
The Concept of Deprescribing

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Disclosure

- I have no relevant financial relationships with manufacturers of any commercial products and/or providers of commercial services discussed in this presentation.
- This discussion will include the use of medications for off-label indications.

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Objectives

- Describe common barriers to deprescribing medications
- Evaluate the appropriateness and strategies for deprescribing medications
- Describe communication techniques for deprescribing medications

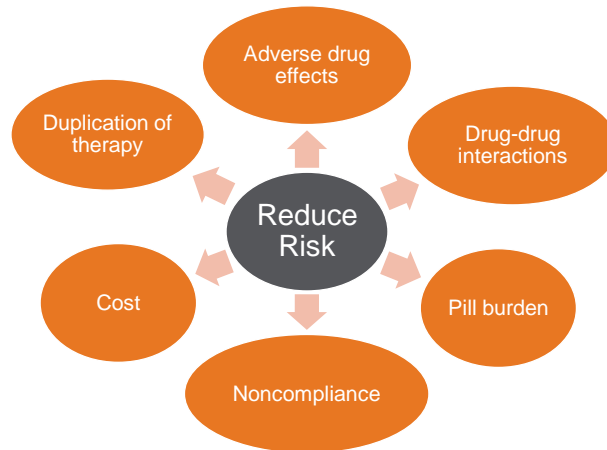
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Too much stuff?



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Benefits of Deprescribing



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Barriers to Deprescribing

Patient/Family/Caregivers

- Changing goals of care
- Attachment to medications
- Risk of abandonment
- Influential family members
- Confrontation with mortality
- Belief that medication discontinuing is suboptimal care

Prescribers

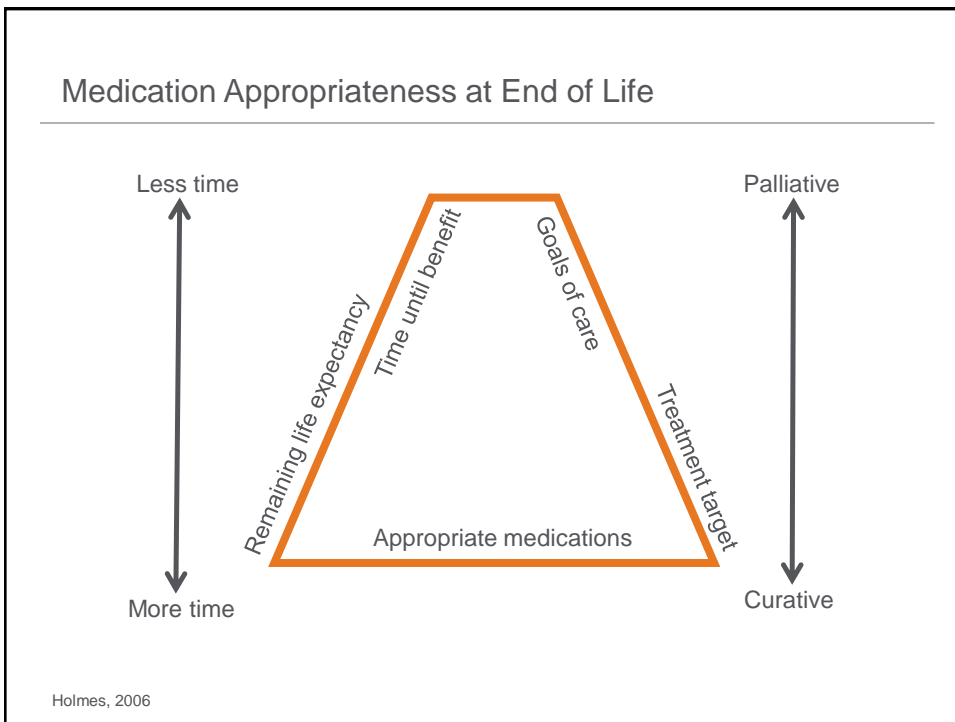
- Clinical complexity
- Multiple prescribers
- Risk of withdrawal effects
- Risk of return of symptoms
- Limited information on harm of continuation or discontinuation
- Limited guidelines on deprescribing

