

# Managing Polypharmacy in the Elderly

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*Bruyère pour des soins continus.  
Bruyère Is Continuing Care.*

# Objectives

Participants will be able to:

- Describe the impact of polypharmacy on patients and the health care system
- Find and use screening for inappropriate
- Identify common cascades
- Develop plans to medications safely



# Outline

- Polypharmacy in the elderly
  - Scope
  - Consequences
- Screening tools
- Prescribing cascades
- Strategies to reduce polypharmacy

# Context

- Bruyère Geriatric Day Hospital
  - Outpatient
  - Frail, elderly patients
  - Functional assessment, rehabilitation, interprofessional health care (Phm: 0.4 FTE)
  - Patients referred: cognitive changes, falls, pain, safety concerns, caregiver stress
  - Twice/week x 8-12 weeks
  - Patient-focussed care plan

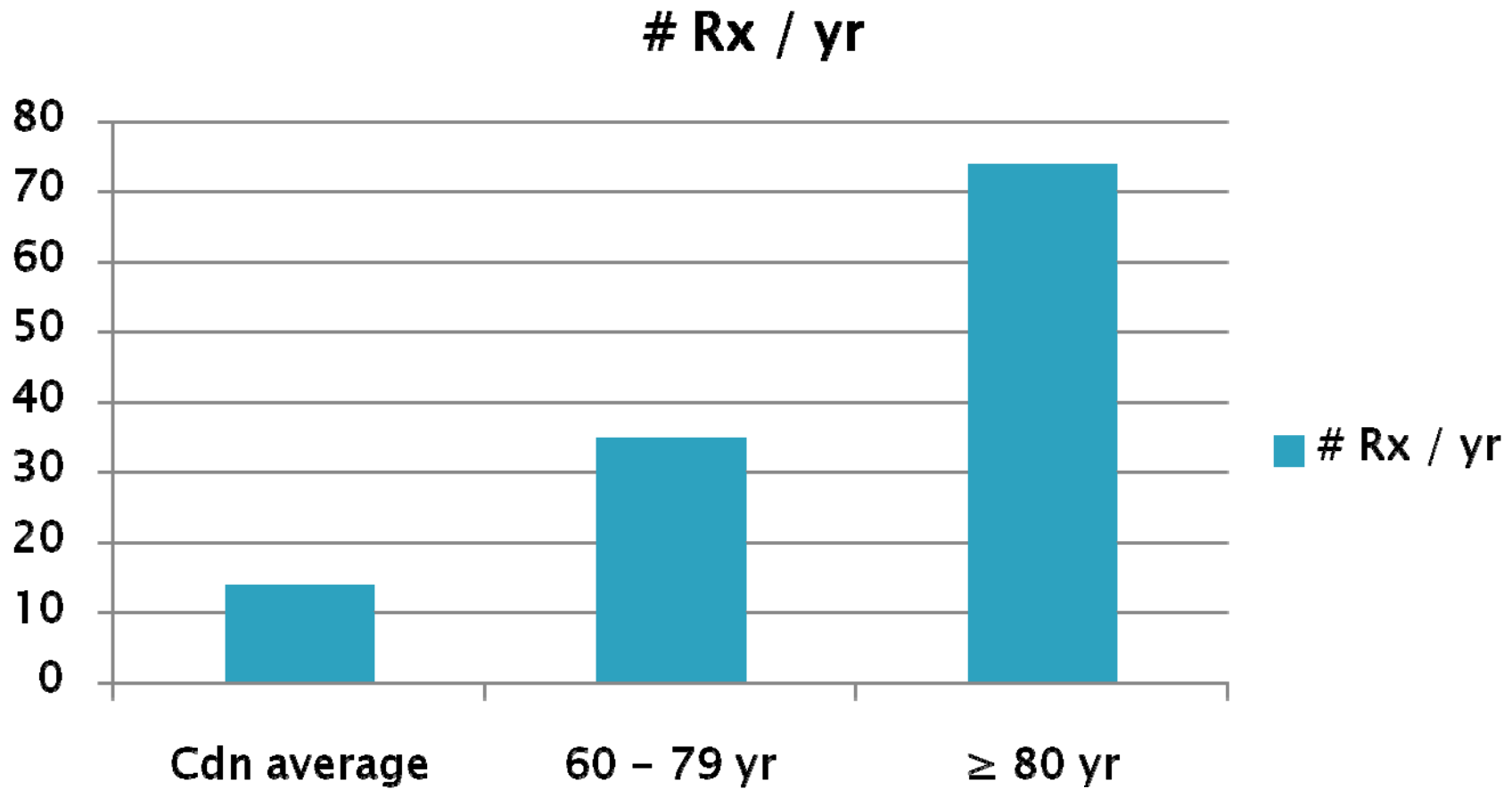
# The problems we see in the GDH

- Prescribing cascades and webs
  - Multiple medications (e.g. 25 is not unusual)
  - Medications contributing to cognitive impairment, falls etc.
  - Many medications no longer indicated
- What else?
  - Patients and caregivers unclear about the purpose of medications and confused about how to take them
  - Some conditions undertreated

# Polypharmacy

- Increased number of medications (e.g. >5), or use of “inappropriate” choices, doses
- Associated with increasing age and comorbidities
- Scope (CIHI 2011)
  - 2002
    - 59% of seniors had claims for  $\geq 5$  drug classes
    - 20% had claims for  $\geq 10$
  - 2009
    - 63% of seniors had claims for  $\geq 5$  drug classes
    - 23% had claims for  $\geq 10$
    - 30% of those >85 had claims for  $\geq 10$
- At Bruyère GDH, average of 15 drugs/person

# Prescriptions dispensed:



Ramage-Morin, Stats Canada, Health reports 20(1); Mar 2009

# Ontario data

- From 1997-2006 (Bajcar et al)
  - Ontario drug claims ↑ 214%
    - from 13,294,276 to 43,348,670
  - Population growth 65+ was 18.5%
  - Steepest: osteoporosis (2,347%), lipid-lowering (697%)
  - Symptom based medications ↓ (e.g. antibiotics, COPD, analgesics)
  - Claims per person (CPP) ↑ (e.g. cardiovascular from 3.25 to 9.48) as did number of unique classes
  - CPP increases with age and female sex



# Elderly are at increased risk

Due to:

- physiologic changes (increased sensitivity to benzodiazepines, analgesics, antihypertensives)
- reduced kidney and liver function (harder to excrete drugs)
- reduced body fat (changes distribution of drugs)
- existing conditions
  - dementia – delirium
  - poor kidney function – CHF
