Polypharmacy: Optimizing Medication Use through Deprescribing

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Presenter Disclosure

- **Lalitha Raman-Wilms**

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Mitigating Potential Bias

- Not Applicable

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Learning Objectives

- Describe the **clinical implications of polypharmacy in geriatric cancer patients**, including **adverse drug reactions** and **drug interactions**.
- Describe **tools and strategies** to screen older adults for polypharmacy.
- Discuss **strategies to optimize medication use** in the elderly.
- Discuss **educational strategies for safe medication use** in older adults.

Over-medicated seniors are an 'unseen epidemic'

CBC Radio · February 24

Many seniors are taking more pharmaceuticals than are good for them. (Spencer Platt/Getty)

"The statistics are staggering. Forty percent of those over 85 in Canada are taking at least 10 medications. Two-thirds of those over 65 are taking at least five medications."

Dr. Cara Tannenbaum, a Scientific Director with the Canadian Institutes of Health Research, and the Director of the Canadian Deprescribing Network, and her colleagues have been working to raise the profile of the overprescribing problem.

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Terminology

- Polypharmacy
- Medication Optimization
- Potentially Inappropriate medications (PIM)
  - associated with nonadherence, adverse drug reactions (including drug interactions), risk for falls, medication errors, hospitalization and mortality

DRUG THERAPY CONSIDERATIONS IN THE ELDERLY

- Reduced kidney function – greater toxicity with renally excreted drug (e.g. digoxin)
- Changes in liver function – longer half-life for drugs metabolized by cytochrome enzymes (e.g. flurazepam)
- Greater sensitivity to CNS; greater additive effects (e.g. antidepressants)
- Increase in fat : muscle mass (e.g. diazepam)

Clin Geriatr Med 2012;28: 273–286.
Drugs Aging 2009;26(12):1039-48.

Clinical implications of polypharmacy in older patients with cancer…

- Associated with:
  - Post-operative complications (de Glas et al. 2013)
  - Increased length of stay (abd Sx) (Badgwell et al. 2013)
  - Grade 3-4 Chemotherapy-related toxicity (Hamaker et al. 2014)
  - Lower overall survival (Freyer et al. 2005)
- Almost 50% of pts mod-severe potential drug issues prior to start of cancer Tx (Can Cancer Centre - Quebec)
- Drug interactions: pre-existing meds and cancer Tx in 1/3 pts; new meds used for supportive care

Polypharmacy and potentially inappropriate medication use in geriatric oncology. J Geriatr Oncol. 2016; 7(5):346-353
Thelancet.com/oncology; 2011; v 12:1249-1257

Drug Interactions

- **Pharmaceutical** – one drug may physically bind with another drug when taken together
- **Pharmacokinetic** – one drug affects the absorption, distribution, metabolism or excretion of another
- **Pharmacodynamic** – interaction at site of action – a receptor or physiologic system

Examples of Drug Interactions

- Tamoxifen-fluoxetine/paroxetine – reduced conversion of tamoxifen to active metabolite
- Paclitaxel-warfarin – increased anticoagulant effect
- Cisplatin-phenytoin – decreased phenytoin conc

- Clinical significance & management
- Greater # of drugs, higher risk

Adverse Drug Reactions (ADRs)

- Adverse drug reaction – a response to a drug which is noxious and unintended and which occurs at doses normally used (WHO 2005)
- ADR in adults: corticosteroids, antibiotics, anticoagulants, antineoplastic and immuno-suppressive drugs, CV drugs, NSAIDs, and opiates
- usually related to the cardiovascular, renal or CNS systems
- Common drug-related issues in the elderly: cognitive changes, falls, urinary incontinence, constipation

https://www.accp.com/docs/bookstore/psap/2015B2.SampleChapter.pdf

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Continuing medications

Consider a balance between benefits and harms of medications, taking into account patient's values and goals:

BENEFIT

- Clear Indication
- Evidence for effectiveness

RISK

- Potential ADR
- Frail, elderly
- # of medications (Rx, OTC, vitamins)
- Adherence issues

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Deprescribing

”Medications that were good then, might not be the best choice now. Deprescribing is part of good prescribing – backing off when doses are too high, or stopping medications that are no longer needed.”

