Optimizing Medication Safety: Targeting Overuse of Anticholinergic Medications in Older Adults

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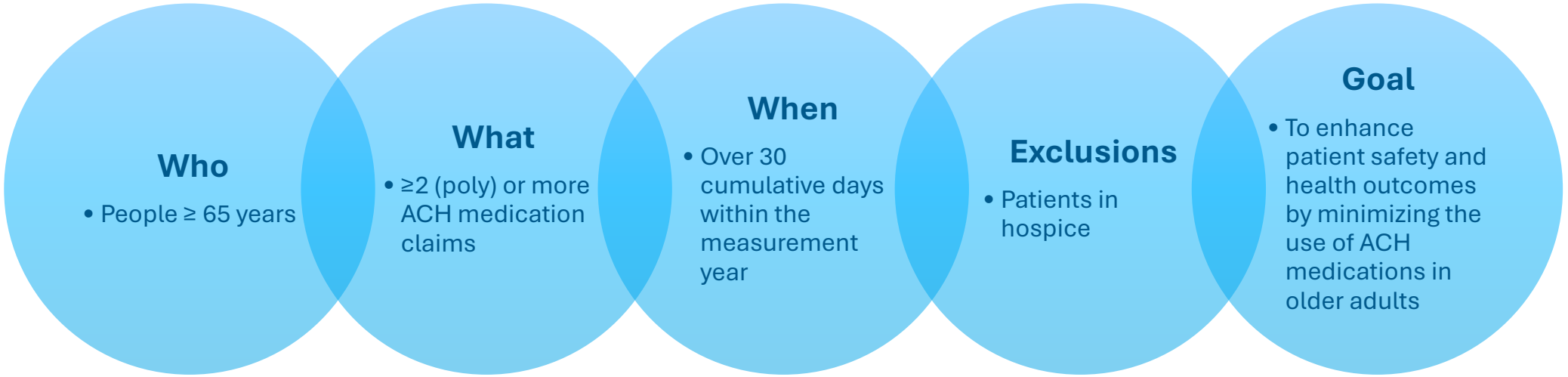
Objectives

1. Explain the Poly-ACH measure, who it affects, and its importance in healthcare for older populations
2. Understand which medications classify as anticholinergic and the recommended alternatives
3. Learn what resources are available to decrease overuse of anticholinergic medications

POLY-Anticholinergic (ACH) Star Measure

- A Centers for Medicare & Medicaid Services (CMS) measure that evaluates health plans based on how many ACH medications are being used within the measurement year



ACH Medications

Mechanism of action:

Inhibit acetylcholine, a neurotransmitter, at central and peripheral synapses. This blocks the actions of the parasympathetic nervous system

Side effects:

Dry mouth, blurry vision, urinary retention, constipation, tachycardia, cognitive impairment, confusion, memory problems and drowsiness/sedation

Consequences:

Side effects of blurry vision, cognitive impairment and dizziness leads to increased health risks in the older adults

Beers Criteria

Provides information about the research behind the recommendations and provides justification for changes of medications for the geriatric population

Beers Criteria

Use of more than 1 anticholinergic medication increases risk of cognitive decline, delirium, and falls/fractures

Side effects (SE):

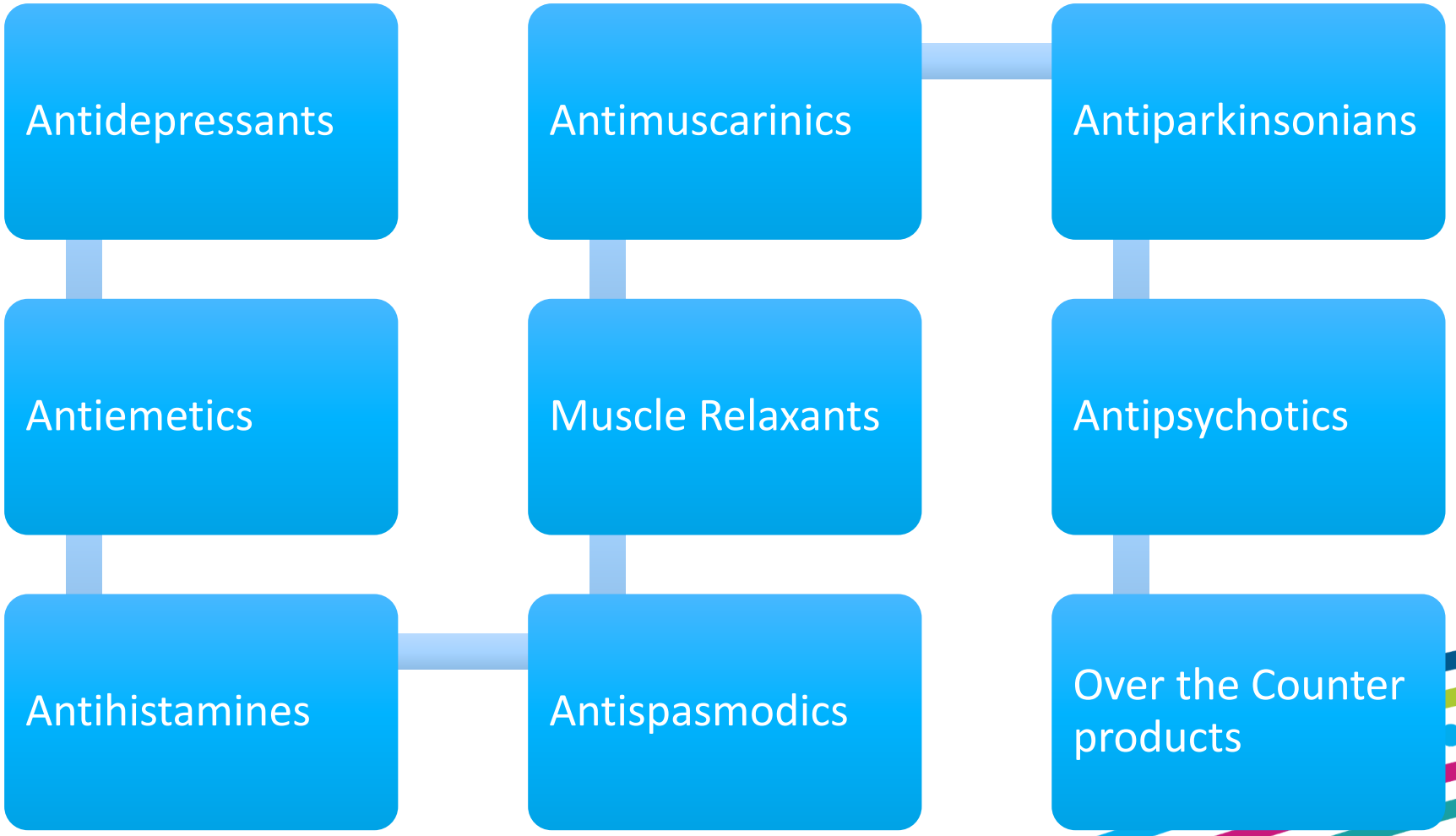
- Sedation, dizziness, and lightheadedness
- Reduced reaction time and balance
- Decreased in mentation and postural stability
- Blurred vision and impaired depth perception
- Increased risk of orthostatic hypotension and tachycardia

