The Basics of Geriatric Pharmacology

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Learning Objectives

- Define the terms polypharmacy and prescribing/medication cascade
- Describe the elements of a thorough medication history and reconciliation
- Develop strategies to collect a thorough medication history/reconciliation
- Utilize the Beers criteria to identify potentially inappropriate use of medication in the elderly
- Identify common medications that may affect nutrition (appetite, taste, weight, or dry mouth)

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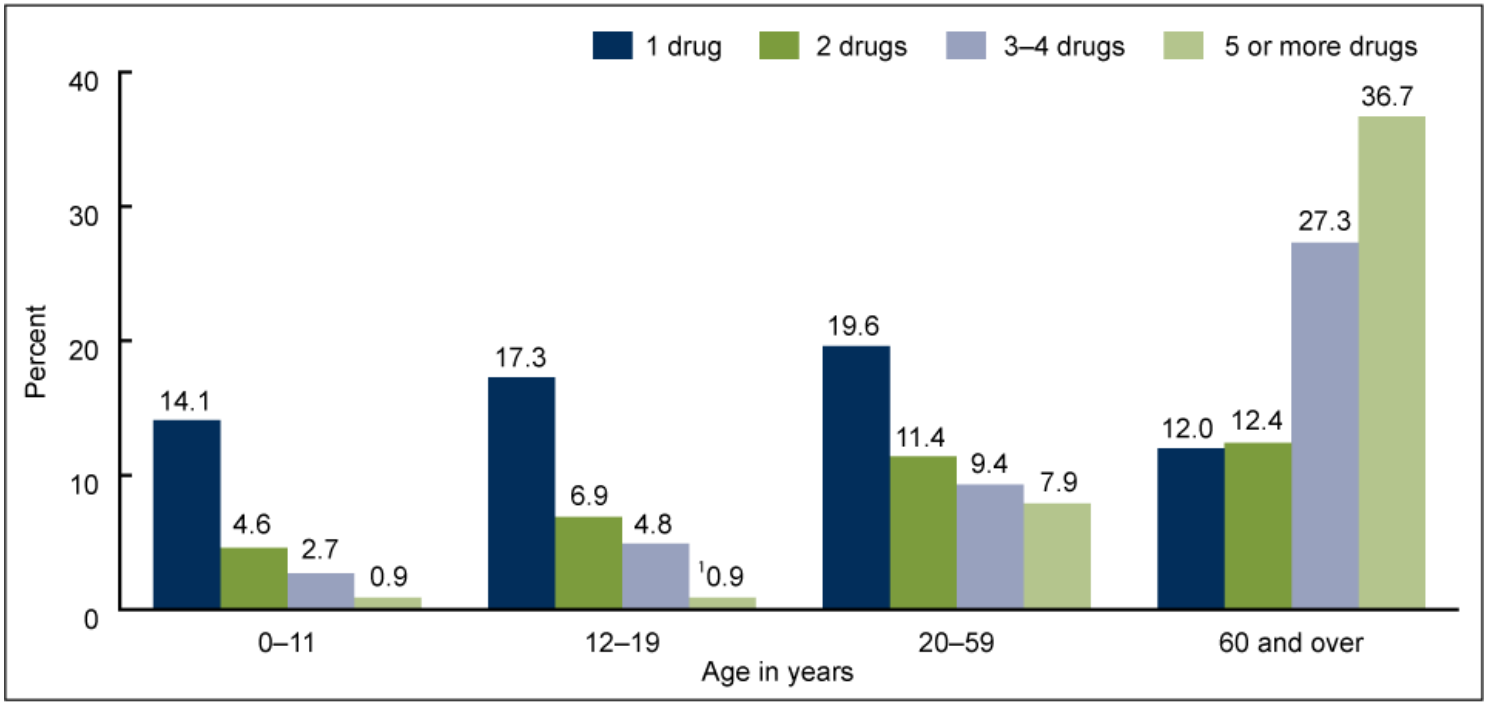
Medication use in the elderly

Figure 2. Percentage of prescription drugs used in the past month, by age: United States, 2007–2008



[1]Estimate is unstable; the relative standard error is greater than 30%.
SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey.