“Deprescribing is the planned and supervised process of dose reduction or stopping of medication that may be causing harm or no longer be providing benefit.”

https://deprescribing.org/what-is-deprescribing/

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Deprescribing decisions

- Consider a balance between benefits and potential harms of deprescribing medications, taking into account patient's values and goals:

BENEFITS

- **Decrease in falls**
- **Improvement in cognition**
- **Improvement in psychomotor funct**
- **ER visits, # drugs**
- **Adherence, QoL**

POTENTIAL HARMS

- **Adverse withdrawal reactions**
- **Worsening of underlying condition**
- **Patient-family anxiety**

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Medications that may require tapering

- Antidepressants (e.g.citalopram, venlafaxine)
- Anticonvulsants (antiseizure meds)
- Antipsychotics
- Baclofen
- Benzodiazepines & Z drugs
- opioids
- Beta-blockers (e.g. metoprolol)
- Calcium Channel blockers (if for angina) (e.g. verapamil)
- Cholinesterase inhibitors (e.g. donepezil)
- Corticosteroids

Adverse Drug Withdrawal Events

Table 3. Success rate after 1 year of follow-up according to types of drugs discontinued

Drug group	No. of patients with drug discontinuation	Recurrence of symptoms/signs* (failures)	Success rate (%)
Nitrates	22	0	100%
H_2 blockers	35	2	94%
Antihypertensives	51	9	82%
Diuretics (furosemide)	27 (25)	4 (4)	85%
Pentoxifylline	15	0	100%
Potassium supplement	20	0	100%
Iron supplement	19	1	95%
Sedatives & tranquilizers	16	2	88%
Antidepressants	19	5	74%
Antipsychotics	13	4	69%

Ref: The war against Polypharmacy: A New Cost-Effective Geriatric-Palliative Approach for Improving Drug Therapy in Disabled Elderly People. Doron Garfinkel, Sarah Zur-Gil and Joshua Ben-Israel. IMAJ 2007;9:430–434

Strategies for Deprescribing

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A practical guide to stopping medicines in older people

Factors to consider:

- **Patient wishes**
- Clinical **indication and benefit**
- Appropriateness
- Duration of use
- Adherence
- Prescribing cascade

Four Step Process

1. Recognize the need to stop
2. Reduce or stop one medicine at a time
3. Consider if can be stopped abruptly or should be tapered
4. Check for benefit or harm after each medicine stopped

Best Pract J 2010;27:10-23.
https://bpac.org.nz/BPJ/2010/April/stopguide.aspx

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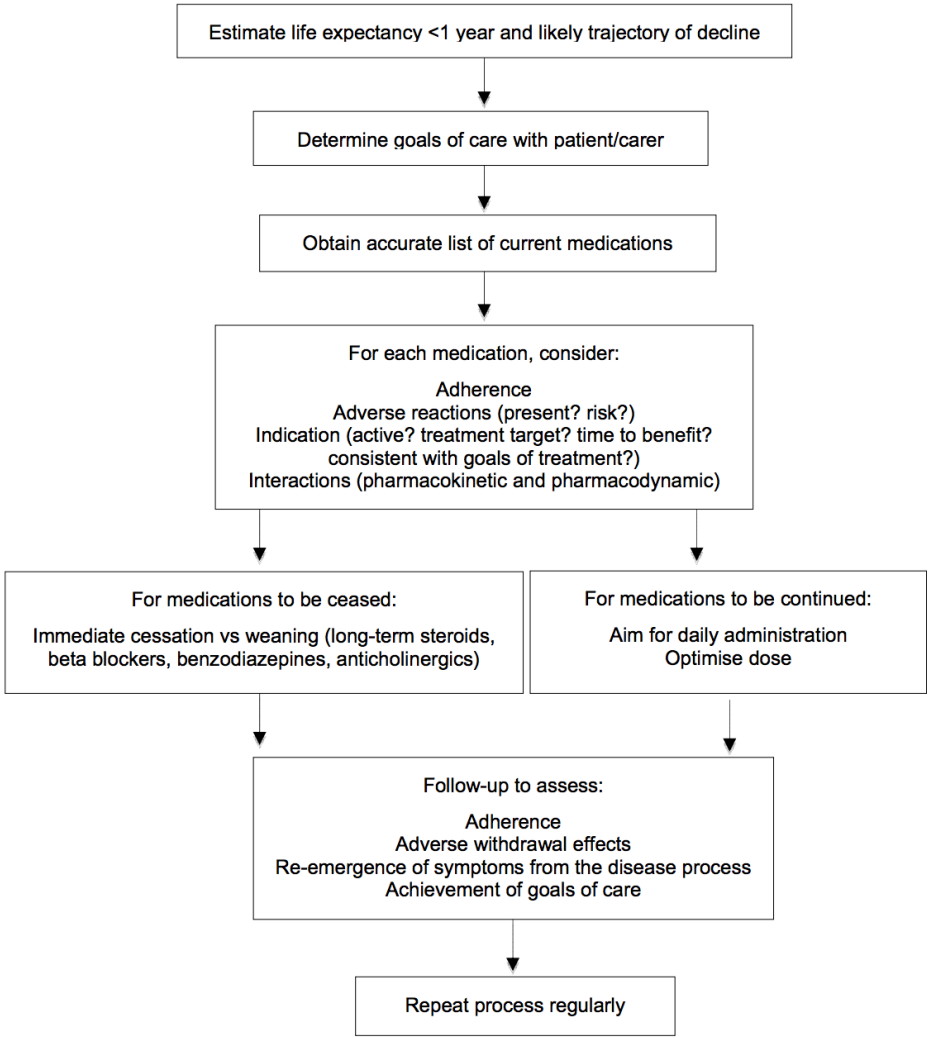
Deprescribing in the last year of life



