Patient Safety: At the core of evidence-based guidelines for older adults**

Evidence suggests polypharmacy can create measurable health challenges, including an 88% increased risk of experiencing an adverse drug event.[1]

The American Geriatrics Society recommends avoiding the concurrent use of the following in older adults:[2,3]

- Three or more central nervous system (CNS) medications. Multiple studies have reported an increased risk of falls and possible fractures.[4,5,6,7]
  - In older adults taking two or more CNS-active medications, there is approximately a **200% increased risk of recurrent falls vs. control**.[6]
  - In older adults taking higher doses of CNS-active medications, there is nearly a **300% increased risk of recurrent falls vs. control**.[6]
- Two or more anticholinergic (ACH) medications. Multiple studies have reported an increased risk of cognitive decline with concurrent use.[8,9,10]

Based on this evidence, the Pharmacy Quality Alliance™ (PQA) developed and endorsed two polypharmacy measures in older adults.[11]

Polypharmacy measures in older adults[2]

	Polypharmacy Use of Multiple ACH Medications in Older Adults	**Polypharmacy** Use of Multiple CNS-Active Medications in Older Adults
Risks of polypharmacy use	ACH medications increase the risk of cognitive decline, delirium, and falls or fractures	CNS medications increase the risk of falls and fractures
Description	Percentage of older adults with concurrent use of 2 or more unique ACH medications	Percentage of older adults with concurrent use of 3 or more unique CNS-active medications
Calculation (numerator/denominator) x 100% **Lower rate is better**	Concurrent use of 2 or more unique* ACH medications, each with 2 or more fills All patients ≥ 65 years old with 2 or more fills for the same ACH medication	Concurrent use of 3 or more unique* CNS-active medications, each with 2 or more fills All patients ≥ 65 years old with 2 or more fills for the same CNS-active medication
Exclusion	Hospice	Seizure disorder and hospice
Measurement period	Calendar year	Calendar year
General trend	Lower is better	Lower is better

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Note: Concurrent use = overlapping days' supply for 30 or more cumulative days in measurement year
* Unique = different active ingredients
** The information in this flyer is not meant to preclude clinical judgment. Treatment decisions should always be based on the clinical judgment of the physician or other healthcare provider.

ACH medications

ACH medication class			**Possible alternatives** (if clinically appropriate)^
First-generation antihistamines	• brompheniramine • chlorpheniramine • cyproheptadine • dimenhydrinate • diphenhydramine (oral)	• doxylamine • hydroxyzine • meclizine • triprolidine	• intranasal normal saline (e.g., fluticasone, flunisolide, mometasone) • second-generation antihistamine (e.g., levocetirizine, cetirizine, desloratadine) • steroid nasal spray (e.g., fluticasone, flunisolide, mometasone)
Antiparkinsonian agents	• benztropine	• trihexyphenidyl	• pramipexole immediate-release, ropinirole immediate-release
Skeletal muscle relaxants	• cyclobenzaprine	• orphenadrine	• acetaminophen, ibuprofen, naproxen, celecoxib (consider add-on gastroprotective agent)
Antipsychotics	• chlorpromazine • clozapine	• olanzapine • perphenazine	• low-dose nonanticholinergic antipsychotics (e.g., aripiprazole, risperidone, ziprasidone)
Antidepressants	• amitriptyline • amoxapine • clomipramine • desipramine	• doxepin (> 6 mg/day) • imipramine • nortriptyline • paroxetine	• selective serotonin reuptake inhibitors (SSRIs),** e.g., sertraline, except paroxetine • serotonin and norepinephrine reuptake inhibitors (SNRIs),** e.g., duloxetine • bupropion, mirtazapine, trazodone • For nerve pain: gabapentin, pregabalin immediate-release or lidocaine patch
Antimuscarinics	• darifenacin • fesoterodine • flavoxate • oxybutynin	• solifenacin • tolterodine • trospium	• Myrbetriq® (mirabegron), Gemtesa® (vibegron)
Antispasmodics	• atropine (excludes ophthalmic) • clidinium-chlordiazepoxide • dicyclomine • homatropine (excludes ophthalmic)	• hyoscyamine • scopolamine (excludes ophthalmic)	• For constipation: lactulose oral solution • For diarrhea: loperamide
Antiemetics	• prochlorperazine	• promethazine	• ondansetron

^ This list may not represent medications covered on your patient's plan. Please check to ensure alternatives are available for your patient.