- Adults ≥65 years old make up 12% of population, but account for 34% of all prescriptions

https://www.cdc.gov/nchs/data/databriefs/db42.htm

Medication Related Problems: Common, Costly, Preventable

- Total estimated healthcare expenditure related to potentially inappropriate medications is $7.2 billion
- 27% of adverse events in primary care offices
- 37% of adverse events in nursing homes
- 380,000-450,000 adverse drug events occur annually in hospitals

JAGS 2012 *Arch Int Med* 2009
https://www.beckershospitalreview.com/quality/8-statistics-on-adverse-events-at-skilled-nursing-homes.html

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Medication management in older adults

Increased risk of adverse effects:

- Multiple disease states
- Multiple chronic medications
- Altered response to medications (pharmacokinetics/ pharmacodynamics)
- Drug-drug interactions
- Adverse drug reactions

Practical Contributing Factors

- Time constraints during a visit
- Multiple providers
- Lack of communication among providers
- Long/multiple prescription medication lists
- Use of non-prescription medications and supplements
- All of the above may lead to inaccurate medication lists

What is Medication Reconciliation?

- **From the Joint Commission:**
  - The process of comparing a patient's medication orders to all of the medications that the patient has been taking.
  - Done to avoid medication errors such as:
    - omissions
    - duplications
    - dosing errors
    - drug interactions
  - Should be done at every transition of care in which new medications are ordered or existing orders are rewritten.
  - Transitions in care include changes in setting, service, practitioner or level of care.

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Medication Reconciliation (cont)

- Five step process:
  - **Develop a list of current medications (medication history)**
  - Develop a list of medications to be prescribed
  - Compare the medications on the two lists
  - Make clinical decisions based on the comparison
  - **Communicate the new list to appropriate caregivers and to the patient**

General Guidelines

- Remind patients to bring all medications and medication lists to **every** visit
- Ask open-ended questions
- Ask about over the counter medications?
  - Sleep? Allergies? Pain? Recent illness?
  - Ask about packaging/colors when patient can't remember specific
- Ask about vitamins and supplements
- Ask follow up questions when discrepancies are noted (Who, What, When, Where, Why, How much?)
- Document everything

Search for answers

- Look at medication bottles, lists, and pillboxes
  - –Last filled
  - –Expiration
  - –Look inside bottles

- Call pharmacy for last fill information
- Ask your team pharmacist

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Allergies

- What allergies do you have to medications?
- What happened when you took that medication in the past?
  - Intolerance
  - Side effect
  - True allergy

What is Polypharmacy?

What is polypharmacy? A systematic review of definitions

Nashwa Masnoon,[1,2] Sepehr Shakib,[3,4] Lisa Kalisch-Ellett,[1] and Gillian E. Caughey[1,3,4]

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- No clear consensus definition
- Numerical alone vs. appropriateness
- Consider indication, efficacy, and safety in combination

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What is Polypharmacy?

- The use of unnecessary medications regardless of the number of medications being taken
- Taking more medications than clinically necessary

Who is at risk for polypharmacy?

