

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

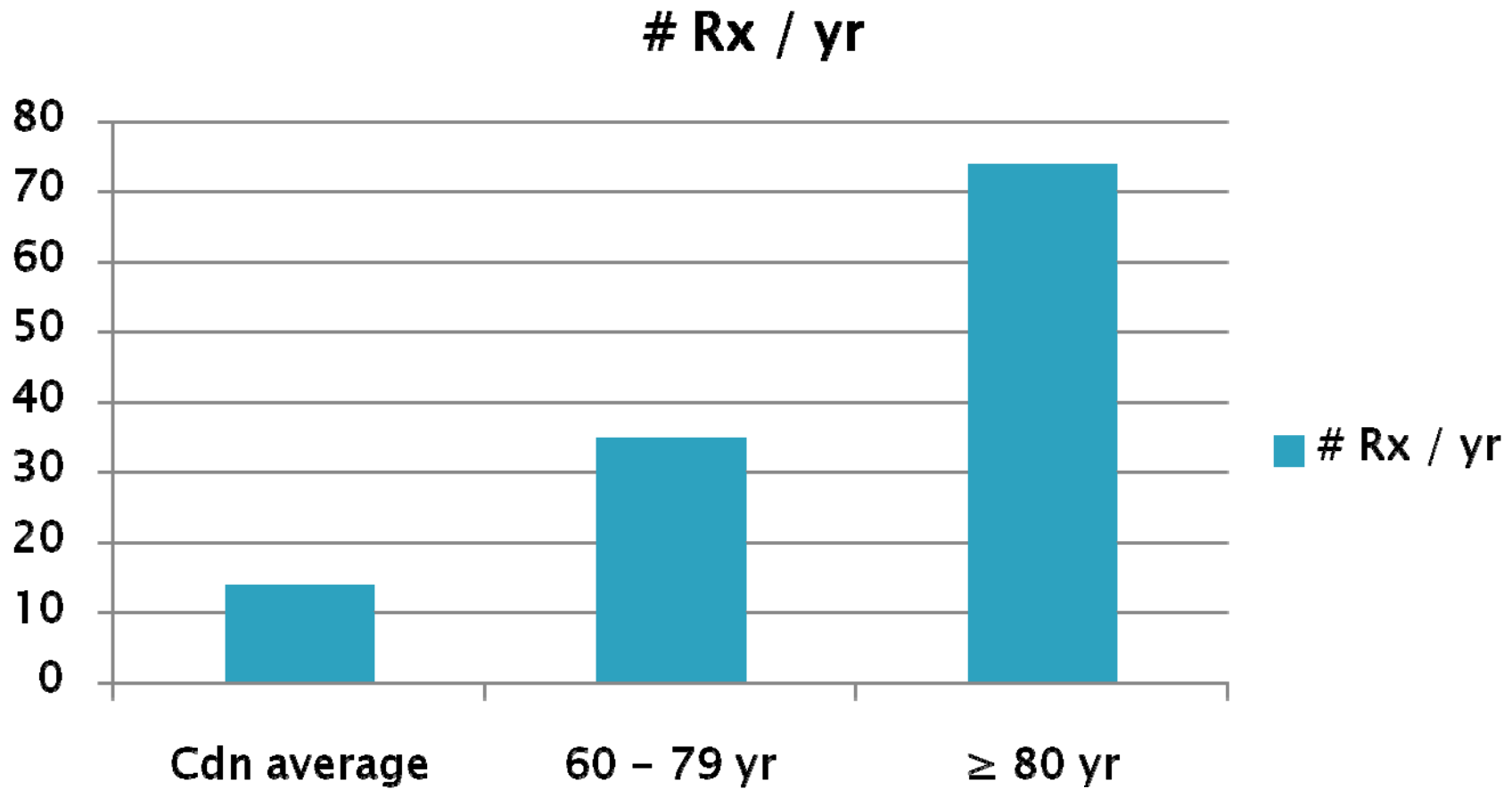
The problems we see in the GDH

- 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 ≥ 5 drug classes
 - 20% had claims for ≥ 10
 - 2009
 - 63% of seniors had claims for ≥ 5 drug classes
 - 23% had claims for ≥ 10
 - 30% of those >85 had claims for ≥ 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
- ▶ 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 → oxytutynin
- 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

