Polypharmacy – Preventing Unnecessary Medications for Older Adults

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F329 in review

- Each resident’s drug regimen must be free from unnecessary drugs. An unnecessary drug is any drug when used:
  - In excessive dose (including duplicate drug therapy); or
  - For excessive duration; or
  - Without adequate monitoring; or
  - Without adequate indications for its use; or
  - In the presence of adverse consequences which indicate the dose should be reduced or discontinued; or
  - Any combinations of the reasons above.

- This portion of the regulation applies to all medications, not just antipsychotics.
Polypharmacy

"As older patients move through time, often from physician to physician, they are at increasing risk of accumulating layer upon layer of drug therapy, as a reef accumulates layer upon layer of coral"

- Jerry Avorn, quoted in Arch Intern Med 164:1957–59

Polypharmacy?

“Polypharmacy is a complex problem that requires careful evaluation and management.”

Polypharmacy

“The desire to take medicine is perhaps the greatest feature which distinguishes man from animals.”

- Sir William Osler, in H. Cushing, Life of Sir William Osler (1925)
“A Cautionary Tale”

Polypharmacy

“I firmly believe that if the whole materia medica as now used could be sunk to the bottom of the sea, it would be all the better for mankind—and all the worse for the fishes.”

Oliver Wendell Holmes, 1860

Rx Use and Seniors

Typical NF Resident

- 75-85+ years of age
- Average number of routine prescription medications: 8.1
- Average number of PRN prescription medications: 3.2
- Percent of residents receiving 9+ routine medications per day: 41.1

“A Cautionary Tale”

Adverse Effects

- "Any symptom in an elderly patient should be considered a drug side effect until proved otherwise."


Adverse Drug Reactions

- An adverse drug reaction (ADR) is defined as the unwanted, negative consequences associated with the use of medications or medications.

- Over 100,000 deaths a year are attributed to adverse drug reactions, making ADRs the fourth leading cause of death in the U.S. (Lazarou, Pomeranz, & Corey, 1998).

- Other examples of ADRs include:
  - Peptic ulcers
  - Anemia
  - Decreased white blood cell production (which increases infection risk)
  - Liver damage
  - Kidney damage
  - Confusion/drowsiness (which can lead to falls and subsequent injuries)

Adverse Drug Reactions

- About 3 to 7% of all hospital admissions in the United States are for treatment of adverse drug reactions.

- Adverse drug reactions occur during 10 to 20% of hospital admissions, and about 10 to 20% of these reactions are severe.

- The most consistent risk factor for an adverse drug reactions is:
  - The number of drugs being taken.

- The risk increases exponentially as the number of drugs increases as illustrated in the following chart…
Adverse Drug Reactions

Other risk factors for ADRs include:
- Having six or more chronic diseases.
- Taking twelve or more doses of medication (of any type) per day.
- Taking nine or more medications total.
- Having had a prior adverse drug reaction.
- Being older than 85 years (this is important because persons 85 and older are the fastest growing segment of the population).
- Having decreased kidney function.

Most Common Medications Associated with ADRs in the Elderly

- Opioid analgesics
- NSAIDs
- Anticholinergics
- Benzodiazepines
- Also: cardiovascular agents, CNS agents, and musculoskeletal agents

Prescribing Cascade

Drug 1

ADE interpreted as new medical condition

Drug 2

ADE interpreted as new medical condition

Drug 3

New Paradigm for Geriatric Drug Treatment

Old: “Start Slow, Go Slow”
New: “Stop Most, Reduce Dose”

Garfinkel, IMAJ, 2007

HOW TO USE THE AGS 2015 BEERS CRITERIA

A GUIDE FOR PATIENTS, CLINICIANS, HEALTH SYSTEMS, AND PAYORS

A CLINICIAN EDUCATION TOOL
As part of 2015 update of the Beers Criteria, AGS created a workgroup to encourage optimal use of the criteria by patients, clinicians, health systems, and payors.