Hardy & Hilmer
file:///Users/lraman/Downloads/Hardy_et_al-2011-Journal_of_Pharmacy_Practice_and_Research.pdf

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5- step Deprescribing Protocol (Scott 2015)

1. Comprehensive medication list
2. Assessment of patient's clinical status
3. Assess each drug for eligibility to be discontinued
   - is it indicated?
   - Consider current/future benefits vs harms
   - patient goals and preferences
4. Prioritize drugs for discontinuation
5. Monitoring and follow-up

JAMA Intern Med 2015. doi:10.1001/jamainternmed.2015.0324

Elements of a deprescribing process

- Collect a complete and **comprehensive medication history**
- **Assess overall risk of harm and benefit** and individual patient factors which may affect deprescribing
- Identify **potentially inappropriate medications**
- **Decide** on medication withdrawal (shared-decision making)
- **Plan** tapering or withdrawal process and **monitoring and documentation** and **communication** to all persons relevant to care
- **Conduct monitoring and support**
- **Documentation**

Reeve E et al. Eur J Int Med;2017.
http://www.ejinme.com/article/S0953-6205(16)30450-2/pdf

Tools to identify PIMs

- Beers Criteria – Am Ger Soc criteria for PIM use in older adults
- START - Screening Tool of Older Persons Prescriptions / STOPP - Screening Tool to Alert to Right Treatment
- OncPal deprescribing guideline (palliative care patients)
- Anticholinergic Risk Scale

https://www.ncbi.nlm.nih.gov/pubmed/26446832
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4339726/
Support Care Cancer (2015) 23:71-78