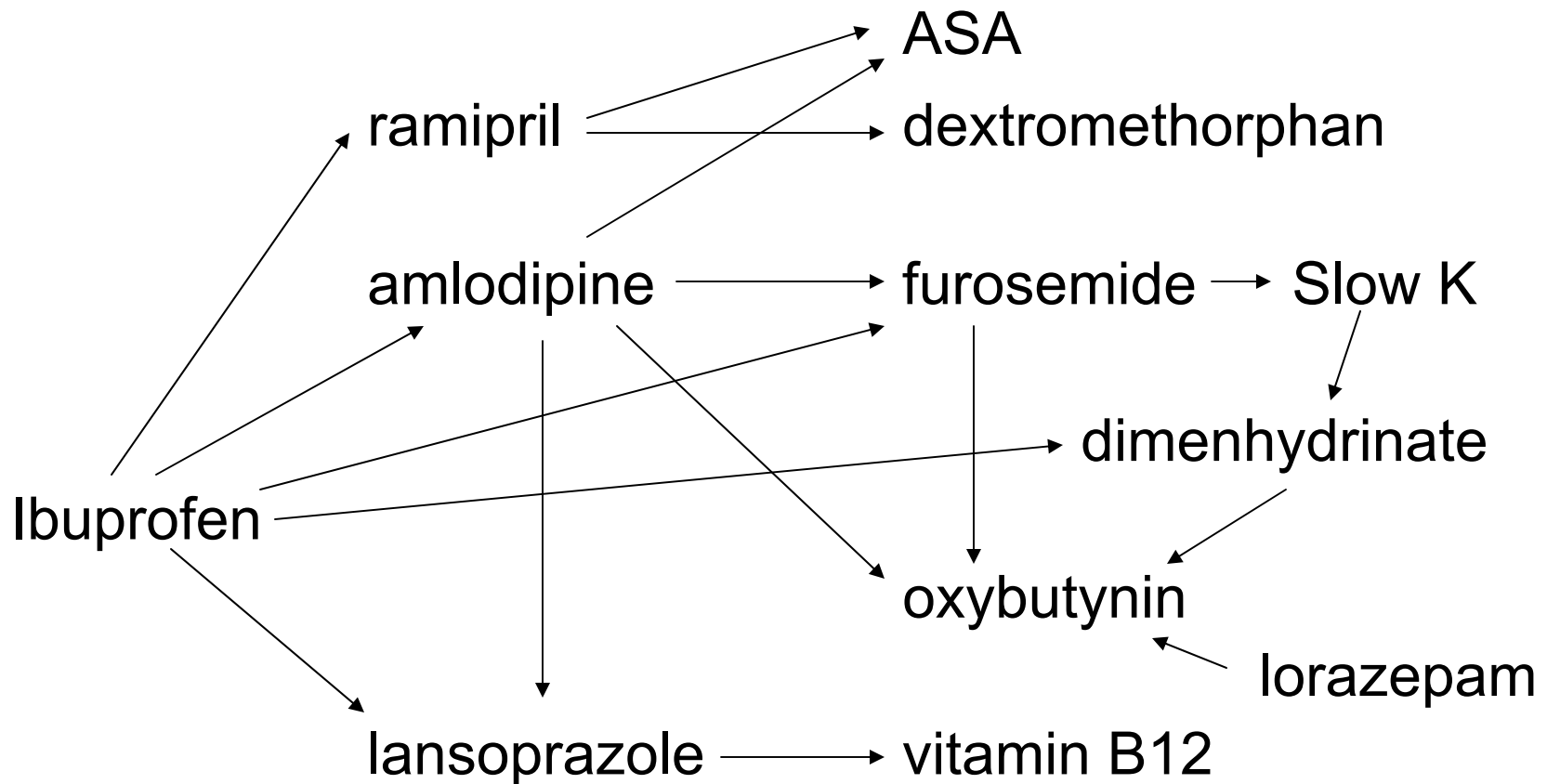
3-5 years
ago

- 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