  - poor balance – falls
  - reduced baroreceptor reflex – orthostatic hypotension

# What is the impact?

- On people
  - decreased compliance, drug-drug interactions, errors and adverse drug reactions
  - 25% report ADR, 28% ameliorable and 11% preventable – Gandhi et al
  - 23% report ADR after hospital discharge (72% due to medication) – Forster et al
- On health care utilization
  - hospital admissions (preventable, drug-related)
- On cost (CIHI 2008; 6 provinces)
  - one billion from publicly funded programs
  - 17.4% of health care spending (↑15% in 10 years)

# Qualitative insights into polypharmacy

- Interviews with GPs (Anthierens et al)
  - Side effects not always recognized
  - Difficult to keep an overview of the exact medication intake (esp. with self medication, compliance)
  - Additional drugs are prescribed when it seems like previous doses didn't work
  - It's difficult to get people to stop medications
  - Feel pressured to prescribe according to guidelines though negative impact of polypharmacy may outweigh benefits
  - Other prescribers are involved (reluctant to change)

# Patient factors

- Patients may be reluctant to taper 'old favourites' e.g. benzodiazepines
- Tendency to view some medications as harmless – multivitamins, Vitamin E, Asa, Graval, NSAIDS – under-reporting of use
- Compliance may be poor, leading to new drugs added
- Expectation that each issue will be addressed with a prescription
- Lifestyle recommendations are not valued as heavily – e.g. exercise, non-medication pain management, insomnia

# Time constraints

- Some models of funding for MDs do not encourage medication reviews
- Time consuming to review all meds, and history behind each one
- Newly inherited patients can have complex histories
- Hospital to community GP – large gap of communication re: medication changes
- New symptoms – drug side effects vs disease process – this requires time to review

# Screening and assessment tools



# Screening criteria, processes

- ▶ Beer's criteria
- ▶ [http://www.americangeriatrics.org/health\\_care\\_professionals/clinical\\_practice/clinical\\_guidelines\\_recommendations/2012](http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/2012)
- ▶ START and STOPP criteria
  - <http://www.biomedcentral.com/imedia/3973756062468072/supp1.doc>
- ▶ Medication assessment processes
  - “Medication Appropriateness Index”, “NO TEARS” tool
  - “Pharmacotherapy Work Up” (indication, effectiveness, safety, compliance)
  - “Therapeutic Thought Process” (caused by drug therapy? causative drug needed? indication? best drug? why not working?)