Beers Criteria Medication Categories

Medications	Rationale	Quality of the Evidence	Strength of Recommendation
• A comprehensive list of drugs to which the Beers Criteria recommendations apply	• Clinical reasoning behind the recommendation, including potential risks and adverse effects in older adults	• Based on consistency of findings, study design, and relevance to geriatric populations	• Indicates how confidently the expert panel advises avoiding use in older adults

Anticholinergic (ACH) Medications

Drug Class Road Map



Anti-depressants

Medications to Avoid

- Paroxetine (SSRI)
- Tricyclic Antidepressants (TCAs):
  - Secondary (preferred due to less ACH SEs): Amoxapine, Desipramine, Nortriptyline,
  - Tertiary: Amitriptyline, Clomipramine, Imipramine
- Doxepin (> 6 mg)

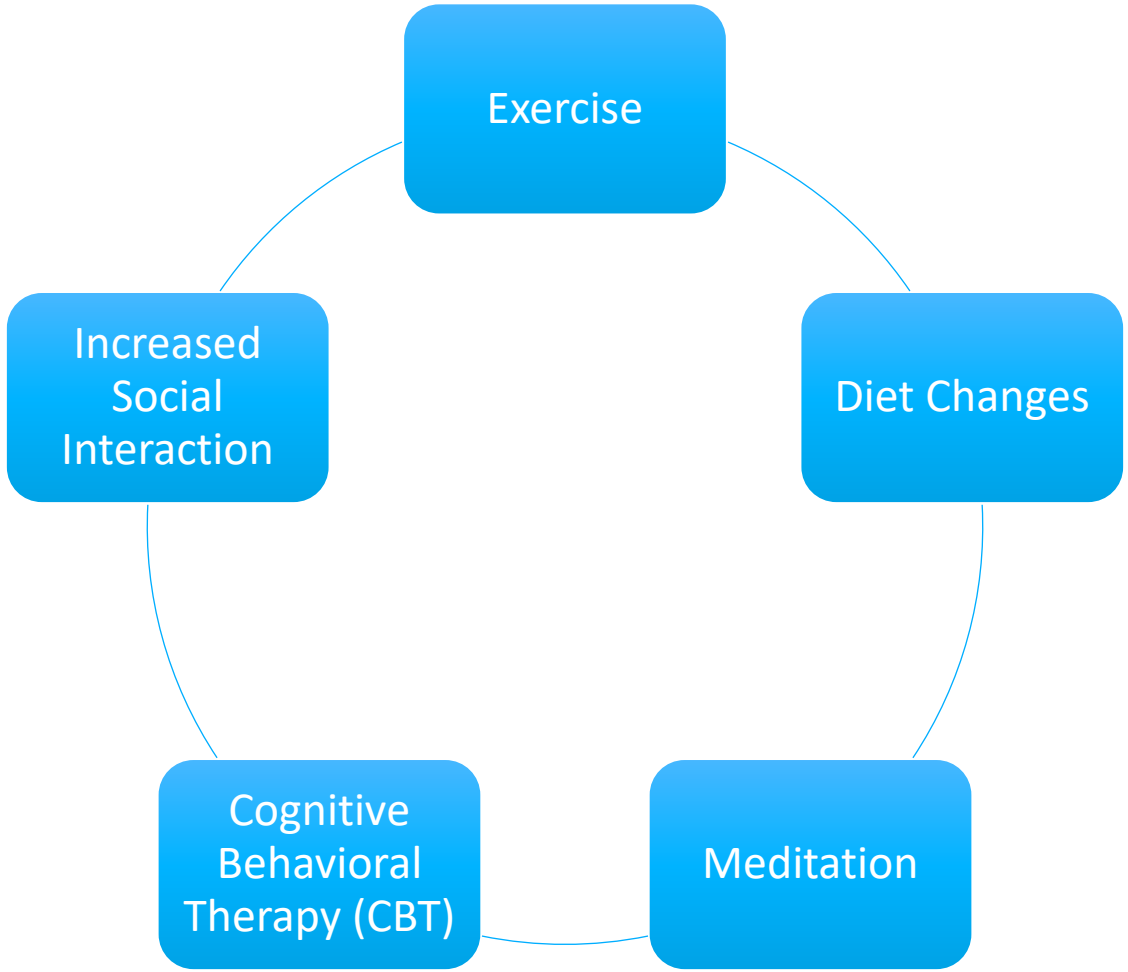
Recommended Alternatives

- Selective Serotonin Reuptake Inhibitors or Selective Norepinephrine Reuptake Inhibitors (SSRIs, SNRIs): Escitalopram, Sertraline, Fluoxetine, Duloxetine, Venlafaxine
- Mirtazapine
- Bupropion

Antidepressants: Beers Criteria

Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
• Sedation • Orthostatic Hypotension	• Avoid	• High	• Strong

Antidepressants: Non-pharmacological Management



Antiemetics

Medications to Avoid

- Metoclopramide
- Prochlorperazine
- Promethazine

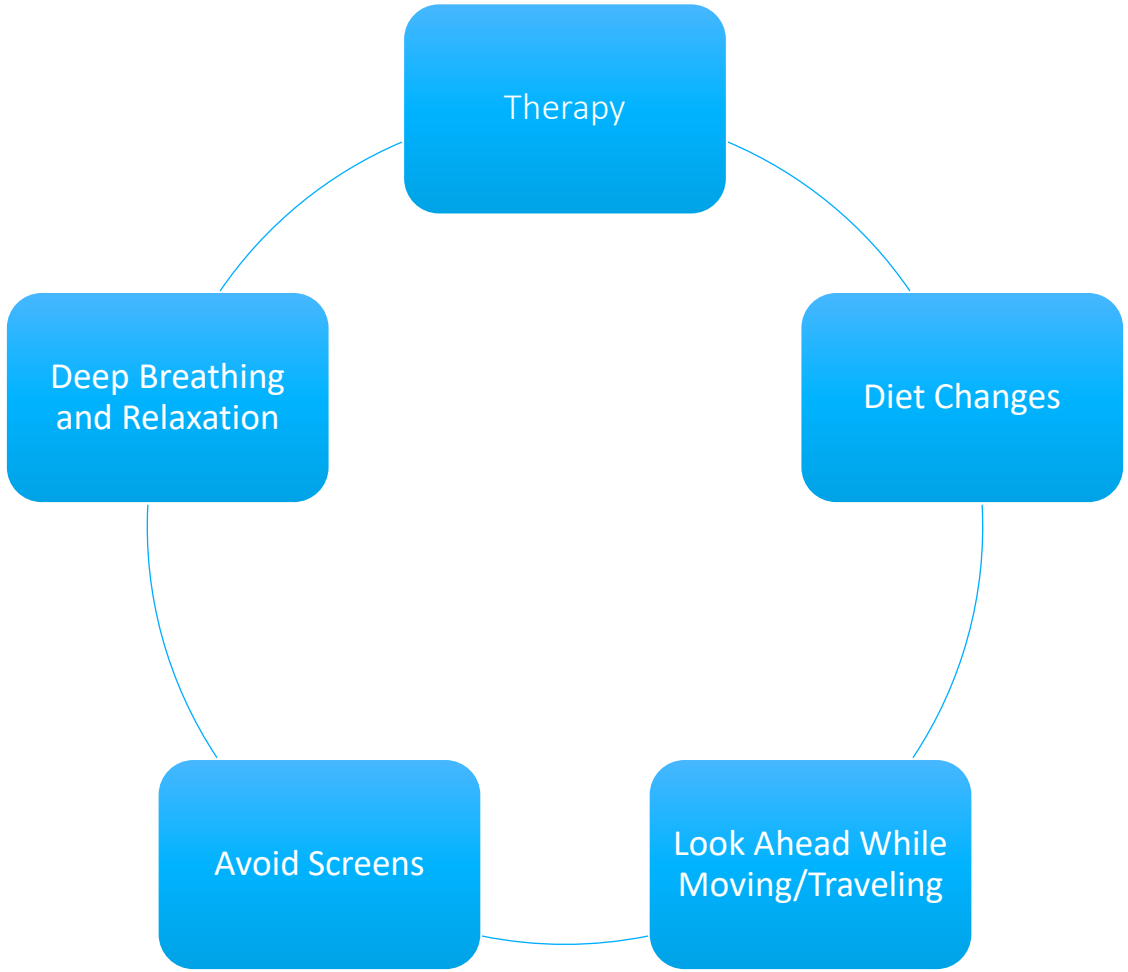
Recommended Alternatives

- 5-HT3 inhibitors: Ondansetron

Antiemetics: Beers Criteria

Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
• Delirium • Falls	• Avoid	• High	• Strong

