinergic burden: an important QUM issue

- ▶ Anticholinergic burden is the cumulative effect on a person from taking one or more medicines with anticholinergic effects.¹
- ▶ Cumulative burden may be caused by multiple medicines including those not typically thought of as having anticholinergic effects.^{2,3}
- ▶ The impact on patient health outcomes includes large increases in fall-related hospitalisation, the risk of dementia and mortality,^{4,5} and overall reduced quality of life.

1 Kouladjian O'Donnell L, et al. J Pharm Pract Res 2017;47:67-77.

2 Parkinson L, et al. Med J Aust 2015;202:91-4.

3 Veterans'MATES. Medicines: the hidden contributor to falls and hip fractures. Canberra: Australian Government, 2018.

4 Nishtala PS, et al. Pharmacoepidemiol Drug Saf 2014;23:753-8.

5 Dmochowski RR, et al. NeuroUrol Urodyn 2021;40:28-37.

Compounding effects of anticholinergic and sedative medicines

- ▶ Medicines with anticholinergic or sedative properties may cause adverse events by contributing to an older person's anticholinergic or sedative burden.¹
- ▶ High long-term cumulative exposure is associated with poorer cognitive and physical functioning.²
- ▶ This burden may be decreased by reducing the number and dose of medicines with anticholinergic and sedative effects.¹

¹ Bell JS, et al. Aust Fam Physician. 2012;41:45-9.

² Wouters H, et al. J Gerontol A Biol Sci Med Sci. 2020;75:357-65.

Anticholinergic effects and potential outcomes



Central effects:

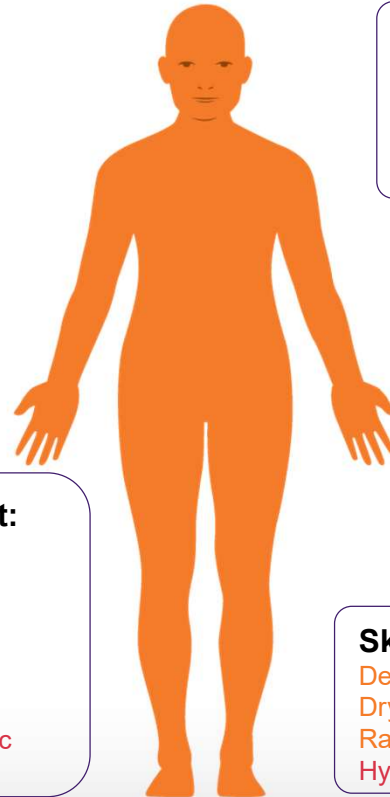
Drowsiness	Cognitive impairment
Fatigue	Falls & accidents
Inability to concentrate	Hallucinations
Restlessness	Delirium
Dizziness	Seizures
Confusion & agitation	Functional decline & increased dependency
Headache & fever	Diminished quality of life
Insomnia	
Memory loss	

Gastrointestinal tract:

- Dyspepsia
- Constipation
- Gastro-oesophageal reflux
- Nausea or vomiting
- Faecal impaction
- Paralytic ileus
- GI obstruction

Genitourinary tract:

- Urinary hesitancy
- Difficulty urinating
- Incontinence
- Urinary retention or obstruction
- Urinary tract infection
- Exacerbation of prostatic hypertrophy



Eye:

Mild dilation of pupil	Increased risk of angle-closure glaucoma
Dry eyes	
Inability to focus	
Blurred vision	

KEY System:
Mild
Moderate
Severe

Mouth:

Dry mouth	Malnutrition
Thirst	Difficulty with speech
Oral discomfort	Respiratory infections
Reduced appetite	Dental or denture problems
Difficulty in eating and swallowing	

Skin:

- Decreased sweating
- Dry and flushed skin
- Rash
- Hyperthermia/heat stroke

Heart:

- Tachycardia
- Arrhythmias
- Exacerbation of angina
- Exacerbation of heart failure
- Postural hypotension

Examples of medicines with anticholinergic effects^{1,2}



Class	Medicines ^a	Class	Medicines ^a
Antidepressants	SSRIs: citalopram; escitalopram; fluoxetine; paroxetine; sertraline SNRIs: desvenlafaxine; duloxetine; venlafaxine Other: mirtazapine	Antihistamines	Sedating: cyproheptadine; promethazine Less sedating: cetirizine; fexofenadine; loratadine
Antipsychotics	olanzapine; quetiapine; risperidone	Urinary anticholinergics	oxybutynin
Benzodiazepines	diazepam; temazepam	Drugs for Parkinson's	amantadine; benztropine; entacapone; levodopa/carbidopa
Opioids	codeine; fentanyl; oxycodone; tapentadol; tramadol	Gastrointestinal drugs	domperidone; loperamide; metoclopramide
Adjuvants for pain management	TCAs: amitriptyline; nortriptyline Gabapentinoids: gabapentin; pregabalin SNRIs: duloxetine; venlafaxine		

a. List is not exhaustive

SNRI = serotonin and noradrenaline reuptake inhibitor; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressant

1 Australian Medicines Handbook. Adelaide: AMH Pty Ltd, 2021

2 Therapeutic Guidelines. West Melbourne: Therapeutic Guidelines Ltd, 2021.

How would you assess anticholinergic burden?