# Using Beer's and STOPP/START

## Group 1

- Read the case
- Apply the Beer's criteria to identify medication problems

## Group 2

- Read the case
- Apply the STOPP/START criteria to identify medication problems



# Mrs. A

- ▶ Widow living alone
  - ▶ 84 years old
  - ▶ Severe knee pain limiting mobility
  - ▶ Often confused, unable to get out of bed
  - ▶ Has had 3 falls in the last year
  - ▶ Doesn't want to go out anymore
  - ▶ Not always taking meds
  - ▶ Children think she should no longer be living alone
  
  - ▶ Medications found at home (\* = in dossette):
- ▶ ASA 81mg daily
  - ▶ ibuprofen 400mg bid\*
  - ▶ dimenhydrinate 50mg qhs
  - ▶ lorazepam 1mg qhs\*
  - ▶ warfarin as directed\*
  - ▶ metoprolol 50mg bid\*
  - ▶ amlodipine 10mg daily\*
  - ▶ ramipril 5mg daily\*
  - ▶ Lakota capsules qid
  - ▶ furosemide 40mg bid\*
  - ▶ atorvastatin 40mg daily\*
  - ▶ dextromethorphan syrup
  - ▶ lansoprazole 30mg daily\*
  - ▶ Oxybutynin XL 10mg daily\*
  - ▶ Vit. B12 1200mcg daily\*
  - ▶ Slow-K daily\*
  - ▶ Calcium/Vit D bid\*

# Impressions

- Were the criteria effective in identifying drug-therapy problems?
- Were there other problems not picked up by these screening tools?

# BEERs

- ▶ Frequently used to identify inappropriate prescribing
- ▶ List of medications
  
- ▶ Limitations:
  - Several drugs no longer available or rarely used
  - Recommend avoidance regardless of medical disease
  - Recommend avoidance based on presence of medical disease
  - Does not address underutilization

# STOPP/START

- More detailed
- Provides clinical context
- Divided into physiologic systems
- Limitations:
  - Lack evidence for reducing morbidity, mortality or cost
  - Don't account for many ER visits (e.g. insulin, warfarin)
  - Requires updating as guidelines change

# Prescribing Cascades



# What is a prescribing cascade?

An adverse drug reaction is interpreted as a new disease and a new medication is started

An adverse drug reaction is interpreted as a new disease and another new medication is started

An adverse drug reaction is interpreted as a new disease and yet another new medication is started

# Common prescribing cascades

- Ibuprofen → hypertension → antihypertensive therapy
- Metoclopramide → parkinsonism → Sinemet
- Amlodipine → edema → furosemide
- Gabapentin → edema → furosemide
- Ciprofloxacin → delirium → risperidone
- Lithium → tremor → propranolol
- Bupropion → insomnia → mirtazepine
- Donepezil → urinary incontinence → oxybutynin
- Amiodarone → tremor → lithium
- Venlafaxine → tremor → diazepam

# Common prescribing cascades

- Meperidine → delirium → risperidone
- Beta-blocker → depression → antidepressant
- Amitriptyline → decreased cognition → donepezil
- Narcotic → constipation → senokot
- Senokot → diarrhea → imodium
- Lorazepam → morning drowsiness → caffeine
- Enalapril → cough → dextromethorphan
- Furosemide → hypokalemia → Slow K
- Omeprazole → low B12 → B12 supplement