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Medication Appropriateness

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Factors to Consider

- Functional status
 - Swallowing ability
 - Ambulation status
 - Cognitive ability
 - Environment
- Time to benefit
- Medication safety profile
- Changes in medication effectiveness
- Changes in goals of care

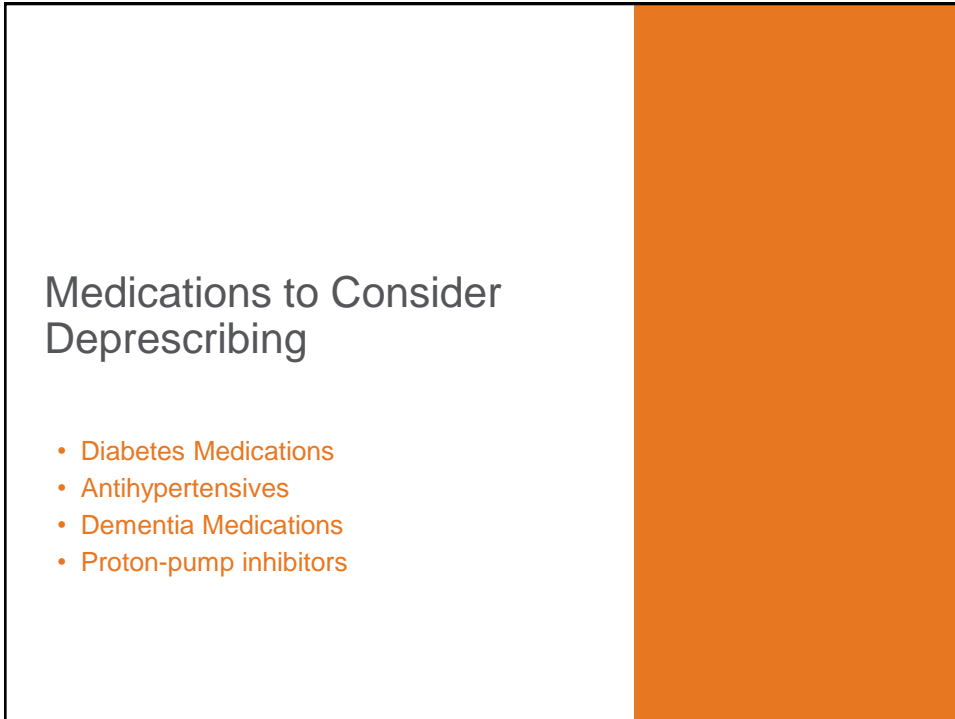
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Mrs. Davis