- Any Geriatric Patient

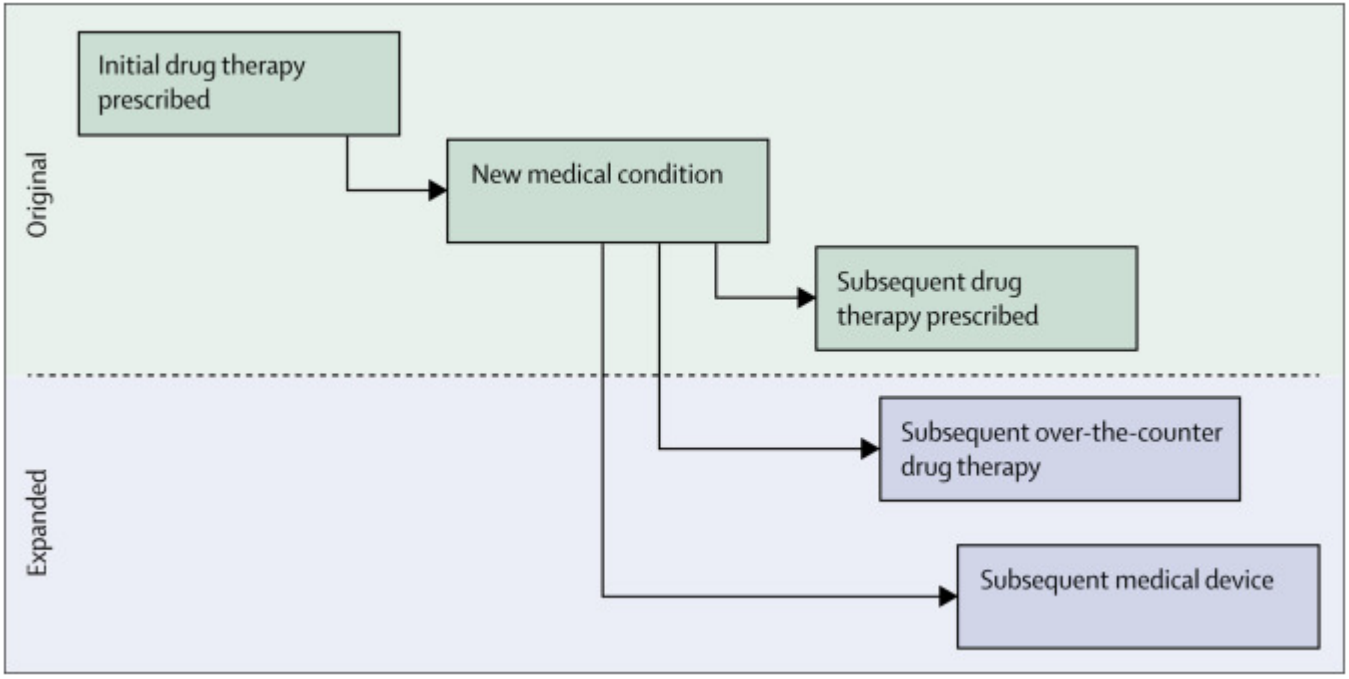
- A medication list of ≥ 5 medications

Causes of polypharmacy

- Medication with no apparent indication
- Use of duplicative medications
- Drug-drug interactions
- Drug-disease interactions
- Inappropriate doses
- Adverse drug reactions
- Prescribing cascade