# How did Mrs. A's prescribing cascade happen?

About 10  
years ago

- Atrial fibrillation; metoprolol and warfarin
- Husband died; lorazepam

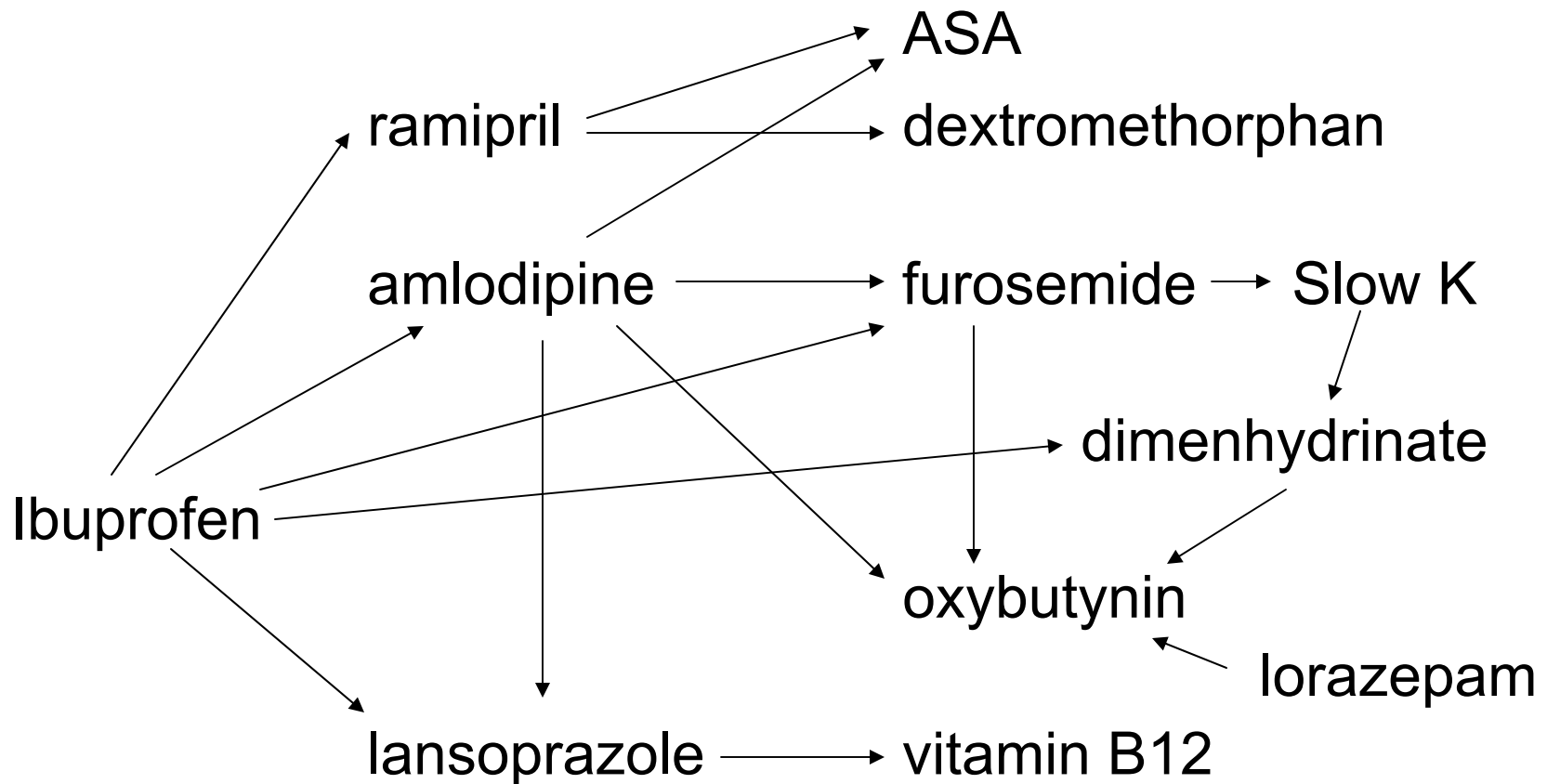
3-5 years  
ago

- Knee pain: Ibuprofen
- Hypertension; ramipril
- Cough; dextromethorphan
- Hypertension; amlodipine
- Daughter told her to take ASA for blood pressure

Last 2  
years

- Ankle swelling; furosemide
- Potassium low; potassium
- Nausea; dimenhydrinate
- Nausea (and taking ibuprofen): lansoprazole
- B12 levels low; B12 supplement
- Knee pain: Lakota
- Nocturia; oxybutynin
- Osteopenia: calcium/Vitamin D

# The prescribing web that resulted



# Strategies to reduce polypharmacy



# Strategies to reduce polypharmacy

- Calculate the pill burden
- Use screening criteria for 'inappropriate' medications
- Always consider a new symptom as possibly drug-induced (review chronology of medications)
- Consider stopping/tapering medications
- Consider reducing dose with age
- Do a drug interaction check
- Review goals of care and treatment targets
- Prescribe strategically (e.g. reduce pill burden, simplify regimen, use meds for more than one purpose)

# Rocking the boat – stopping medications

- Medications can be stopped without causing harm
  - Garfinkel – successful discontinuation in 81%
- But, symptoms or withdrawal reactions can happen
- Get started with medication where there is:
  - Risk of harm with no known benefit
  - Little chance ADWE
  - Unclear or no indication
  - Indication but unknown or minimal benefit
  - Benefit but side effect or safety issues