Antiemetics: Non-Pharmacological Management



Antihistamines

Medications to Avoid

- Brompheniramine
- Chlorpheniramine
- Cyproheptadine
- Dimenhydrinate
- Diphenhydramine
- Doxylamine
- Hydroxyzine
- Meclizine
- Triprolidine

Antihistamines Recommended Alternatives

Allergies:

Fluticasone, Azelastine, Olopatadine, Ocean nasal spray, Loratadine, Fexofenadine

2nd generation Antihistamines (AH): Levocetirizine

Sleep:

Melatonin, Mirtazapine, Ramelteon, Trazodone

Dual orexin receptor antagonists: Suvorexant, Lemborexant, Daridorexant

Anxiety:

SSRI/SNRIs, Buspirone, Mirtazapine

Antihistamines: Beers Criteria

Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
• Reduced clearance • Tolerance • Confusion • Falls	• Avoid	• High	• Strong

Antihistamines: Non-Pharmacological Management

Allergies:

- Avoid triggers, stay indoors during pollen seasons, use air conditioning with HEPA filters, change clothes and shower after being outside.
- Cold compress for itchy eyes, inhaling steam from warm shower or tea.

Anxiety:

- CBT, meditation
  Regular exercise, healthy sleep habits
- Diet changes: healthy diet and less caffeine

Sleep:

- Try to sleep at around the same time every day to maintain a consistent sleep schedule
  No food, drinks, or exercise 2-3 hours before bed
- Avoid using screens 1 hour before bed
  Minimize light and keep cooler-temperature room

Antispasmodics

Medications to Avoid

- Atropine
- Chlordiazepoxide-Clindinium
- Dicyclomine
- Homatropine
- Hyoscyamine
- Scopolamine

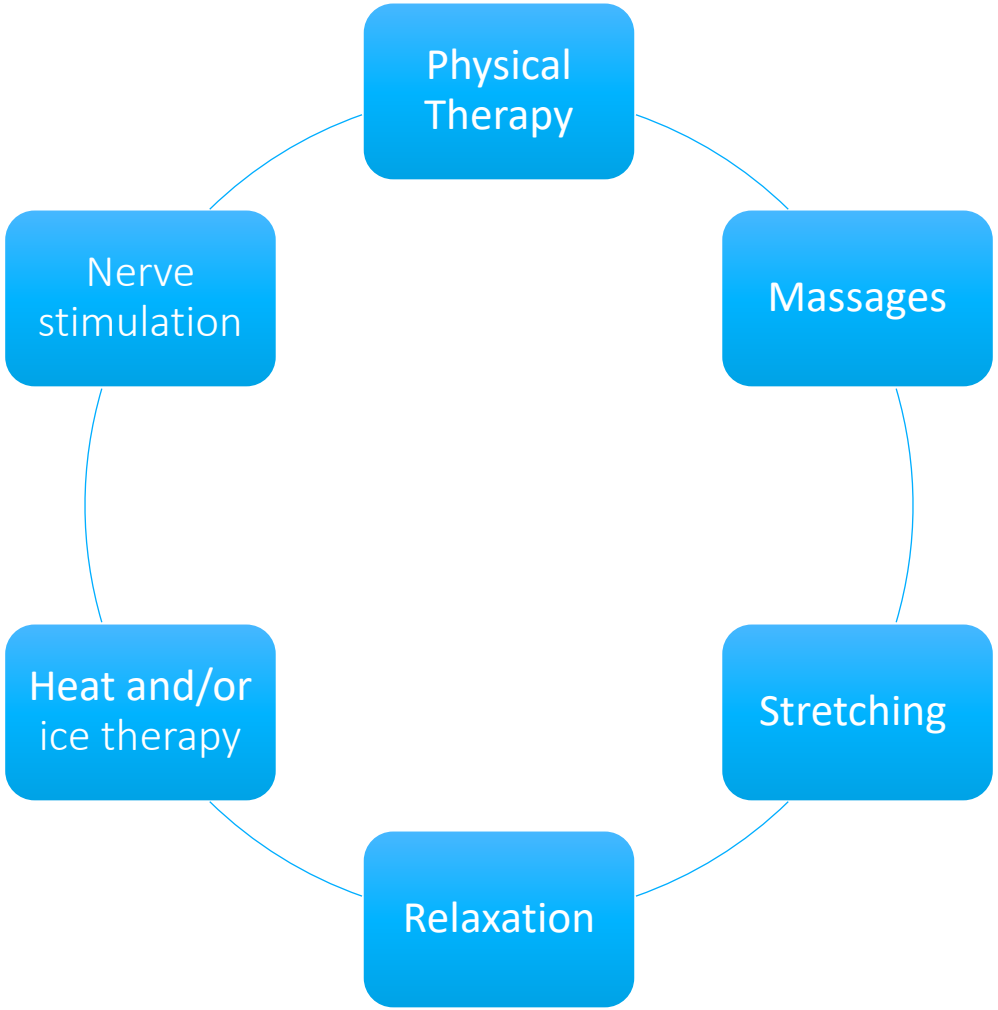
Recommended Alternatives

- For constipation: Lactulose
- For diarrhea: Loperamide

Antispasmodics: Beers Criteria

Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
• Sedation • Fractures • Poor Tolerance • Questionable Effectiveness	• Avoid	• Moderate	• Strong