- Included input from key stakeholders
- Workgroup developed:
  - 7 key principles to guide optimal use of the criteria
  - Guidance for how clinicians and others can apply these principles in everyday practice

**What is the Purpose of the Beers Criteria?**

- To identify potentially inappropriate medications that should be avoided in many older adults
- To reduce adverse drug events and drug related problems, and to improve medication selection and medication use in older adults
- Designed for use in any clinical setting; also used as an educational, quality, and research tool

**Benefits and Challenges**

- However, implementation of the Beers Criteria has led to several unintended consequences
  - Many clinicians misunderstand the purpose of the criteria, mistakenly believing that the criteria judge all uses of the listed drugs to be universally inappropriate
  - Health systems have often reinforced this perception, implementing quality improvement and decision support systems that implicitly consider any use of these medications to be problematic
7 Key Principles

1. There are 7 key principles to guide optimal use of the Beers Criteria
2. But, the most important take-home message is this:
   
   Use clinical common sense!

3. The Beers criteria are intended to support, not contradict, common sense and good clinical care

2015: A New Brew of Beers

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7 Key Principles

1. Medications in the AGS 2015 Beers Criteria are potentially inappropriate, not definitely inappropriate
2. Read the rationale and recommendations for each criterion
3. Understand why a medication is included in the Criteria and adjust your approach to these medications accordingly
4. Optimal use of the 2015 Beers Criteria involves offering safer non-pharmacologic and pharmacologic therapies
5. 2015 Beers criteria should be a starting point for identifying and improving medication safety and appropriateness
6. Medications in the 2015 Beers criteria should not be excessively restricted by PA and/or health plan policies
7. The 2015 Beers criteria are not equally applicable to all countries
### Medications to AVOID - Quality of Evidence: **HIGH**; Strength of Recommendation: **STRONG**

<table>
<thead>
<tr>
<th>Therapeutic Class</th>
<th>Class</th>
<th>Example Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antidepressants</td>
<td>Tricyclics</td>
<td>clomipramine, desipramine, imipramine, nortriptyline, amitriptyline, doxepin &gt; 6 mg/day</td>
</tr>
<tr>
<td></td>
<td>SSRI</td>
<td>paroxetine</td>
</tr>
<tr>
<td>Sedative/</td>
<td>Barbiturates</td>
<td>amobarbital, butabarbital, pentobarbital, phenobarbital, secobarbital</td>
</tr>
<tr>
<td>Hypnotic</td>
<td>Cardiovascular</td>
<td>Calcium channel blocker nifedipine (immediate release)</td>
</tr>
<tr>
<td></td>
<td>Vasodilator</td>
<td>isosorbine, ergot mesylates</td>
</tr>
<tr>
<td>Reproductive</td>
<td>Hormones</td>
<td>oral and transdermal estrogens, growth hormone</td>
</tr>
<tr>
<td>Health</td>
<td>Antidiabetic</td>
<td>Sulfonamides chlorpropamide, glyburide</td>
</tr>
<tr>
<td></td>
<td>GI Proton pump inhibitors</td>
<td>pantoprazole, omeprazole, lansoprazole, etc</td>
</tr>
</tbody>
</table>

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### Medications to AVOID - Quality of Evidence: **Moderate**; Strength of Recommendation: **STRONG**

<table>
<thead>
<tr>
<th>Therapeutic Class</th>
<th>Class</th>
<th>Example Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticholinergics</td>
<td>First-generation antihistamines</td>
<td>chlorpheniramine, diphenhydramine, dipyrone, hydroxyzine, promethazine</td>
</tr>
<tr>
<td></td>
<td>Antiparkinson agents</td>
<td>benztropine, trihexyphenidyl</td>
</tr>
<tr>
<td></td>
<td>Antispasmodics</td>
<td>belladonna alkaloids, dicyclomine, hyoscyamine, scopolamine</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Antiplatelets</td>
<td>dipyridamole (short-acting)</td>
</tr>
<tr>
<td></td>
<td>Alpha-1 blockers</td>
<td>doxazosin, prazosin, terazosin</td>
</tr>
<tr>
<td></td>
<td>Inotrope</td>
<td>digoxin for atrial fibrillation or doses &gt;0.125 mg/day</td>
</tr>
</tbody>
</table>

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### Medications to AVOID - Quality of Evidence: **Moderate**; Strength of Recommendation: **STRONG**