# Getting buy in

- Start a medication review with questions like:
  - What questions do you have about your medications?
  - What medications do you feel most strongly about keeping?
  - What medications do you wonder about how well they're working for you?
- Find out:
  - How long? What does the drug do? How do they take it? Have they had any problems with it?
- Try to go one at a time
  - Involve the patient in choosing and monitoring

# Adverse drug withdrawal events (ADWE)

- “A clinically significant set of symptoms or signs caused by the removal of a drug”
- Can be:
  - Physiological withdrawal reaction - tachycardia (beta-blocker); rebound hyperacidity (PPI)
  - Symptoms of the underlying condition - arthritis pain after stopping an NSAID
  - New symptoms - excessive sweating with stopping SSRI
- Increased risk with:
  - Longer duration, higher doses, short half-life
  - History of dependence/abuse
  - Lack of patient ‘buy-in’ (may feel abandoned)

# Drugs that often have ADWEs

DRUG	MONITORING
β-Blockers	↑ HR, ↑ BP, angina
Diuretics -furosemide -HCTZ	↑ pedal edema, chest sounds, SOB/OE, ↑ weight
Hypnotics -lorazepam -zopiclone	poor sleep, ↑ anxiety, agitation, tremor
PPIs, Domperidone	Rebound heartburn, indigestion
Narcotics	↑ pain, ↑ PRN use, mobility changes, insomnia, anxiety, diarrhea

DRUG	MONITORING
NSAIDs	↑ pain, ↑ PRN use, mobility changes
Amlodipine	↑ BP
Gabapentin (for pain)	↑ pain, ↑ PRN use, mobility changes
Digoxin	palpitations, ↑ HR
Anti convulsants	anxiety depression seizures



# Drugs that often have ADWEs

DRUG	MONITORING
Anti-depressants -citalopram -venlafaxine -mirtazapine -amitriptyline	<u>Early:</u> -chills, malaise -sweating -irritability -insomnia -headache <u>Late:</u> -depression recurrence
Nitro Patch	angina, ↑ BP
Steroids	anorexia, ↓ BP, nausea, weakness, ↓ blood sugars

DRUG	MONITORING
Baclofen	agitation, confusion, nightmares, ↑ spasms or rigidity
Anti-psychotics	-insomnia -restlessness -hallucinations -nausea

# Drugs that rarely have ADWEs

- colace
- iron
- calcium
- vitamins (E, B12, multiple vitamins, folic acid....)
- bisphosphonates
- fibrates
- glucosamine