Health checks

Comprehensive medical assessment (CMA), case conference, routine assessments, GP consults



Validated assessment tools

Eg, Drug Burden Index (DBI) Calculator



Medication management reviews

Residential Medication Management Review (RMMR), medication chart review



Anticholinergic burden: a person-centred approach

Person-centred care for older people¹

What matters to the resident?



A shared understanding of the resident's personal **goals** and **preferences** may improve health outcomes, facilitate patient-centred RMMRs, and drive comprehensive care planning^{2,3}

Medicines



Consider **reviewing** the resident's current **medicines list**, including non-prescription and over-the-counter medicines, at any transition of care or change in condition¹

Mobility and cognitive function



Consider anticholinergic burden when a resident experiences a **fall** or **cognitive decline**¹

¹ Institute for Healthcare Improvement. Age-friendly health systems: Guide to using the 4Ms in the care of older adults. USA: IHI, 2020.

² Verdoorn S, et al. PLoS Med 2019; 16:e1002798

³ Australian Commission on Safety and Quality in Health Care: Implementing the comprehensive care standard: identifying goals of care. Sydney: ACSQHC, 2019



Multidisciplinary opportunities

Multidisciplinary opportunities may support person-centred care and help address any concerns or issues.

- ▶ **Case conferences**
- ▶ **RMMRs**
- ▶ **Medication Advisory Committee (MAC) meetings**
- ▶ **Quality Use of Medicine (QUM) services**



Managing anticholinergic burden

Management guidance¹⁻³

Medicines ^a	Non-anticholinergic alternative considerations	Non-pharmacological options (optimise throughout management)
SSRIs (depression) citalopram escitalopram fluoxetine paroxetine sertraline SNRIs (depression) desvenlafaxine duloxetine venlafaxine Other (depression) mirtazapine	<p>All antidepressants have some degree of anticholinergic or sedative effects.</p> <p>If considered essential, use lowest possible dose.</p>	Lifestyle modifications <ul style="list-style-type: none"> ▶ Sleep hygiene ▶ Adequate physical activity ▶ Healthy diet ▶ Minimise alcohol consumption ▶ Reduce stress ▶ Social support
Antipsychotics (dementia with changed behaviour) olanzapine quetiapine risperidone Benzodiazepine (dementia with changed behaviour) oxazepam	<p>All antipsychotics have some degree of anticholinergic or sedative effects.</p> <p>If considered essential, use lowest possible dose.</p> <p>When stopping or tapering an antipsychotic, create a management plan that includes psychosocial interventions (to decrease caregiver depression and delay RACF admission).</p> <p>Note: Avoid benzodiazepines to treat agitation, aggression and psychosis of dementia. If an antipsychotic or antidepressant cannot be used, a benzodiazepine with a short half-life and no active metabolites may be considered for a maximum of 2 weeks.</p>	Person-centred approach <ul style="list-style-type: none"> ▶ Person-centred care techniques ▶ Behavioural therapies ▶ Environmental changes

a. List is not exhaustive

CBT = cognitive behavioural therapy; SNRI = serotonin and noradrenaline reuptake inhibitor; SSRI = selective serotonin reuptake inhibitor

1 Australian Medicines Handbook. Adelaide: AMH Pty Ltd, 2021

2 Therapeutic Guidelines. West Melbourne: Therapeutic Guidelines Ltd, 2021.

3 The University of Sydney. The goal-directed medication review electronic decision support system G-MEDSS. Sydney: USYD, 2019.

Management guidance¹⁻³



Medicines ^a	Non-anticholinergic alternative considerations	Non-pharmacological options (optimise throughout management)
Benzodiazepines (insomnia) temazepam	Use non-pharmacological alternatives to assist with sleep. Melatonin may be an option for people aged > 55 years. Consider melatonin for an initial period of 3 weeks then review. If needed, continue use for an additional 10 weeks.	<ul style="list-style-type: none"> ▶ Sleep hygiene/education ▶ Relaxation techniques ▶ Sleep restriction ▶ Stimulus control
Opioids (chronic non-cancer pain) codeine fentanyl oxycodone tapentadol tramadol Non-opioids (chronic non-cancer pain) TCA s amitriptyline nortriptyline Gabapentinoids gabapentin pregabalin SNRIs duloxetine venlafaxine	Consider an integrated multidisciplinary approach to pain management. Paracetamol and NSAIDs have no anticholinergic or sedative effects. Topical NSAIDs have fewer adverse effects than oral NSAIDs and may be more suitable in aged care. Lidocaine 5% patches are preferred if the patient has localised neuropathic pain.	Physical therapies <ul style="list-style-type: none"> ▶ Exercise and activity⁴ ▶ Physiotherapy⁴ ▶ TENS⁵ <p>Engage the patient in self-management strategies that focus on the patient's active contribution to their pain management. This includes physical activity, social connection, good nutrition and sleep.</p>

a. List is not exhaustive

CBT = cognitive behavioural therapy; CBT-i = cognitive behavioural therapy for insomnia; NSAID = nonsteroidal anti-inflammatory drug; SNRI = serotonin and noradrenaline reuptake inhibitor; TCA = tricyclic antidepressant; TENS = transcutaneous electrical nerve stimulation