<table>
<thead>
<tr>
<th>Therapeutic Class</th>
<th>Class</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antipsychotics</td>
<td>Typical (1st-gen)</td>
<td>haloperidol, chlorpromazine, thioridazine</td>
</tr>
<tr>
<td></td>
<td>Atypical (2nd-gen)</td>
<td>aripiprazole, olanzapine, risperidone, ziprasidone</td>
</tr>
<tr>
<td>Anti-anxiety</td>
<td>Benzodiazepines</td>
<td>alprazolam, lorazepam, oxazepam, temazepam, clonazepam, diazepam</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
<td>meprobamate</td>
</tr>
<tr>
<td>Sleep agents</td>
<td>Nonbenzodiazepine hypnotics</td>
<td>eszopiclone, zolpidem, zaleplon</td>
</tr>
<tr>
<td>Antidiabetic</td>
<td>Insulin Sliding scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appetite stimulant</td>
<td>megestrol</td>
</tr>
<tr>
<td>GI</td>
<td>Prokinetic</td>
<td>metoclopramide</td>
</tr>
<tr>
<td></td>
<td>Laxative</td>
<td>mineral oil</td>
</tr>
</tbody>
</table>
### Medications to AVOID - Quality of Evidence: Moderate; Strength of Recommendation: STRONG

<table>
<thead>
<tr>
<th>Therapeutic Class</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesics</td>
<td>Opioids: meperidine</td>
</tr>
<tr>
<td></td>
<td>Non-COX-selective NSAIDs: ASA &gt; 125 mg/day, diclofenac, diflunisal, etodolac, ibuprofen, ibuprofen, indomethacin, ketoprofen, ketorolac, meloxicam, nabumetone, naproxen, oxaprozin, piroxicam, sulindac</td>
</tr>
<tr>
<td></td>
<td>Skeletal muscle relaxants: carisoprodol, cyclobenzaprine, metaxalone, methocarbamol</td>
</tr>
<tr>
<td>GU</td>
<td>Hormone: vasopressin</td>
</tr>
</tbody>
</table>

### Medications to AVOID - Quality of Evidence: low; Strength of Recommendation: STRONG

<table>
<thead>
<tr>
<th>Therapeutic Class</th>
<th>Class</th>
<th>Example Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antinfective</td>
<td>Miscellaneous antibiotics</td>
<td>nitrofurantoin</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Antiarrhythmics</td>
<td>disopyramide</td>
</tr>
<tr>
<td></td>
<td>Alpha-agonists</td>
<td>doxidone, guanfacine, methyldopa</td>
</tr>
<tr>
<td></td>
<td>Central monoamine-depleting agents</td>
<td>reserpine &gt; 0.1 mg/day</td>
</tr>
<tr>
<td>Endocrine</td>
<td>Hormones</td>
<td>dessicated thyroid</td>
</tr>
<tr>
<td>Sleep agent</td>
<td>Hypnotics</td>
<td>chloral hydrate</td>
</tr>
<tr>
<td>Analgesics</td>
<td>Opioids</td>
<td>pentazocine</td>
</tr>
</tbody>
</table>

### REDUCE DOSE

- CrCl ≤ 30 mL/min
  - Amiloride
  - Dabigatran
  - Duloxetine
  - Edoxaban
  - Fondaparinux
  - Probenecid
  - Rivaroxaban
  - Spironolactone
  - Tramadol ER
  - Triamterene
- CrCl ≤ 25 mL/min
  - Apixaban

### AVOID

- CrCl ≤ 30 mL/min
  - Amiloride
  - Dabigatran
  - Duloxetine
  - Edoxaban
  - Fondaparinux
  - Probenecid
  - Rivaroxaban
  - Spironolactone
  - Tramadol ER
  - Triamterene
- CrCl ≤ 25 mL/min
  - Apixaban
- CrCl < 30 mL/min
  - Amiloride
  - Dabigatran
  - Duloxetine
  - Edoxaban
  - Fondaparinux
  - Probenecid
  - Rivaroxaban
  - Spironolactone
  - Tramadol ER
  - Triamterene
  - CrCl < 25 mL/min
  - Apixaban
Anticholinergic Cognitive Burden (ACB) Scale

What’s in a point on the ACB scale?