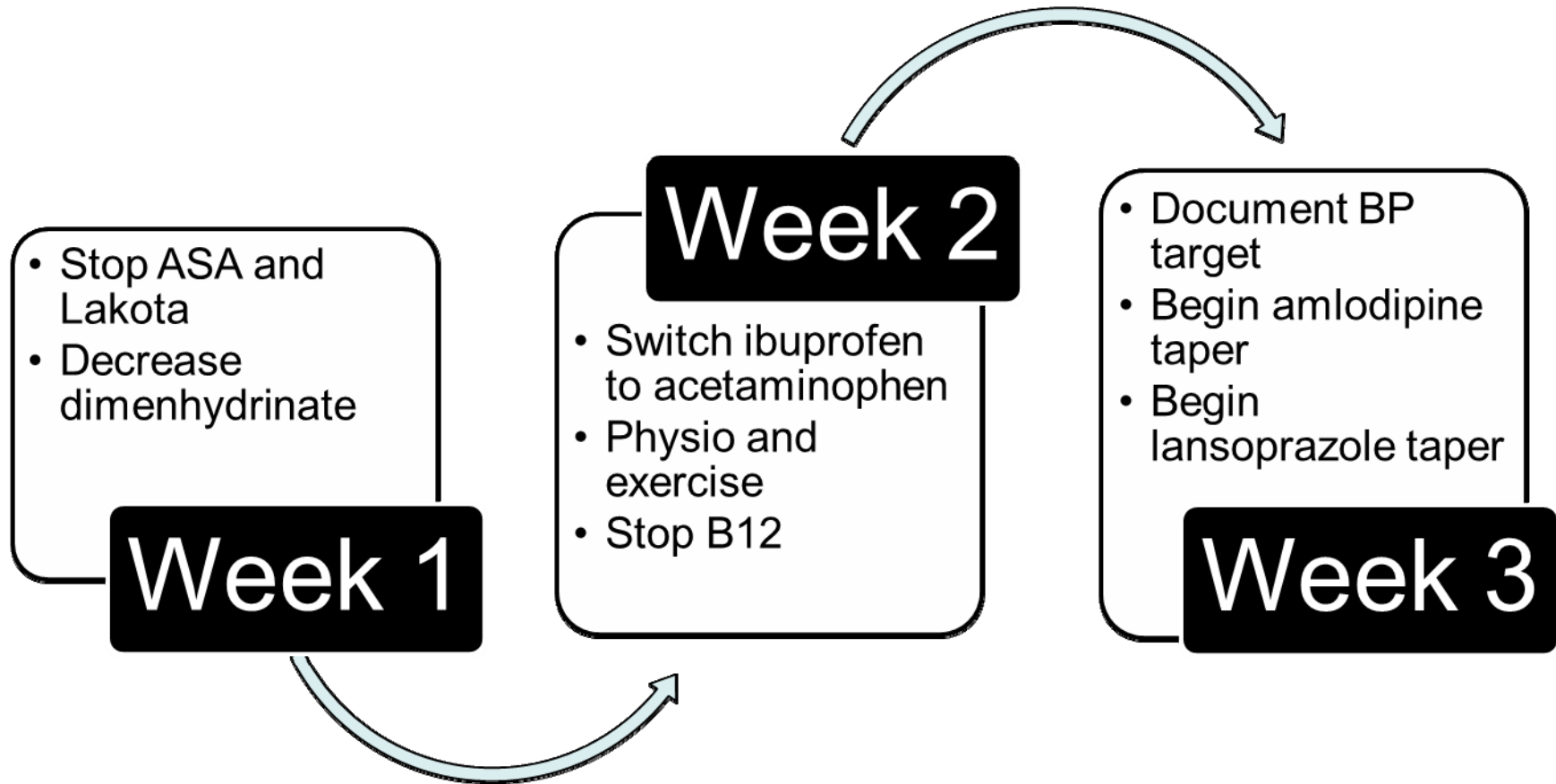
# Steps to consider

- Know when to stop and when to taper slowly
- Involve the patient in the decision (consider incentives)
- Offer safer alternative therapies
- Get the patient/family involved in the monitoring
- Involve team members (nurse, pharmacist, dietician, social worker, physiotherapist, occupational therapist etc.)
- Include non-pharmacological approaches (sleep hygiene, recreational services)
- Provide reinforcement