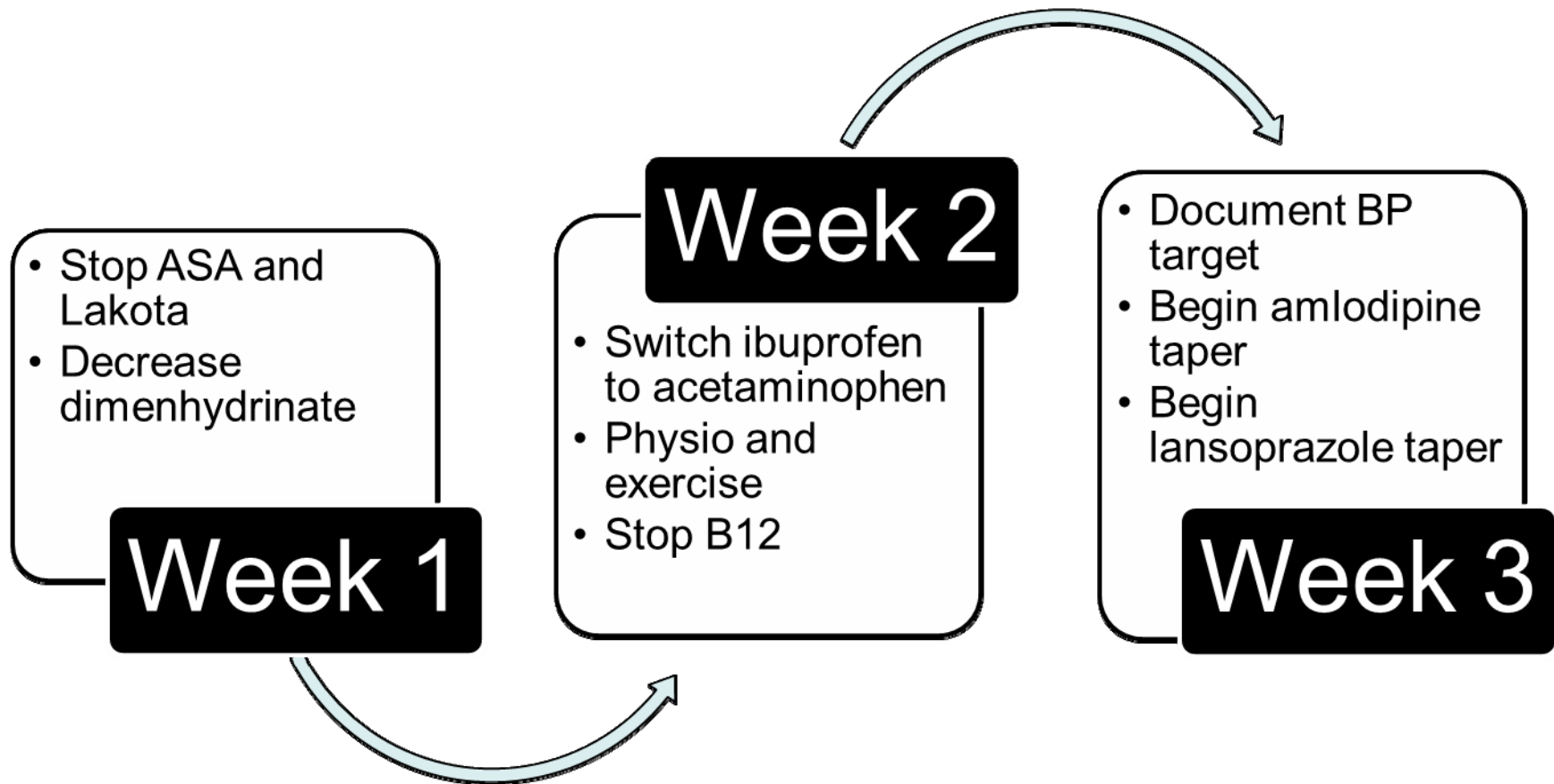
Steps to consider

- 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