- Increased risk of cognitive impairment (46% increase in 6 years)
- Decline in MMSE over 2 years
- 26% increase in risk of death per point over 2 years
- ACB score 5+ scored 4% lower on MMSE
What’s the big deal in the short term?

- Delirium
- Falls
- Reduced functional status
- Impaired motor function
- Anticholinergic (AC) side effects

Drug-Drug Interactions (DDIs)

- May lead to adverse drug events
- Likelihood ↑ as number of medications ↑

Most common DDIs:
- cardiovascular drugs
- psychotropic drugs

Most common drug interaction effects:
- confusion
- cognitive impairment
- hypotension
- acute renal failure

Common Drug-Drug Interactions

<table>
<thead>
<tr>
<th>Combination</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE inhibitor + potassium</td>
<td>Hyperkalemia</td>
</tr>
<tr>
<td>ACE inhibitor + K sparing diuretic</td>
<td>Hyperkalemia, hypotension</td>
</tr>
<tr>
<td>Digoxin + antiarrhythmic</td>
<td>Bradycardia, arrhythmia</td>
</tr>
<tr>
<td>Digoxin + diuretic</td>
<td>Electrolyte imbalance, arrhythmia</td>
</tr>
<tr>
<td>Diuretic + diuretic</td>
<td>Electrolyte imbalance, dehydration</td>
</tr>
<tr>
<td>Benzodiazepine + antidepressant</td>
<td>Sedation, confusion, falls</td>
</tr>
<tr>
<td>Benzodiazepine + antipsychotic</td>
<td></td>
</tr>
<tr>
<td>CCB/nitrate/vasodilator/diuretic</td>
<td>Hypotension</td>
</tr>
</tbody>
</table>
Common Drug-Disease Interactions

<table>
<thead>
<tr>
<th>Combination</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSAIDs + CHF</td>
<td>Fluid retention; CHF exacerbation</td>
</tr>
<tr>
<td>Thiazolidinediones + CHF</td>
<td></td>
</tr>
<tr>
<td>BPH + anticholinergics</td>
<td>Urinary retention</td>
</tr>
<tr>
<td>CCB + constipation</td>
<td>Exacerbation of constipation</td>
</tr>
<tr>
<td>Narcotics + constipation</td>
<td></td>
</tr>
<tr>
<td>Anticholinergics + constipation</td>
<td></td>
</tr>
<tr>
<td>Meformin + CHF</td>
<td>Hypoxia; increased risk of lactic</td>
</tr>
<tr>
<td>NSAIDs + gastropathy</td>
<td>Increased ulcer and bleeding risk</td>
</tr>
<tr>
<td>NSAIDs + HTN</td>
<td>Fluid retention; decreased</td>
</tr>
<tr>
<td></td>
<td>effectiveness of diuretics</td>
</tr>
</tbody>
</table>

AGS Beers Criteria Resources

Criteria
- AGS 2015 Updated Beers Criteria
- How To Use Article
- Alternative Medications List
- Evidence Table Index for AGS 2015 Updated Beers Criteria
- Updated Beers Criteria Teaching Slide in iGeriatrics Slides Set
- Updated Beers Criteria Pocket Card
- Updated Beers Criteria in iGeriatrics App

Public Education Resources for Patients & Caregivers
- AGS Beers Criteria Summary
- 10 Medications Older Adults Should Avoid
- Avoiding Overmedication and Harmful Drug Reactions
- What to Do and What To Ask Your Healthcare Provider if a Medication You Take Is Listed in the Beers Criteria
- My Medication Diary - Printable Download
- Eldercare at Home: Using Medicines Safely - Illustrated PowerPoint Presentation

ABIM: CHOOSING WISELY CAMPAIGN


1. Don't recommend percutaneous feeding tubes in patients with advanced dementia; instead offer oral assisted feeding
2. Don't use antipsychotics as first choice to treat behavioral and psychological symptoms of dementia
3. Avoid using medications to achieve Hgb A1C <7.5% in most adults age 65 and older; moderate control is better
4. Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation, delirium
5. Don't use antimicrobials to treat bacteriuria in older patients unless specific urinary tract symptoms are present

www.choosingwisely.org/doctor-patient-lists/american-geriatrics-society
ABIM: CHOOSING WISELY CAMPAIGN
AGS: Top Ten Things Physicians and Patients Should Question Medications (2014)