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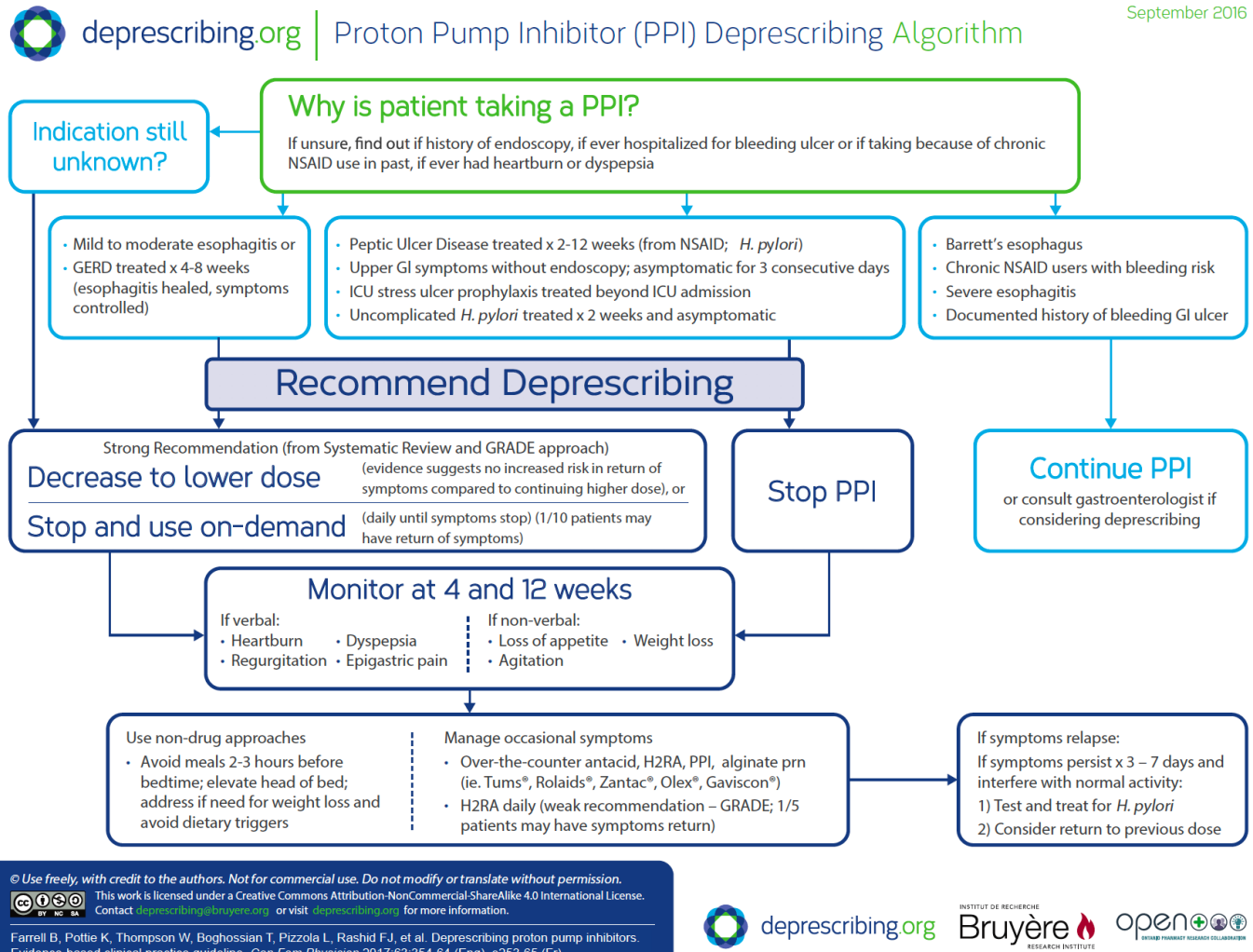

Farrell B, Pottie K, Thompson W, Boghossian T, Pizzola L, Rashid FJ, et al. Deprescribing proton pump inhibitors. Evidence-based clinical practice guideline. *Can Fam Physician* 2017;63:354-64 (Eng), e253-65 (Fr).

deprescribing.org Bruyère Research Institute

Deprescribing.org

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Patient involvement

"More than 90% of patients are willing to stop a medication if their doctor says it is possible" (JAGS)

- Patient education
- Informed-decision making

February 28, 2018

5 (MORE) QUICK SAFETY TIPS TO MANAGE YOUR MEDICATIONS

DEPRESCRIBING: REDUCING MEDICATIONS SAFELY TO MEET LIFE'S CHANGES

deprescribing.org

FOCUS ON BENZODIAZEPINE RECEPTOR AGONISTS & Z-DRUGS (BZRAs)

As life changes, your medication needs may change as well. Medications that were once good for you, may not be the best choice for you now.

Deprescribing is a way for health care providers to help you safely cut back on medications.

WHAT ARE BENZODIAZEPINE RECEPTOR AGONISTS & Z-DRUGS?

- Drugs used to treat problems like anxiety or difficulty sleeping
- Examples include:
  - Alprazolam (Xanax®)
  - Bromazepam (Lectopam®)
  - Chlordiazepoxide (Librax®)
  - Clonazepam (Rivotril®)
  - Clorazepate (Tranxene®)
  - Diazepam (Valium®)
  - Flurazepam (Dalmane®)
  - Lorazepam (Ativan®)
  - Nitrazepam (Mogadon®)
  - Oxazepam (Serax®)
  - Temazepam (Restoril®)
  - Triazolam (Halcion®)
  - Zopiclone (Imovane®, Rhovane®)
  - Zolpidem (Sublinox®)

WHY CONSIDER REDUCING OR STOPPING A BZRA BEING USED FOR INSOMNIA?