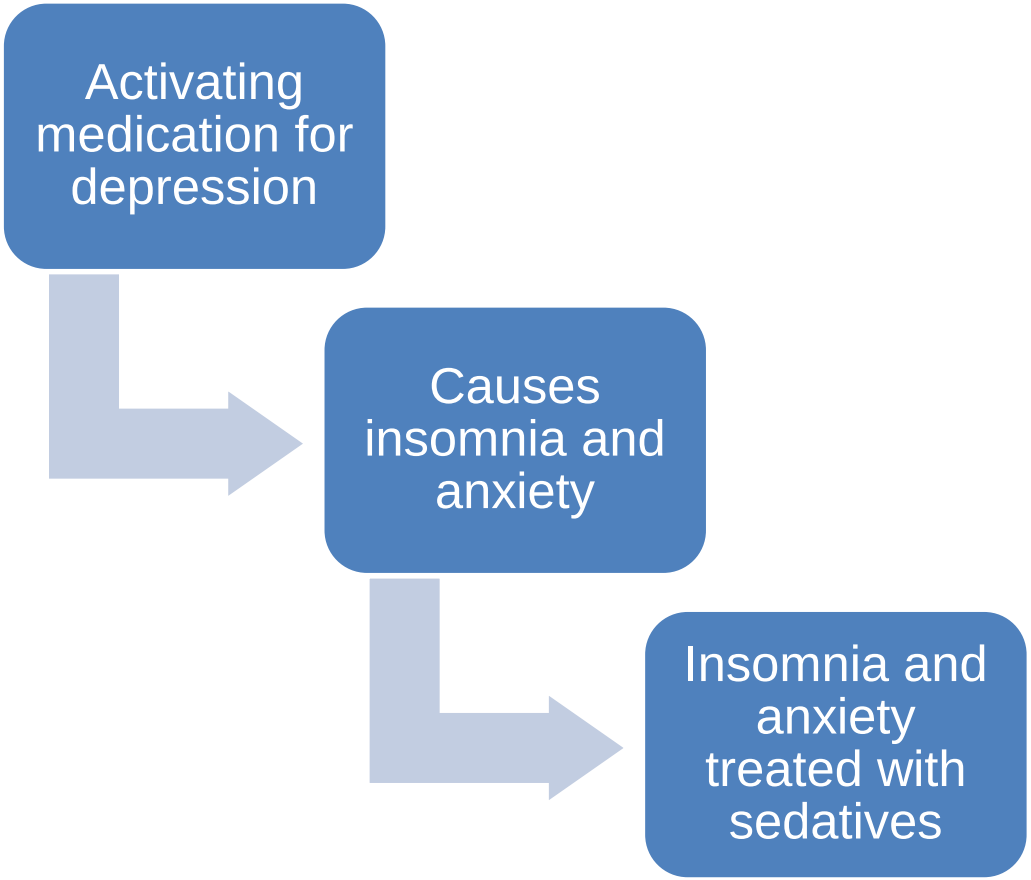
Prescribing Cascade

A drug-induced adverse event which mimics symptoms of another disease which is being treated with more medications



Rochon PA, Gurwitz JH. The prescribing cascade revisited. The Lancet. 2017; 389: 1778-1780

Examples of prescribing cascades



- Increased fall risk
- More complicated regimen

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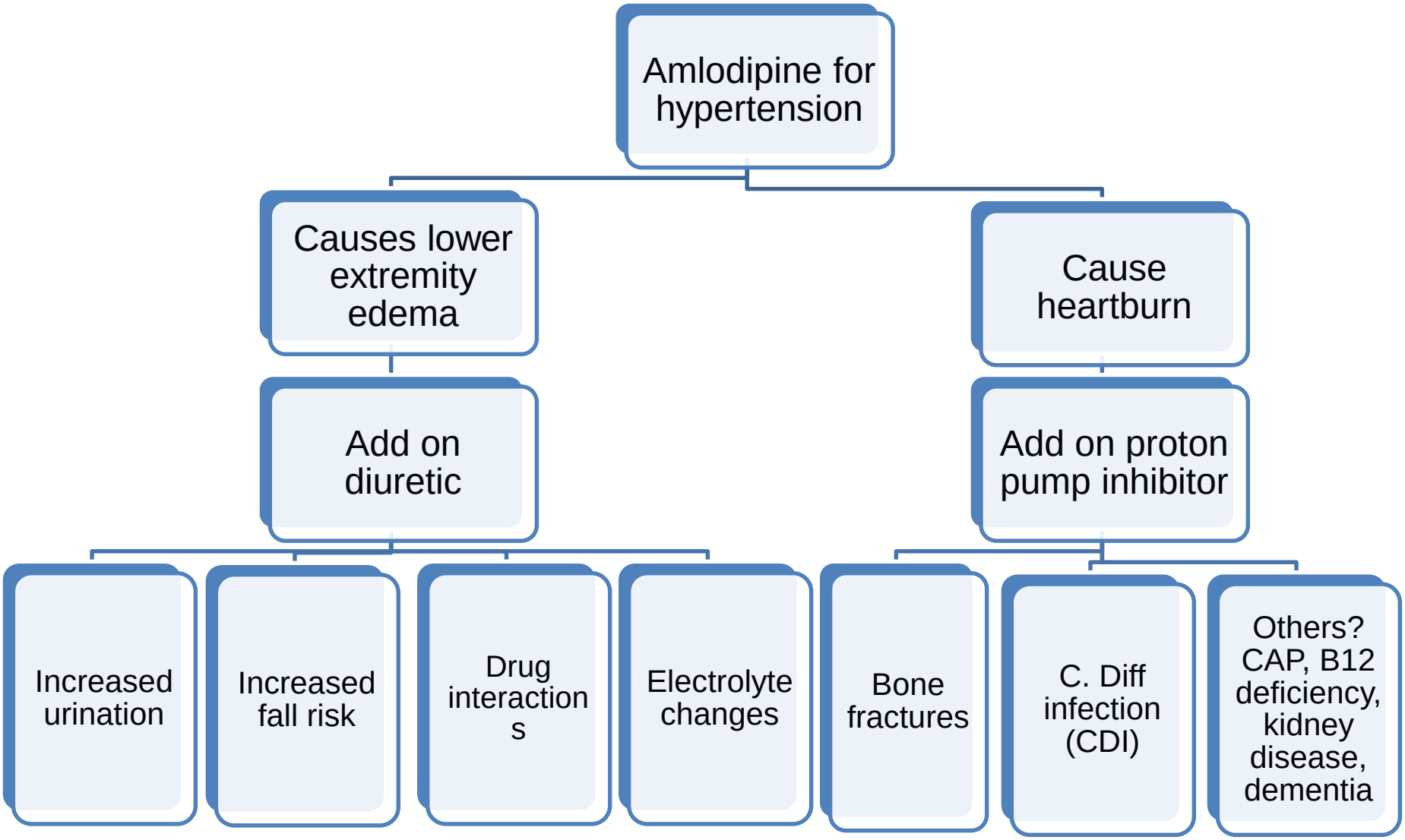
Amlodipine for hypertension
Causes lower extremity edema
Cause heartburn
Add on diuretic
Add on proton pump inhibitor
Increased urination
Increased fall risk
Drug interactions
Electrolyte changes
Bone fractures
C. Diff infection (CDI)
Others? CAP, B12 deficiency, kidney disease, dementia