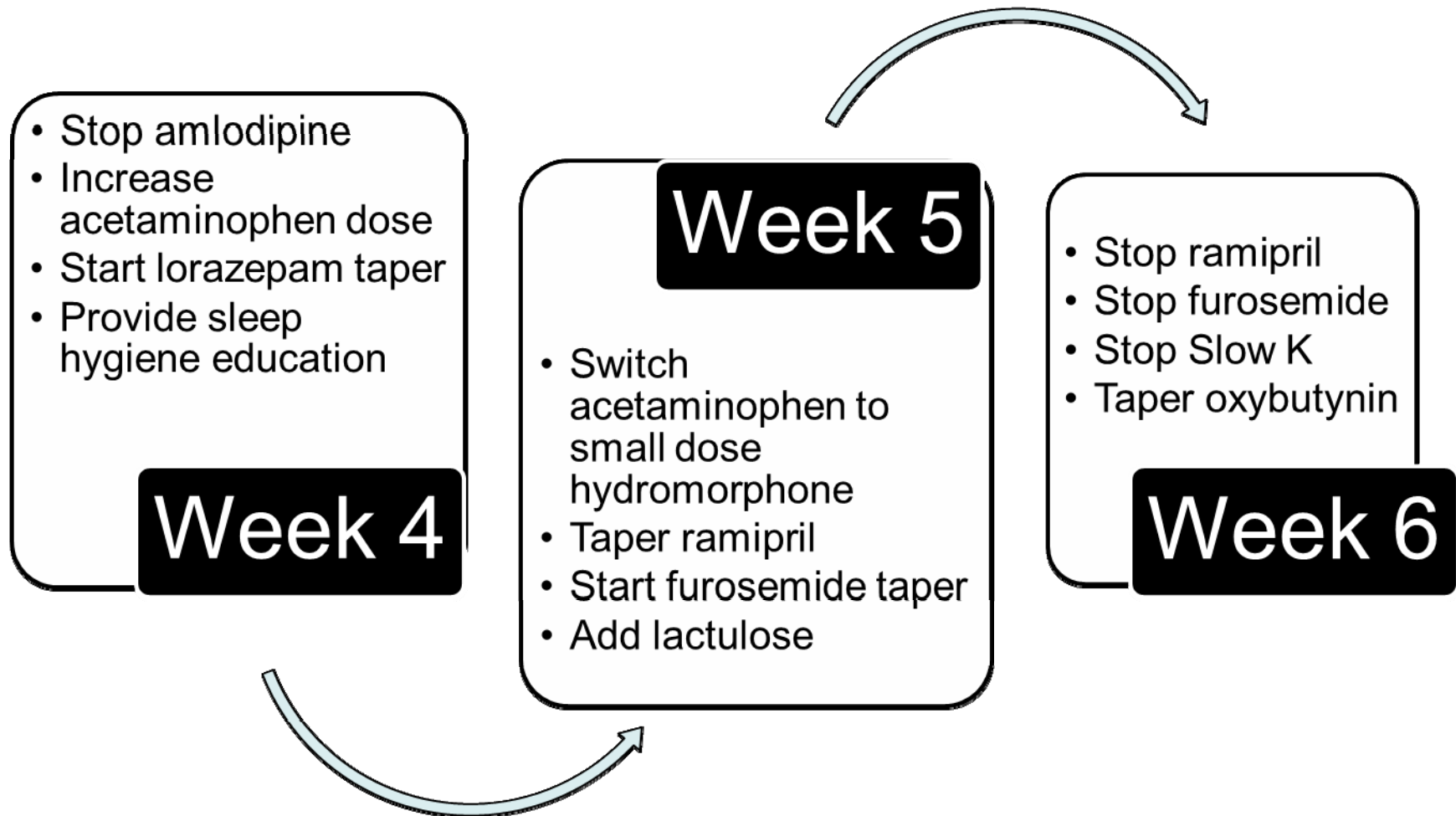
Steps to consider

- 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