- BZRAs can cause dependence, memory problems, daytime fatigue, and are linked to dementia and falls
- Many could take them for short periods (up to **4 weeks**) but remain on them for years
- BZRAs are not recommended at all (regardless of duration) in older persons as first line therapy for insomnia
- BZRAs may become less helpful for sleep after only a few weeks

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Box 1: Initial list of medications

Medication, dosage	Reason for use, if known
Quinapril 40 mg/d	CAD/hypertension
Amlodipine 5 mg/d	CAD/hypertension
Diltiazem ER 360 mg/d	CAD/hypertension/angina
Acebutolol 200 mg twice daily	CAD/hypertension/angina
Nitroglycerin patch 0.6 mg/h at bedtime	CAD/angina
Nitroglycerin spray 0.4 mg/spray as needed	CAD/angina
Furosemide 40 mg/d	Edema
Dipyridamole/ASA 200/25 mg twice daily	Stroke in 2008
Rosuvastatin 20 mg twice daily	Stroke in 2008
Levothyroxine 0.088 mg/d	Thyroid ablation
Tiotropium 18 µg/d	Unclear if COPD or asthma
Salbutamol 100 µg/puff, 2 puffs four times daily if needed	Unclear
Galantamine ER 16 mg/d	Dementia
Morphine 10 mg at bedtime	Pain (fibromyalgia)
Acetaminophen 650 mg every 4–6 h as needed	Pain (fibromyalgia)
Cyclobenzaprine 5 mg three times daily	Pain (fibromyalgia)
Glucosamine 500 mg twice daily	Pain (type of arthritis unclear)
Amitriptyline 75 mg at bedtime	Insomnia
Oxazepam 15 mg at bedtime	Insomnia
Lactulose 15 mL/d as needed	Constipation
Magnesium hydroxide 311 mg, 1–2 tablets at bedtime	Constipation
Fibre in water	Constipation
Bisacodyl, 2 pills as needed	Constipation
Suppository?	Constipation
Cranberry 500 mg three times daily	Bladder
Carbamazepine 200 mg twice daily	Post-stroke seizure prophylaxis
Omeprazole 20 mg/d	History of duodenal ulcer
Levofloxacin 250 mg/d	Urinary tract infection

Note: ASA = acetylsalicylic acid, CAD = coronary artery disease, COPD = chronic obstructive pulmonary disease, ER = extended release.

Managing polypharmacy in a 77-year-old woman with multiple prescribers. Barbara Farrell BScPhm PharmD, Véronique French Merkley MD, Wade Thompson HBSc. CMAJ, October 1, 2013, 185(14)

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Medication review

- Reduced cognition
  - May be contributed to by anticholinergic load and CNS depressants (diltiazem, furosemide, amitriptyline, cyclobenzaprine, carbamazepine, morphine, oxazepam)
  - May not require treatment with galantamine once medication contributors tapered
- Low blood pressure and orthostatic hypotension (and frequent falls)
  - May be contributed to by cardiovascular medications: Nitroglycerin patch , Furosemide, Amlodipine, Acebutolol, Quinapril, Diltiazem