The Mantra of Geriatric Pharmacology

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

~Jerry Gurwitz MD

What is the Beers list?

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The American Geriatrics Society Beers Criteria

- A list of potentially inappropriate medications for older adults published by the American Geriatrics Society
- Originated in the late 1980's as a result of nation-wide reports of overmedication of nursing home patients
- Drugs were used as chemical restraints
- Today it is applied to any setting: SNF's, Hospital, Ambulatory Care
- https://onlinelibrary.wiley.com/doi/pdf/10.1111/jgs.13702

What is on the Beers list (criteria)

- Drugs which are likely to make the patient more confused
- Dugs which increase the risk for falling
- Drugs which can cause increased likelihood of side effects or toxicity
- Should be used as a guide only
- It is OK to use medications on this list as long as the patient is adequately monitored and benefits outweigh risks

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What is on the Beers list?

- Anticholinergics: cause constipation, dry mouth and eyes,
  urinary retention, confusion
  - *Can't see, can't pee, can't spit, can't sh*t*
- Sedative Hypnotics
- Anti-depressants
- Anti-psychotic medications
- Anti-inflammatory analgesics
- Some Antibiotics
- Some cardiac medications

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Medications with Strong Anticholinergic Side Effects

- Antihistamines: diphenhydramine (Benadryl)
- Anti-Parkinson's agents: trihexyphenidyl (Artane) benztropine (Cogentin)
- Skeletal muscle relaxants: cyclobenzaprine (Flexeril)
- Tricyclic antidepressants: amitriptyline
- Antidepressants: paroxetine (Paxil)
- Antipsychotics
- Diabetes medications: glyburide, sliding scale insulin
- Urinary incontinence medications: oxybutynin (Ditropan)
- GI antispasmodics: dicyclomine (Bentyl), belladonna, hyoscyamine (Levsin)
- Antiemetics: prochlorperazine (Compazine), promethazine (Phenergan)
- The concept of “anti-cholinergic load”

Questions

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