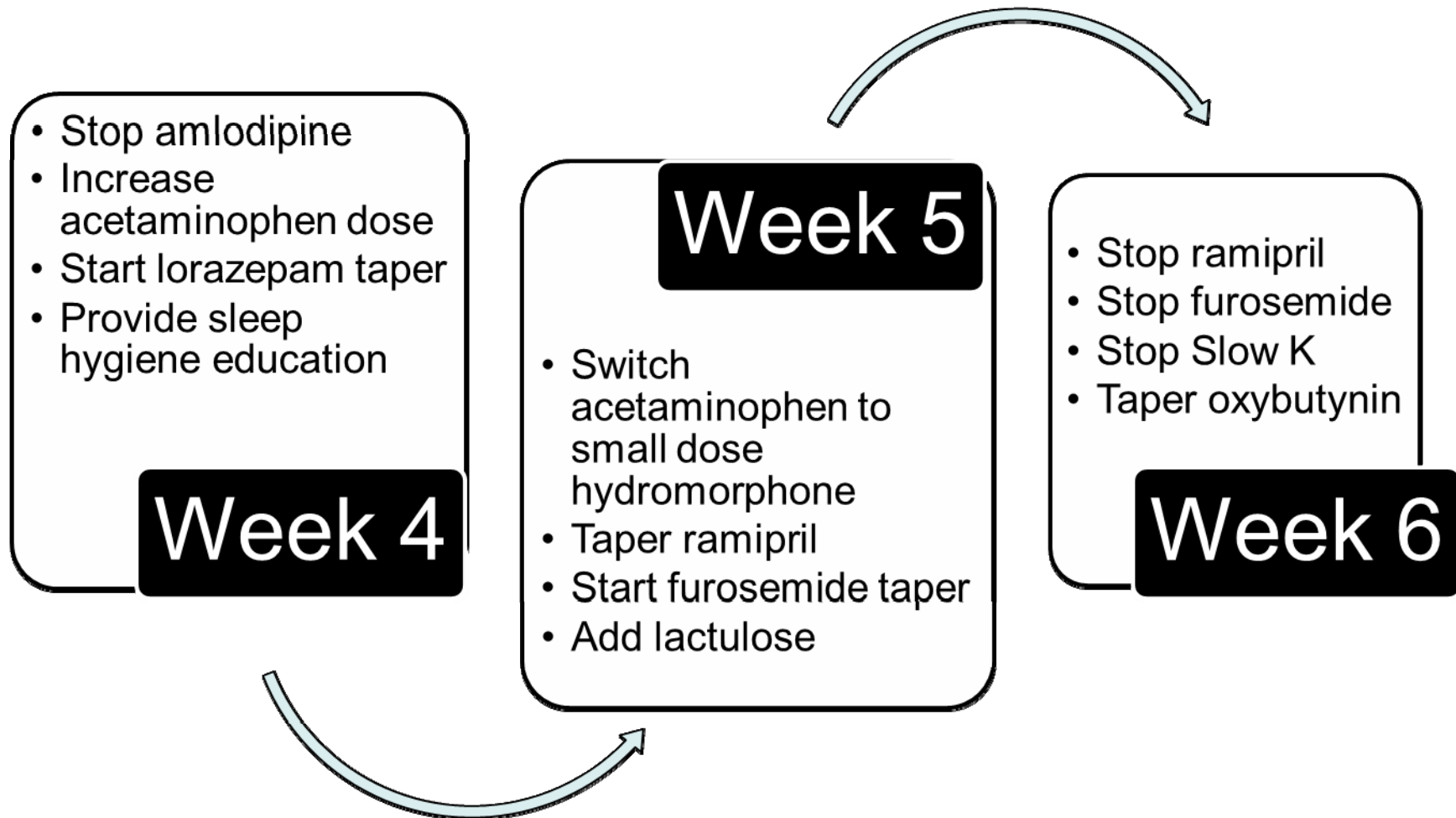
# Steps to consider

- Be up front about the need to withdraw slowly and monitor for ADWE, as well as how long ADWE can last
- Keep the message clear & say it often
- Follow up and document the progress
- Make several attempts at withdrawal
- Use a variety of educational media
  - Verbal
  - Written handouts
  - Medication Logs to organize all the information
- Empower patients to avoid future problems