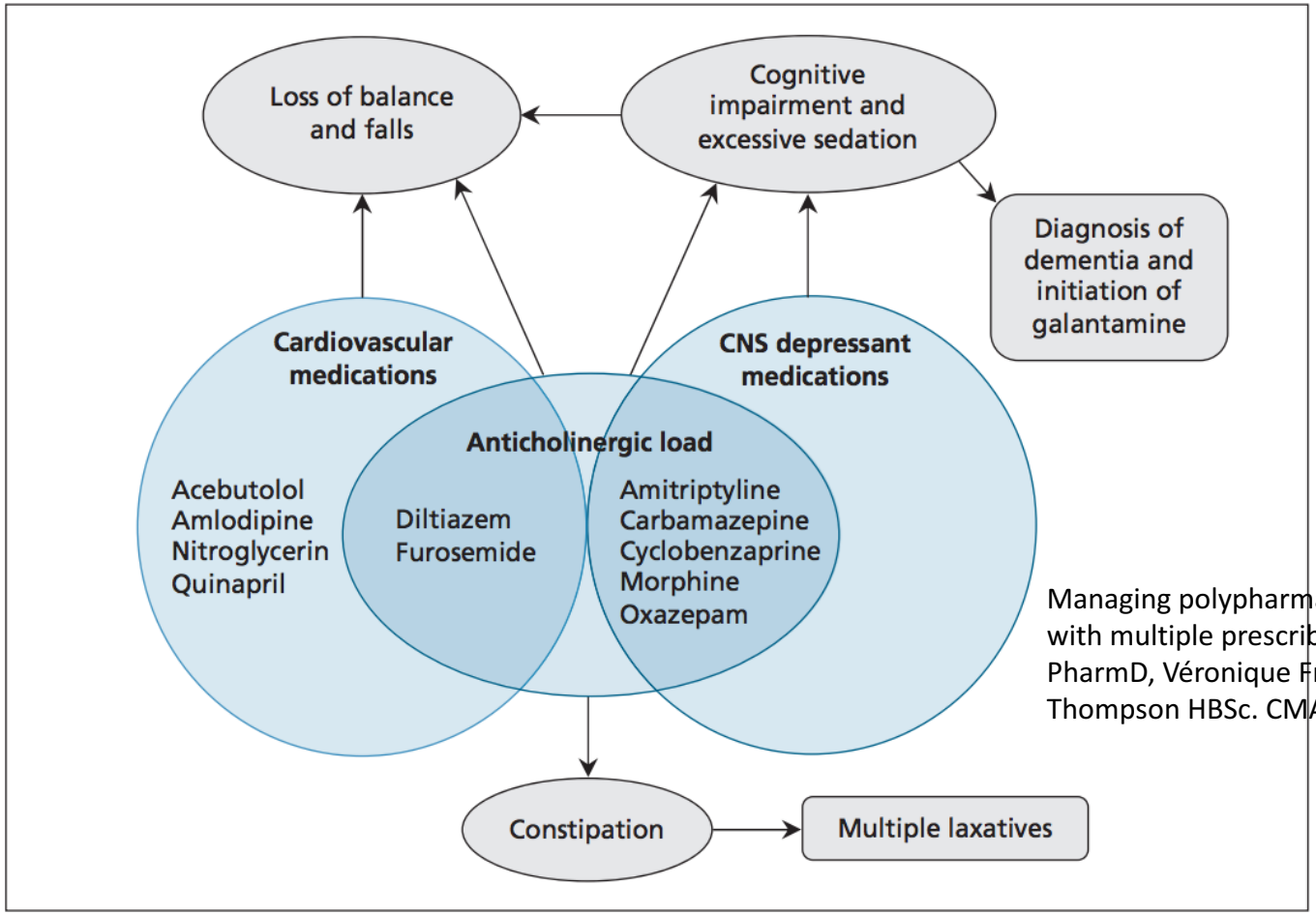

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Figure 1: Interplay between the medications of a 77-year-old woman referred to a geriatric day hospital and their possible effects on sedation, cognition, constipation and risk of falls. CNS = central nervous system.

Box 3: Medication schedule at discharge

In the morning

- Quinapril 40 mg
- Diltiazem ER 360 mg
- Furosemide 10 mg
- Levothyroxine 0.088 mg
- Tiotropium 18 µg
- Dipyridamole/ASA 200/25 mg
- Galantamine ER 16 mg
- Cranberry complex 500 mg
- Polyethylene glycol 3350 15 mL
- Vitamin D 1000 IU

At supper

- Dipyridamole/ASA 200/25 mg
- Cranberry complex 500 mg

At bedtime

- Cyclobenzaprine 5 mg
- Oxazepam 15 mg
- Cranberry complex 500 mg
- Rosuvastatin 20 mg
- Carbamazepine 100 mg

As needed

- Nitroglycerin spray 0.4 mg/spray
- Acetaminophen 650 mg
- Saliva substitute

Note: ASA = acetylsalicylic acid, ER = extended release.

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Considerations in deprescribing

Barriers

- Patient complexity (polypharmacy, multiple comorbidities)
- Prescriber complexity (multiple prescribers)
- HCP perception of patient/care-giver attitudes
- Safety concerns: adverse drug withdrawal, return of medical condition, preventative medicines,

Enablers

- Self-efficacy – use of guidelines
- Team approach
- Collaboration – MD-Phm
- Easy to use tools/algorithms
- Patient engagement
- Effective communication

Drug Therapy Review

- Are the patients medications **INDICATED?**
- Is it **EFFECTIVE?** Consider dose, route, formulation, duration
- Is it **SAFE** for the patient? Consider contraindications, drug interactions, potential adverse drug effects
- Can patient **ADHERE** to therapy? Size of the medication; frequency; cost

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Key points

- Carry out regular medication reviews
- Indication for drug therapy
- To ensure safe & effective deprescribing:
  - Patient involvement in decision making and in monitoring
  - Collaborative team approach
- Consider when and how medications should be tapered
- Discuss options for drug being withdrawn; consider non-pharm approaches

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References

- Deprescribing resources: https://deprescribing.org/
- Canadian Deprescribing Network: https://deprescribing.org/caden/

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THANK YOU!

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