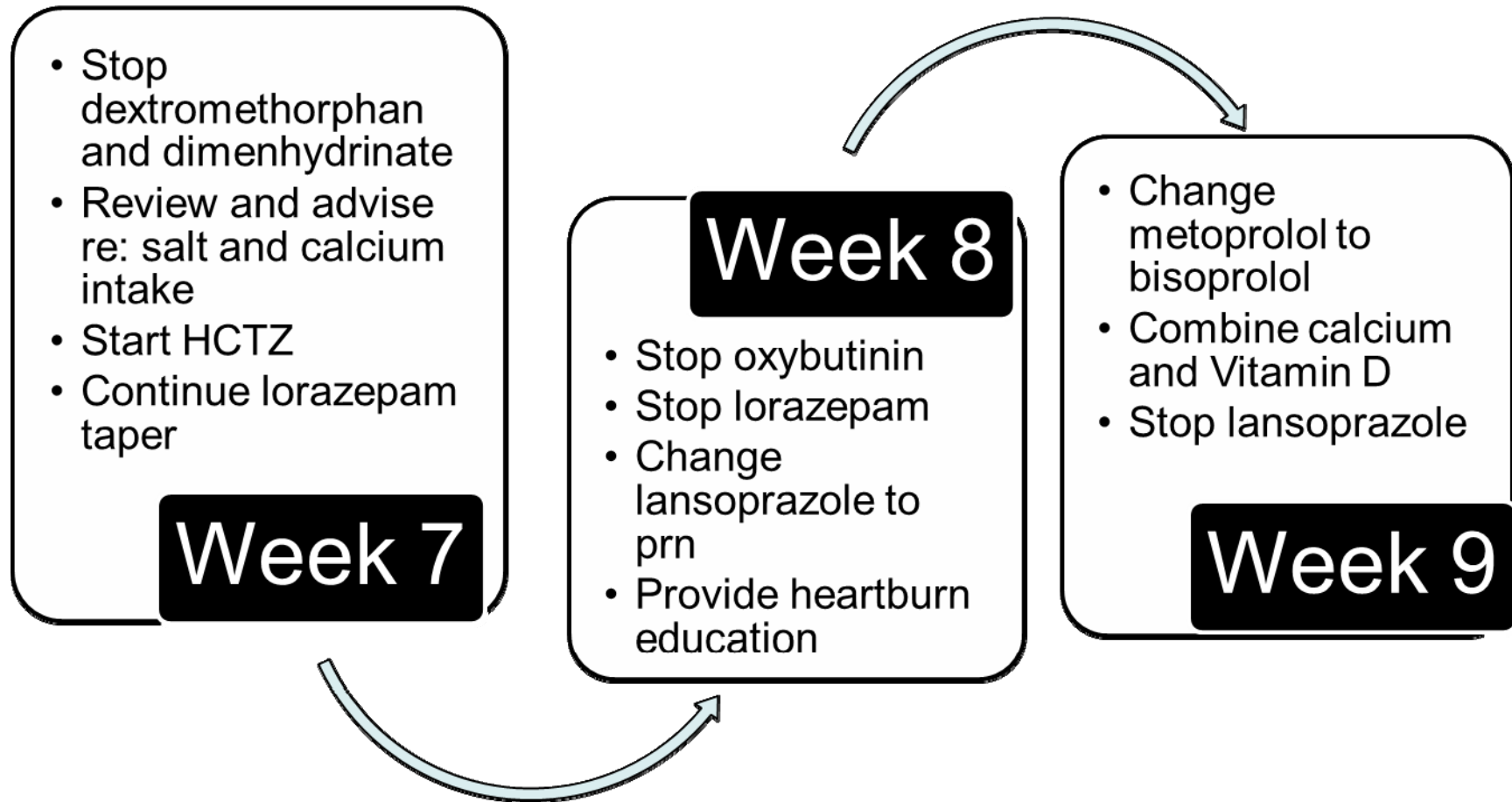
Mrs. A's medication changes



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?)