Antispasmodics: Non-Pharmacological Management



Muscle Relaxants

Medications to Avoid

- Cyclobenzaprine
- Orphenadrine

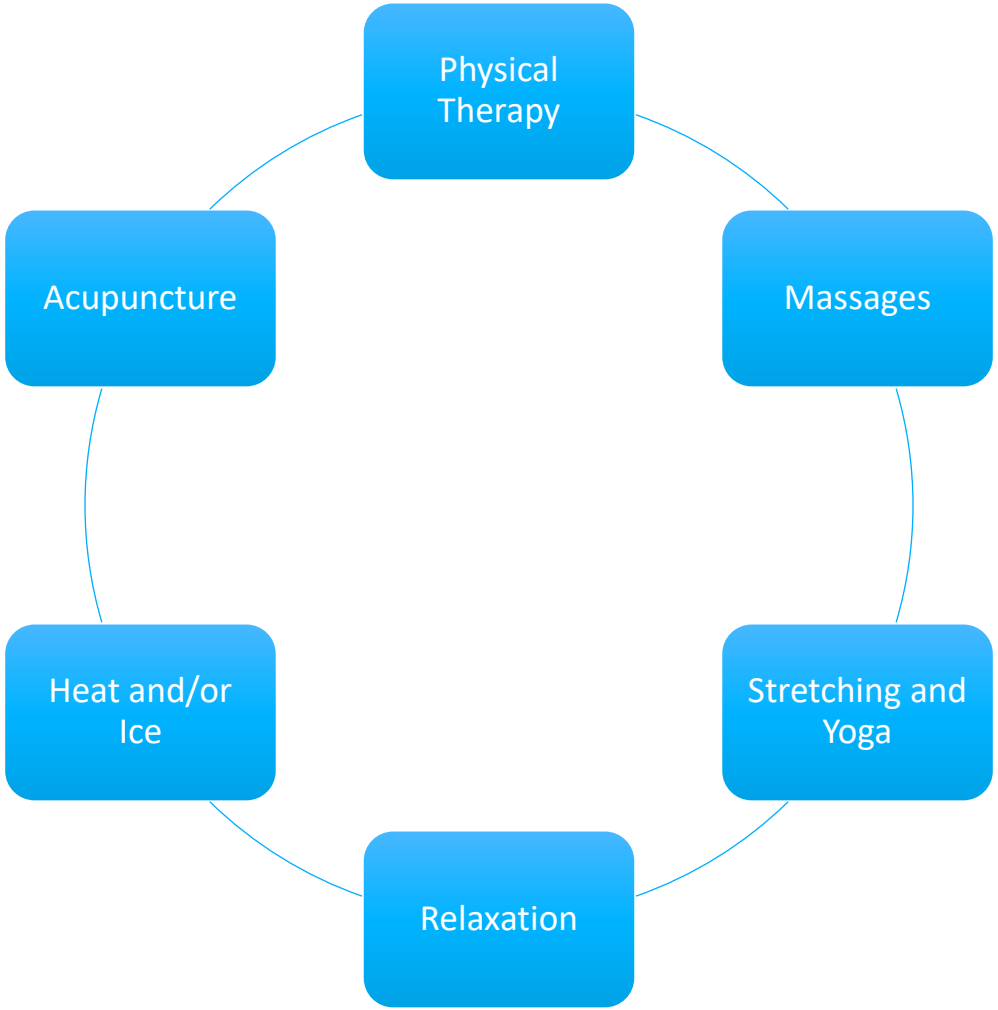
Recommended Alternatives

- Baclofen
- Tizanidine
- Acetaminophen
- Nonsteroidal Anti-Inflammatory Drugs (NSAIDs): Celecoxib, Ibuprofen, Naproxen
  - Caution for bleed risk and kidney injury in geriatrics with NSAIDs

Muscle Relaxants: Beers Criteria

Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
• Sedation • Fractures • Poor Tolerance • Questionable Effectiveness	• Avoid	• Moderate	• Strong

Muscle Relaxants: Non-Pharmacological Management



Antimuscarinics

Medications to Avoid

- Oxybutynin
- Darifenacin
- Tropism
- Fesoterodine
- Solifenacin
- Tolterodine
- Flavoxate

Recommended Alternatives

- Mirabegron
- Vibegron

Non-Pharmacological

- Bladder training
- PT referral: pelvic floor exercises

Antimuscarinics: Beers Criteria

No recommendations appear on Beers List. However, these are strong anticholinergics to avoid combining with other anticholinergics.