6. Don't prescribe cholinesterase inhibitors for dementia without periodic assessment for perceived cognitive benefits and adverse GI effects

7. Don't recommend screening for breast or colorectal cancer, nor prostate cancer (w/ PSA test) without considering life expectancy and the risks of testing, overdiagnosis and overtreatment

8. Avoid using prescription appetite stimulants or high-calorie supplements for treatment of anorexia or cachexia in older adults; instead, optimize social supports, provide feeding assistance and clarify patient goals and expectations.

9. Don't prescribe a medication without conducting a drug regimen review.

10. Avoid physical restraints to manage behavioral symptoms of hospitalized older adults with delirium

STOPP (Screening Tool of Older Person’s Prescriptions)

1. Comprised of 65 clinically significant criteria for potentially inappropriate prescribing in older people

2. Considered as a valid, reliable comprehensive screening tool that enables the prescribing physician to appraise an older patient’s prescription drugs in the context of the patient’s concurrent diagnoses

3. STOPP criteria are associated with avoidable ADE’s in older people that cause or contribute to urgent hospitalization

Principles of Prescribing in the Elderly

- Avoid prescribing prior to diagnosis
- Start with a low dose and titrate slowly
- Avoid starting 2 agents at the same time
- Reach therapeutic dose before switching or adding agents
- Consider non-pharmacologic agents
Prescribing Appropriately

- Determine therapeutic endpoints and plan for assessment.
- Consider risk vs. benefit.
- Avoid prescribing to treat side effect of another drug.
- Use 1 medication to treat 2 conditions.
- Consider drug-drug and drug-disease interactions.
- Use simplest regimen possible.
- Adjust doses for renal and hepatic impairment.
- Avoid therapeutic duplication.
- Use least expensive alternative.

Anticipate Side Effects

- Narcotics
  - begin stimulant laxative
  - docusate not sufficient
- Steroids
  - osteoporosis prevention
  - hyperglycemia

Feasibility of Discontinuation of Medications

- 256 of 311 medication recommendations were discontinued in 64 patients.
- Only 6 of 256 drugs discontinued were restarted (2%).
- Taking nonconsent and failures together successful discontinuation was achieved in 81% of the suggested medications.
- No significant adverse events or deaths.
- 88% of patients reported global improvements in health.

Guidelines for Stopping Drugs

1) Anti Hypertensions: Stop One at a Time  
Goal BP < 160/90

2) Nitrates: No Chest Pain for 6 Months

3) H2 Blockers and PPI’s: No Proven PUD, GI Bleeding or Dyspepsia for 1 Year

4) All Benzodiazepines: Taper and Discontinue

5) All NSAID

Some of My Favorites

1. Norvasc and multiple antihypertensive
2. Anticholinergics as antispasmodics and muscle relaxants
3. Colace
4. Anti dementia drugs
5. Benzodiazepines and hypnotics
6. Sliding scale insulin
7. MVI’s and supplements
8. PRN’s in general
9. Multiple laxatives

Other Drugs to Consider for Discontinuation

Oral Hypoglycemics
Lipid Lowering Agents (Statins)
Antidepressants
Antipsychotics
Levodopa

Anticoagulants
ASA
Iron Supplements
Osteoporosis Drugs
Sedating Medications
- Antipsychotic agents
  - Conventional and Atypical
- Antidepressants (TCA, SSRIs, second-generation)
- Anxiolytics and hypnotics (barbiturates, chloral hydrate, non-BZD sedatives)
- Opioids
- Benzodiazepines
- Anticonvulsants
- Antiemetics
- Centrally-acting muscle relaxants
- Anticholinergic antiparkinson drugs

Preventing Polypharmacy
- Review medications regularly and each time a new medication is started or dose is changed
- Maintain accurate medication records (include vitamins, OTCs, and herbals)

Chart Jeopardy
- Medical Director and DON/ NURSE random chart review.
- Applying geriatric and pharmacological principles to the medication list.
  - Diagnosis
  - Dose
  - Drug combinations.
  - Identify inappropriate and ineffective medications.
61 year old diagnosed with CVA, hospitalized with somnolence, weakness, pneumonia twice, blood pressure 120/68.