References:

- Chapter 3: Primary health care and prescription drugs – key components to keeping seniors healthy. In: Health Care in Canada, 2011: A Focus on Seniors and Aging. Canadian Institute for Health Information: Dec, 2011.
- Ramage-Morin P. Medication use among senior Canadians. Statistics Canada. Health Reports, Vol 20, No. 1, March 2009.
- Bajcar JM, Wang L, Moineddin R, Nie JX, Tracy CS, Upshur RE. From pharmaco-therapy to pharmaco-prevention: trends in prescribing to older adults in Ontario, Canada, 1997-2006. BMC Fam Pract 2010;11:75.
- Hajjar ER et al., Polypharmacy in Elderly Patients. Am J Geriatr Pharmacother 2007; 5: 345-51

References

- Forster et al. Adverse events among medical patients after discharge from hospital. CMAJ 2004;170:345.
- Anthierens et al. Qualitative insights into general practitioners' views on polypharmacy. BMC Family Practice 2010;11:65
- Hamilton, H et al. Inappropriate prescribing and adverse drug events in older people. BMC Geriatrics 2009;9:5.
- Boparai M. et al., Prescribing for older adults. Mt Sinai J Med 2011; 78: 613-26
- Levy et al. Beyond the Beers criteria: a comparative overview of explicit criteria. Ann Pharm 2010;44;1968-75.
- Steinman MA et al., Beyond the prescription: medication monitoring and adverse drug events in older adults. J Am Geriatr Soc 2011; 59: 1513-20

References

- Steinman MA et al., Managing medications in clinically complex elders. JAMA 2010; 304(14): 1592-1601
- Farrell B et al. Drug-related problems in the frail elderly. Can Fam Phys 2011;57:168-169.
- Tamblyn R et al. Do too many cooks spoil the broth? Multiple physician involvement in medical management of patients and potentially inappropriate drug combinations. CMAJ1996;154(8):1177-1184.
- Frank C. Conscientious family physicians and polypharmacy. Can Fam Phys 2002;48:1430-3.
- FrankC What drugs are our frail elderly patients taking? Can Fam Phys 2001;47:1198-1204.
- Chen L et al. Discontinuing benzodiazepine therapy: An interdisciplinary approach at a geriatric day hospital. Can Pharm Journal 2010;143:286-295.

References

- Gandhi et al. Adverse drug events in ambulatory care. NEJM 2003;348:1556
- Farrell B et al. Stopping medications in complex continuing care: the example of baclofen and dantrolene. CJHP 2006;59:264-72.
- Farrell B et al. Facilitating the process of medication reevaluation and withdrawal in the long-term institutionalized population: the example of cisapride. CJHP 2003;56:32-41.
- Shoba I et al. Medication Withdrawal Trials in People Aged 65 Years and Older: A Systematic Review. Drugs Aging 2008;25(12):1021–1031
- Sergi G et al. Polypharmacy in the elderly: can comprehensive geriatric assessment reduce inappropriate medication use? Drugs Aging 2011;28(7):509-518.

References

- Holland et al. Medication review for older adults. *Geriatrics and Aging* 2006;9:203-208.
- O'Mahony D et al. Pharmacotherapy at the end-of-life. *Age and Ageing* 2011;40:419-422.
- Commentary. Reconsidering medication appropriateness for patients late in life. *Arch Intern Med* 2006;166:605-609.
- Graves T et al. Adverse events after discontinuing medications in elderly outpatients. *Arch Intern Med* 1997;157:2205-2210.
- Culberson JW et. al. Prescription drug misuse and abuse in the elderly. *Geriatrics* 2008;63(9):22-26,31.
- Bain et al. Discontinuing medications: a novel approach for revising the prescribing stage of the medication-use process. *JAGS* 2008;56:1946.

References

- Kaur et al. Interventions that can reduce inappropriate prescribing in the elderly. A systematic review. *Drugs and Aging* 2009;26(12):1013-1028.
- Garfinkel et al. Feasibility study of a systematic approach for discontinuation of multiple medications in older adults. *Arch Intern Med* 2010;170:1648-1654.
- Dore N et al. Intentional medication nonadherence in a geriatric day hospital. *CPJ* 2011;144(6): 260-264.