Antiparkinsonians

Medications to Avoid

- Benztropine
- Trihexyphenidyl

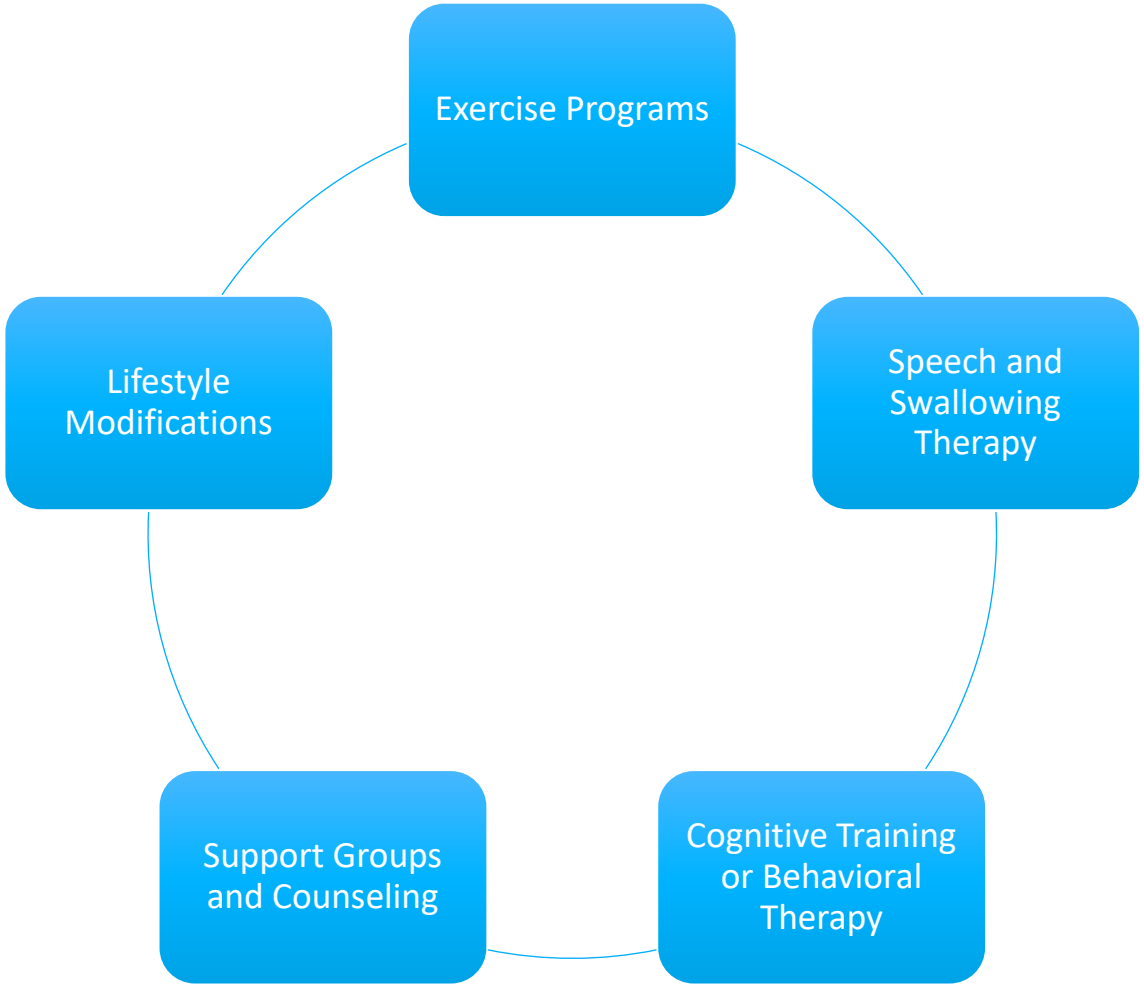
Recommended Alternatives

- Levodopa/Carbidopa
- Dopamine Agonists:
  - Pramipexole, Ropinirole, Rotigotine
- Amantadine

Antiparkinsonians: Beers Criteria

Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
• Non-anticholenergic options available	• Avoid	• Moderate	• Strong