Chart Jeopardy – Case #1
- Aspirin 325 mg po qd
- Carisoprodol 350 mg po qid
- Cymbalta 60 mg po BID
- Lasix 40 mg po qd
- Novolog 70/30 give 38 units before breakfast and 20 units before supper
- Duoneb qid
- Keppra 750 mg po BID
- Levaquin 250 mg po qd
- Lisinopril 2.5 mg po qd
- Oxycontin 20 mg po q 12 hrs
- Klor-con 20 meq po qd
- Simvastatin 80 mg po q hs
- Trazadone HCL 50 mg po q hs
- Diazepam 10 mg po bid prn anxiety
- Percocet 1-2 tabs po qd prn
- Promethazine 6.25 mg po bid prn cough

80 year old female diagnosed with dementia, hypertension, pedal edema, blood pressure 132/76

Chart Jeopardy – Case #2
- Aricept 10 mg po qd
- Norvasc 5 mg po qd
- Lasix 20 mg po qd
- Senokot S tabs 1 po qd prn
- Oxybutinin XL 10 mg po qd
- Seroquel 25 mg po q 6 hours prn resistiveness to cares

79 year old male diagnosed with diabetes, CHF, CAD, and dementia – living in ltc

Chart Jeopardy – Case #3
- Lantus 20 units SQ bid
- Novolog SS SQ after meals and HS for blood glucose over 150
- Lasix 20 mg po bid
- KCL 10 meq po qd
- Plavix 75 mg po qd
- Norvasc 10 mg po qd
- Lisinopril 2.5 mg po qd
- Imdur 30 mg po qd
- Glucotrol 5 mg po qd
- Trazadone 25 mg po q HS prn sleep
72 year old in tcu with tka, otherwise healthy, only pre-surgery med was antidepressant

Chart Jeopardy – Case #4

- Aspirin 325 mg po qd
- Colace 100 mg po qd
- Ferrous Sulfate 324 mg po tid
- Senna -S tabs 1-4 po bid prn
- TYLENOL 325 mg tabs 1-2 po qid pain
- Prozac 20 mg po qd
- Vicodin tabs 1-2 po q 4-6 hours prn pain
- Ambien 5 mg po q HS prn sleep
- Vistaril 25 mg po tid prn pain

Barriers to success

- "I've taken that medication since I was in my 50's."
- "Mom needs that medication, her doctor she saw for years told her she'd always need it."
- "I'm not the one who started that medication so I'm reluctant to discontinue it."

Barriers to success

- Patients
- Families
- Providers
- Disease specific guidelines
- Goals of care not well articulated
- Rehospitalization
- Defining of palliative care
- Lack of research in stopping medications
Lack of research

- Information is coming forward:
  - Acceptable to allow blood pressure readings to trend higher (160/90) in the elderly;
  - Hemoglobin A1C levels to increase to 8% rather than insisting on tighter glycemic control.
  - Little information published regarding effects of stopping/reducing medications in the elderly.
- There is no magic age for:
  - When do people no longer need statin medications?

Fear

- Fear of negative patient outcome when decreasing or stopping medication.
- Reluctance to trial reduction based on this fear when in reality the medication can be resumed when disease worsens, symptoms recur depending upon goals of care.

In Summary

- You find what you “expect” to see.
- Identification and decrease of inappropriate medications is feasible.
- Although no absolute guidelines exist for discontinuing medications, frameworks do exist.
- Consensus needs to be built within facility staff and with medical providers.
- Reducing medications will be an ongoing challenge.
References

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9. Aging Brain Care www.agingbraincare.org
12. Morley: Inappropriate Drug Prescribing and Polypharmacy are Major Causes of Poor Outcomes in LTC. JAGS 2013; 11: 24-25
14. Elliott and Stehlik: Identifying Inappropriate Prescribing for Older People, J of Pharmacy and Research vol 43, No 4 2013