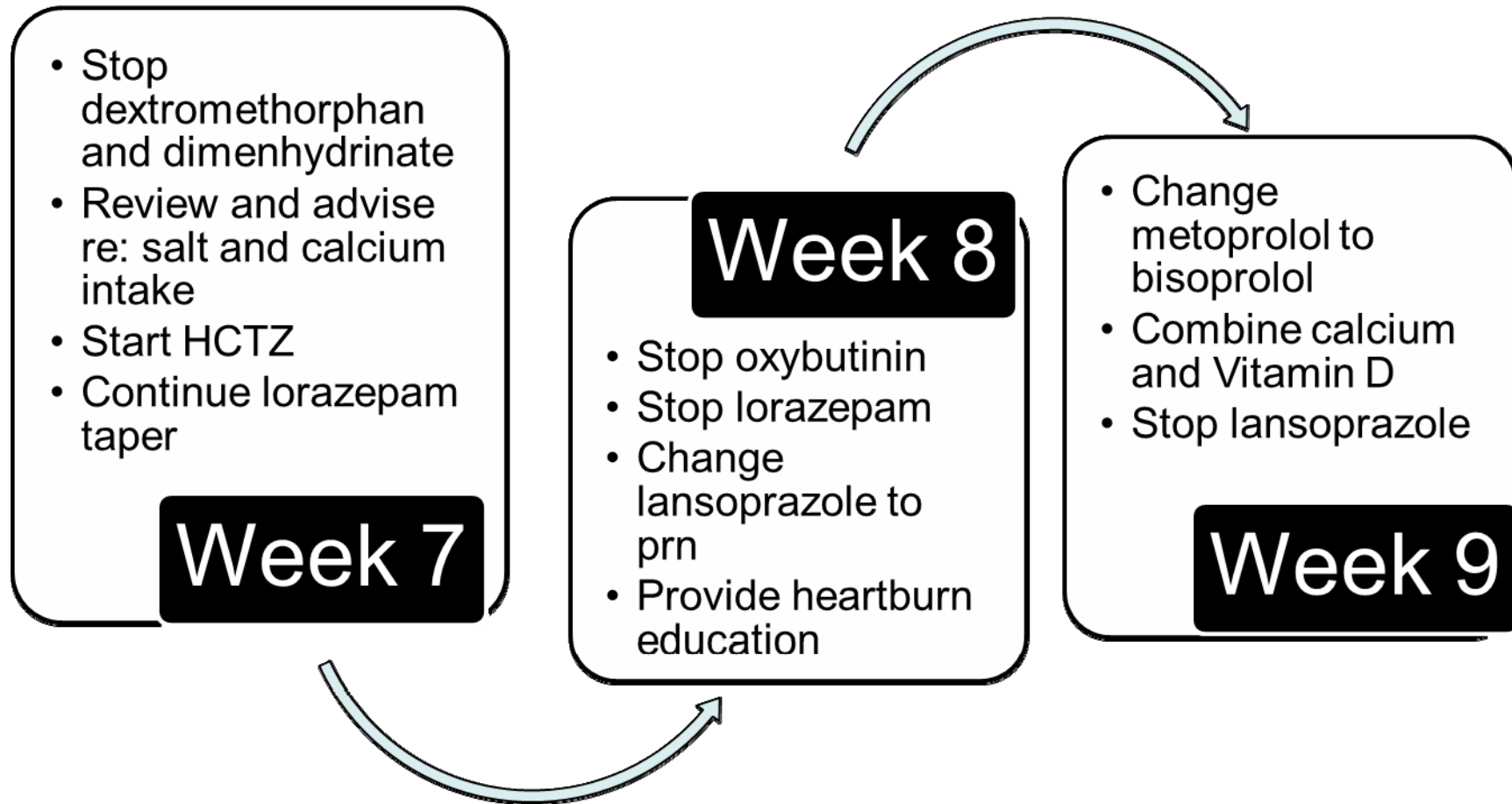
# Mrs. A's medication changes



# Mrs. A's medication changes



# Mrs. A's medication changes



# After a 10 week Day Hospital stay:

## Mrs. A's medications

- Hydromorphone 0.5mg q12h
- Hydrochlorothiazide 12.5mg daily
- Bisoprolol 2.5mg daily
- Warfarin as directed
- Caltrate Select with Vitamin D twice daily
- Lactulose 15ml daily

## Mrs. A's life:

- Knee pain much improved
- Getting out of the house now
- Urgency and nocturia better (up 1-2x/night)
- Sleep improved (to bed 10pm, up about 7am)
- Meal times normal (8, noon, 6)
- Bruising and gum bleeding gone
- No heartburn, nausea, cough or swollen ankles



# Strategic prescribing for Mrs. A

- Reduce pill burden
  - Medication assessment for continued indication, effectiveness, safety, compliance
- Simplify regimen
  - Combine when possible
  - Reduce medication-taking frequency
- Mrs. A's results
  - From 17 to 7 medications
  - From 27 to 8 pills/doses per day
  - Now twice daily

# Adapting guidelines for the frail elderly

## Hypertension

- <80: 140/90 (CHEP)
- >80: 150/80
- Caution if renal dysfunction, CHF, other comorbidities
- Avoid diastolic <60 (65 if CAD)
- Avoid systolic <120
- >80: 120/60 to 150/80

## Diabetes

- Choose targets to avoid hypoglycemia

## If frail

- HgA1C about 8%? Or 8.5%?
- FBS < 10?
- 2 hour post meal < 14?

# Adapting goals at the end-of-life

- Look at the remaining life expectancy and consider time until benefit
- Establish the goals of care and treatment targets
- Focus on symptomatic treatment
- Dial down the preventative treatment
- Weigh the pros and cons of treatment

# Conclusion

- Decreasing medication use in the elderly can:
  - Reduce adverse events (e.g. falls, hospitalizations)
  - Reduce pill burden and costs
  - Increase adherence with remaining medications
  - Improve quality of life
- All team members have a role to play in the success of the tapering process
- Taking the first step and developing a plan for medication review and strategic prescribing are key
  - Choose a patient
  - Choose a drug

# Tips for working with a pharmacist

- Meet with local community pharmacists
- Develop a plan to help a patient reduce medication use – who will do what?
- Figure out how to get paid
  - Pharmacist (e.g. MedsCheck, MedsCheck follow-up, MedsCheck at home)
  - Family physician (e.g. medication review code, CHF annual review, diabetes quarterly reviews, case coordination?)

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