Antiparkinsonians: Non-Pharmacological Management



Antipsychotics

Medications to Avoid

- Chlorpromazine
- Clozapine
- Olanzapine
- Perphenazine

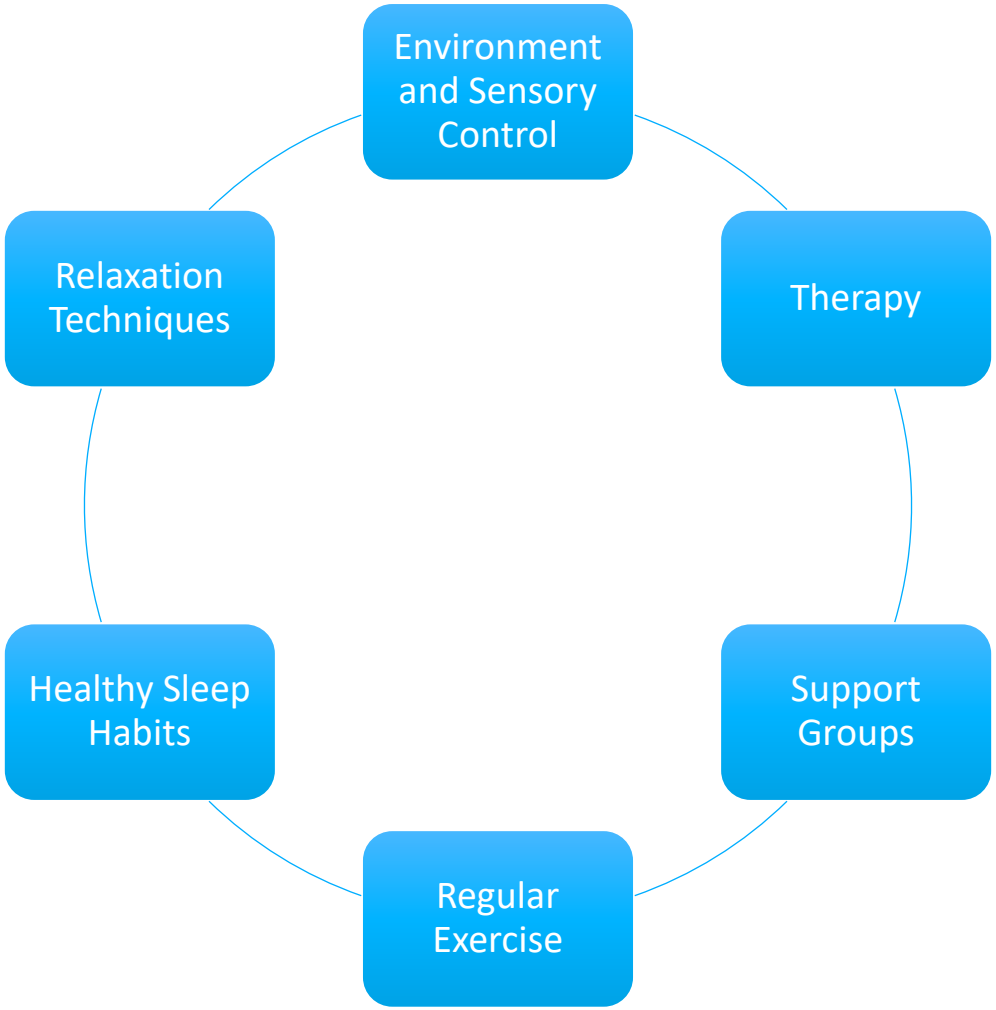
Recommended Alternatives

- SSRIs (except Paroxetine)
- Anticonvulsants
- Quetiapine
- Risperidone

Antipsychotics: Beers Criteria

Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
• Increase risk of stroke • Greater cognitive decline and mortality in dementia	• Avoid • Unless for FDA approved indications	• Moderate	• Strong

Antipsychotics: Non-Pharmacological Management



Over the Counter (OTC) and Supplements

OTCs:

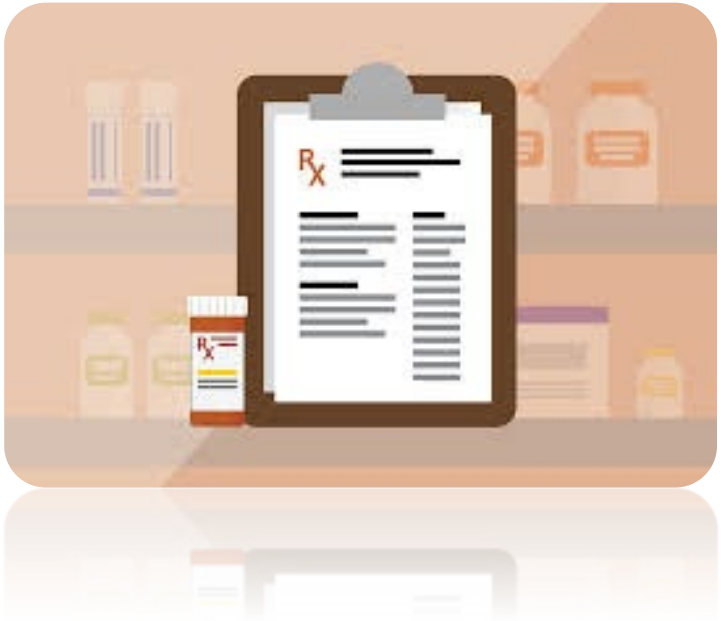
- **Diphenhydramine** (Benadryl, Tylenol PM) – Used for allergic and cold relief, sleep aid, motion sickness, or parkinsonism
- **Brompheniramine** (Dimetapp) – Used for allergy and cold relief
- **Dimenhydrinate** (Dramamine) – Used for motion sickness, inner ear problems
- **Doxylamine** (Unisom) – Used for nausea and vomiting of pregnancy, allergic rhinitis, insomnia

Alternatives:

- **Cetirizine** (Zyrtec) – Used for allergy relief
- **Loratadine** (Claritin) – Used for allergy relief
- **Fluticasone** (Flonase) – Used for nasal congestion, sneezing and runny nose
- **Meclizine** (Antivert) – Used for motion sickness
- **Melatonin** – Used for sleep

Provider Resources

Tips and Best Practices

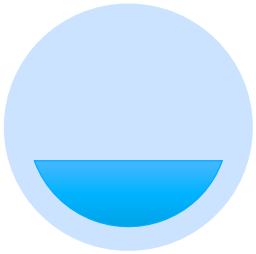


- **Review all medications** at each visit
  - Including all OTC medications
  - Review for indication
- **Assess appropriateness**
  - Consider safer alternatives
  - Limit duration
  - Reduce polypharmacy via deprescribing
- **Educate patients**
  - Risk of taking multiple anticholinergic meds at the same time

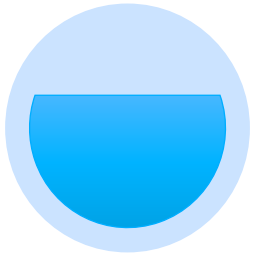
Anticholinergic Burden Calculator

- Calculates the anticholinergic burden based on the number of anticholinergic medications the patient is receiving concurrently
  - https://www.acbcalc.com/