1 Australian Medicines Handbook. Adelaide: AMH Pty Ltd, 2021

2 Therapeutic Guidelines. West Melbourne: Therapeutic Guidelines Ltd, 2021.

3 The University of Sydney. The goal-directed medication review electronic decision support system G-MEDSS. Sydney: USYD, 2019.

4 NPS MedicineWise. If not opioids, then what? Sydney: NPS MedicineWise, 2019.

5 Vance CG, et al. Pain Manag. 2014;4(3):197-209.

Management guidance¹⁻³

Medicines ^a	Non-anticholinergic alternative considerations	Non-pharmacological options (optimise throughout management)
Antihistamines (allergies) Sedating cyproheptadine promethazine Less sedating cetirizine fexofenadine loratadine	<p>Intranasal corticosteroids are most effective for symptoms of allergic rhinitis, particularly for nasal congestion.</p> <p>Topical treatments (moisturisers, eye drops, anti-inflammatories, local anaesthetics) have fewer adverse effects than oral antihistamines.⁴</p>	Environmental <ul style="list-style-type: none"> ▶ Minimise contact with allergens Physical⁴ <ul style="list-style-type: none"> ▶ Sodium chloride irrigation for eyes/nose ▶ Wet/cold compress ▶ Moisturise skin
Anticholinergics (urinary urge incontinence) oxybutynin	<p>Mirabegron may be an option for people with urge incontinence intolerant of anticholinergic effects, or when anticholinergics are not effective or contraindicated.</p> <p>Botulinum toxin may be considered for people with urge incontinence intolerant of anticholinergic effects.</p>	<ul style="list-style-type: none"> ▶ Bladder assessment ▶ Pelvic floor exercises ▶ Modify fluid intake ▶ Lifestyle (weight loss/smoking cessation) ▶ Incontinence aids ▶ Avoid constipation ▶ Minimise diuretics

a. List is not exhaustive

1 Australian Medicines Handbook. Adelaide: AMH Pty Ltd, 2021

2 Therapeutic Guidelines. West Melbourne: Therapeutic Guidelines Ltd, 2021.

3 The University of Sydney. The goal-directed medication review electronic decision support system G-MEDSS. Sydney: USYD, 2019.

4 NSW Therapeutic Advisory Group. Deprescribing guide for sedating antihistamines. Sydney: NSW TAG Inc., 2018.

Monitoring withdrawal effects when deprescribing¹



Monitor short term (within 1–3 days)	Monitor long term (> 7 days)
<p>Monitor for withdrawal symptoms</p> <p>Symptoms can occur within 1–3 days of dose reduction</p>	<p>Monitor for recurrence of symptoms</p> <p>Recurrence of previous or new symptoms may occur within 1–2 weeks of dose reduction or cessation</p>
<ul style="list-style-type: none">▶ Common withdrawal symptoms when deprescribing medicines with anticholinergic effects include irritability, anxiety, insomnia and sweating.▶ Withdrawal symptoms usually mild and can last up to 6–8 weeks.▶ If severe symptoms (eg, tachycardia, profuse and persistent sweating, severe anxiety, or severe insomnia) occur, restart at the previous lowest effective dose.	

¹ NSW Therapeutic Advisory Group Inc. Deprescribing tools. NSW TAG, 2021. <https://www.nswtag.org.au/deprescribing-tools/>



Managing anticholinergic side effects

- ▶ Review falls as part of the usual falls assessment protocols.
- ▶ Dry mouth management strategies^{1,2}
 - ◆ Dental products with high fluoride, calcium or casein to help prevent tooth decay
 - ◆ White petroleum jelly for dry lips
 - ◆ Avoid lollies and alcohol-containing mouthwashes
 - ◆ Stabilise dentures with adhesives to prevent ulcers and remove during sleep
 - ◆ High pH artificial saliva without citric acid
- ▶ Dry eye management strategies³
 - ◆ Lubricating eye drops, gels or ointments (best given at night)
- ▶ Constipation management strategies⁴
 - ◆ High-fibre diet (eg, prunes)
 - ◆ Drinking plenty of fluids (unless there are fluid intake restrictions)
 - ◆ Exercising

1 Better Health Channel. Dry mouth. Victoria: Department of Health State Government of Victoria, 2021.
2 Deutsch A, Jay E. Aust Prescr 2021;44:153-160.
3 Better Health Channel. Dry eye. Victoria: Department of Health State Government of Victoria, 2021.
4 Veterans'MATES. What you can do about constipation. Canberra: Australian Government, 2007.