** SSRIs, SNRIs and TCAs are not recommended in patients with a history of falls or fractures[3].

CNS-active medications[†]				Recommendations
Antipsychotics	• aripiprazole • asenapine • brexpiprazole • cariprazine • chlorpromazine • clozapine • fluphenazine • haloperidol	• iloperidone • loxapine • lumateperone • lurasidone • molindone • olanzapine • paliperidone • perphenazine	• pimavanserin • pimozide • quetiapine • risperidone • thioridazine • thiothixene • trifluoperazine • ziprasidone	• Avoid unless safer drug alternatives and nonpharmacological interventions have been ineffective • Consider reducing use of other CNS-active medications • Consider tapering to avoid symptom recurrence and discontinuation syndromes • Implement strategies to reduce falls risk (e.g., assistive walker, home safety check, balance and strength training)
Antiepileptics	• brivaracetam • cannabidiol • carbamazepine • divalproex sodium • eslicarbazepine • ethosuximide • ethotoin • felbamate • fenfluramine	• gabapentin • lacosamide • lamotrigine • levetiracetam • methsuximide • oxcarbazepine • perampanel • phenobarbital • phenytoin	• pregabalin • primidone • rufinamide • stiripentol • tiagabine • topiramate • valproic acid • vigabatrin • zonisamide	
Benzodiazepines and nonbenzodiazepine sedative/hypnotics	• alprazolam • chlordiazepoxide • clobazam • clonazepam • clorazepate • diazepam	• estazolam • eszopiclone • flurazepam • lorazepam • midazolam • oxazepam	• quazepam • temazepam • triazolam • zaleplon • zolpidem	
Opioids	• benzhydrocodone • buprenorphine • butorphanol (includes nasal spray) • codeine • dihydrocodeine • fentanyl (includes nasal spray) • hydrocodone • hydromorphone	• levorphanol • meperidine • methadone • morphine • opium • oxycodone • oxymorphone • tapentadol • tramadol		
Selective serotonin reuptake inhibitors (SSRIs), selective norepinephrine reuptake inhibitors (SNRIs) and tricyclic antidepressants (TCAs)	• amitriptyline • amoxapine • citalopram • clomipramine • desvenlafaxine • desipramine • doxepin • duloxetine • escitalopram • fluoxetine	• fluvoxamine • imipramine • levomilnacipram • milnacipram • nortriptyline • paroxetine • protriptyline • sertraline • trimipramine • venlafaxine		

[†]Note: Skeletal muscle relaxants were added as a CNS-active drug in the AGS 2023 Beers Criteria. Currently, this class is not in the POLY-CNS measure but is anticipated to be added in future years.

Tapering regimens for CNS-active medications

Drug class	Example of tapering regimen
Antidepressants	Taper 25% every 4–6 weeks[12]
Benzodiazepines/sedative-hypnotics	Taper 25% every week. Reduce to 10–25% every 2–4 weeks if withdrawal symptoms occur[13]
Antipsychotics	Taper 25–50% every 1–2 weeks. If withdrawal symptoms occur, options are to slow taper further, restart at lowest dose or consider non-medication behavioral support[14]
Opioids	Taper 10% per week (or 10% per month if taking > 1 year)[15]

Note: These tapering regimens are only provided as examples. Tapering may vary based on patient factors (e.g., duration of therapy, symptom recurrence) and the regimen should be adjusted based on patient monitoring.