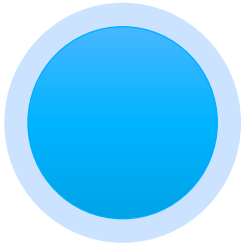
- Score:



0 = If you cannot find your medication listed in the calculator, you can assume it is 0



1 = Drugs with possible anticholinergic burden



2 or 3 = Drugs with definite anticholinergic burden

Anticholinergic Burden Calculator

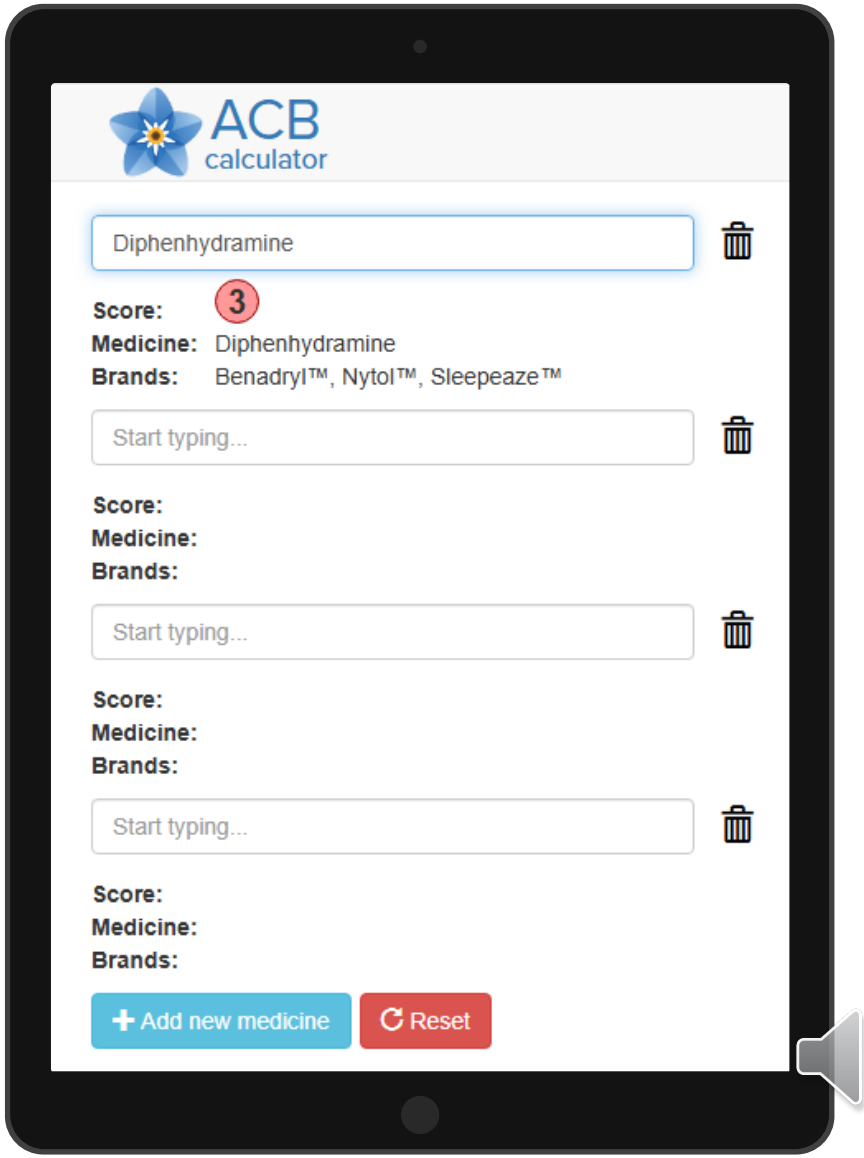
Total ACB Score: 3 **High Risk**

Your patient has scored ≥3 and is therefore at a higher risk of confusion, falls and death.

Please review their medications and, if possible, discuss this with the patient and/or relatives/carers. Please consider if any of these medications could be switched to a lower-risk alternative.

For help choosing medicines to reduce anticholinergic burden, click here

- Drugs with possible anticholinergic burden score 1.
- Drugs with definite anticholinergic burden score 2 or 3.
- If you cannot find your medication listed in the calculator, you can assume it scores 0.



Additional Resources

Anticholinergic Risk Scale (ARS)	• https://www.uclahealth.org/sites/default/files/documents/d5/anticholinergic-risk-scale-rudolph.pdf?f=139df6c7
Anticholinergic Drug Scale (ADS)	• https://accp1.onlinelibrary.wiley.com/action/downloadSupplement?doi=10.1177%2F009127000 6292126&file=jcph_1481_sm_Online_Appendix.pdf
CRIDECO Anticholinergic Load Scale (CALS)	• https://pmc.ncbi.nlm.nih.gov/articles/PMC8876932/
Anticholinergic Cognitive Burden Scale	• https://www.hii.iu.edu/resources/anticholinergic-cognitive-burden-scale.pdf
BEERs Criteria Guideline (2023)	• https://agsjournals.onlinelibrary.wiley.com/doi/epdf/10.1111/jgs.18372

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