Clinical best practices to reduce polypharmacy and adverse events

- Before prescribing a new medication, always remember to check if it falls on the POLY–ACH and POLY–CNS measure drug list.
  - If on the drug list, consider nonpharmacological interventions or other medication alternatives.
  - If POLY–ACH and POLY–CNS medications cannot be avoided:
    - Use the lowest dose, frequency and duration necessary.
    - Minimize overlap with other polypharmacy drugs (e.g., limit supply duration).
    - Document acknowledgement of risk in patient's medical chart.
- Educate patients about the risk of falls, drug interactions and adverse drug events when taking multiple medications.
- Review medications each visit for polypharmacy and consider removal or replacement with a clinical alternative.
  - Consider starting with medications that have the highest risk but lowest benefits.
  - Consider stopping medications with the lowest likelihood of withdrawal reactions or disease rebound
- If deprescribing is an option, implement a plan and monitor progress.
  - Consider the need to taper medications if taken for long term or at a high dose. This may take several weeks or months.
  - Educate patient/caregiver with clear instructions.
  - Stop one medication at a time so that harms and benefits can be properly documented and addressed, as needed.
  - Follow up on plan after implementation (consider a shorter interval for visits and telephone support).

References

[1] Maher RL, Hanlon JT, Hajjar ER. Clinical Consequences of Polypharmacy in Elderly. Expert opinion on drug safety. 2014; 13(1):57-65. doi: 10.1517/14740338.2013.827660.

[2] American Geriatrics Society 2015 Beers Criteria Update Expert Panel. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. J Am Geriatrics Society. 2015; 63(11):2227-46. doi: 10.1111/jgs.13702.

[3] The 2023 American Geriatrics Society Beers Criteria Update Expert Panel. American Geriatrics Society 2023 Updated AGS Beers Criteria for potentially inappropriate medication use in older adults. J Am Geriatr Society. 2023; 71(7):2052-81. doi: 10.1111/jgs.18372.

[4] Nurminen J, Puustinen J, Piirtola M, et al. Opioids, antiepileptic and anticholinergic drugs and the risk of fractures in patients 65 years of age and older: a prospective population-based study. Age and Ageing. 2013; 42(3):318-24. doi: 10.1093/ageing/afs178.

[5] Weiner DK, Hanlon JT, Studenski SA. Effects of central nervous system polypharmacy on falls liability in community-dwelling elderly. Gerontology. 1998; 44(4):217-21. doi: 10.1159/000022013.

[6] Hanlon JT, Boudreau RM, Roumani YF, et al. Number and dosage of central nervous system medications on recurrent falls in community elders: the Health, Aging and Body Composition study. J Gerontol A Biol Sci Med Sci. 2009; 64(4):492-8. doi: 10.1093/gerona/gln043.

[7] Zint K, Haefeli WE, Glynn RJ, et al. Impact of drug interactions, dosage, and duration of therapy on the risk of hip fracture associated with benzodiazepine use in older adults. Pharmacoepidemiol Drug Saf. 2010; 19(12):1248-55. doi: 10.1002/pds.2031

[8] Campbell N, Boustani M, Limbil T, et al. The cognitive impact of anticholinergics: a clinical review. Clinical Interventions in Aging. 2009; 4:225-33. doi: 10.2147/cia.s5358.

[9] Gray SL, Anderson ML, Dublin S, et al. Cumulative use of strong anticholinergics and incident dementia: a prospective cohort study. JAMA Internal Medicine. 2015; 175(3):401-7. doi: 10.1001/jamainternmed.2014.7663.

[10] Cai X, Campbell N, Khan B, et al. Long-term anticholinergic use and the aging brain. Alzheimer's & Dementia. 2013; 9(4):377-85. doi: 10.1016/j.jalz.2012.02.005.

[11] Centers for Medicare & Medicaid Services (CMS). Medicare 2024 Part C & D Display Measure Technical Notes.

[12] Haddad PM. Antidepressant discontinuation syndromes. Drug Saf. 2001;24:183-97. doi: 10.2165/00002018-200124030-00003

[13] Gold J, Ward K. Pharmacist toolkit: benzodiazepine taper. CPNP 2018. https://www.opioidlibrary.org/wp-content/uploads/2019/07/CPNP_BenzoTapering.pdf

[14] Bjerre LM, Farrell B, Hogel M, et al. Deprescribing antipsychotics for behavioral and psychological symptoms of dementia and insomnia. Evidence-based clinical practice guideline. Cam Fam Physician. 2018;64:17-27. PMID: 29358245

[15] Centers for Disease Control and Prevention. Pocket guide: Tapering opioids for chronic pain. https://www.cdc.gov/drugoverdose/pdf/clinical_pocket_guide_tapering-a.pdf