- 78 years old with chief complaint of dyspnea
- She is a fall risk, peripheral edema, dysphagia
- Goal: comfort and reduce medications
- Primary diagnosis: CHF
- PMH:
 - Atrial fibrillation
 - Type 2 diabetes
 - Hypothyroidism
 - Hyperlipidemia
 - Renal insufficiency
 - Peptic ulcer disease
- PPS: 30
- BP 100/58; HR 70s
- Medication List:
 - Amlodipine (Norvasc®) 10 mg PO daily
 - Carvedilol (Coreg®) 6.25 mg PO BID
 - Furosemide (Lasix®) 40 mg PO daily
 - Potassium chloride 20 mEq PO daily
 - Hydralazine 25 g PO TID
 - Clopidogrel (Plavix®) 75 mg daily
 - Metformin (Glucophage®) 500 mg PO BID
 - Glipizide (Glucotrol®) 5 mg PO qam
 - Insulin glargine (Lantus®) 20 units QHS
 - Levothyroxine (Synthroid®) 50 mcg PO daily
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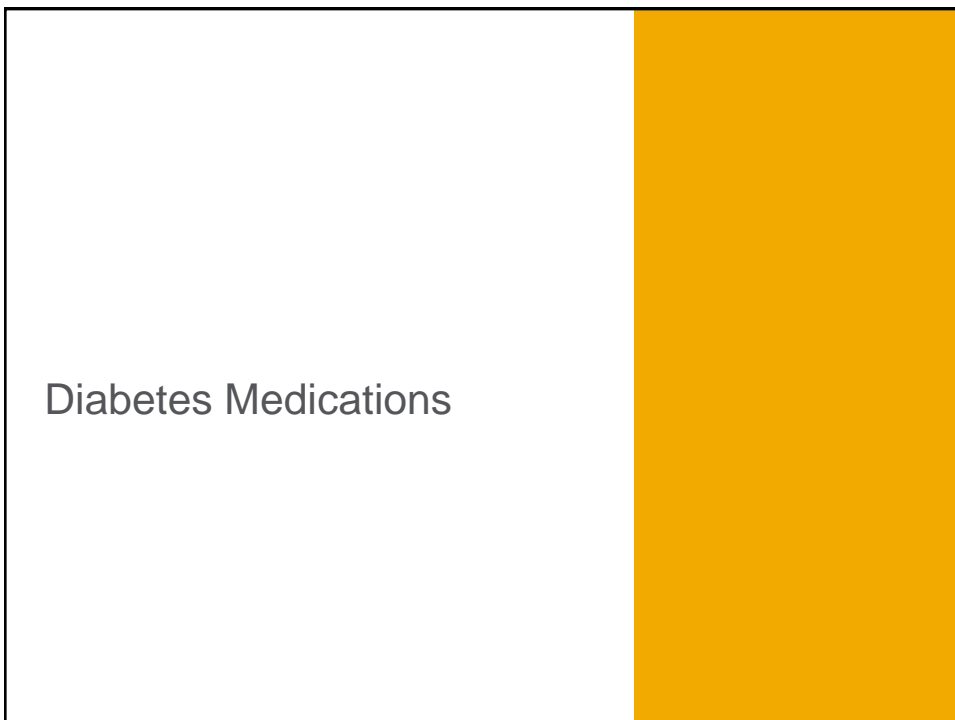


Medications to Consider Deprescribing

- Diabetes Medications
- Antihypertensives
- Dementia Medications
- Proton-pump inhibitors

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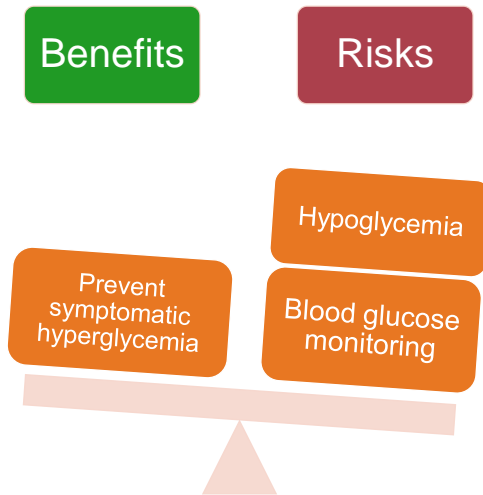


Diabetes Medications

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Diabetes Medications: Risk vs. Benefit



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Diabetes: Hyperglycemia vs. Hypoglycemia

Hyperglycemia Symptoms

- Blurred vision
- Difficulty concentrating
- Dry mouth
- Fatigue
- Headaches
- Polydipsia
- Polyphagia
- Polyuria
- Weight loss

Hypoglycemia Symptoms

- Clumsy or jerky movements
- Confusion
- Difficult concentrating
- Dizziness
- Falls
- Headache
- Hunger
- Lethargy
- Mental or behavior changes
- Pale skin
- Palpitations
- Seizures
- Shakiness
- Sweating

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Diabetes Medications: Literature

ADA Guideline Summary

- “For patients with advanced diabetes complications, life-limiting comorbid illness, or substantial cognitive or functional impairment, it is reasonable to set less intensive glycemic target goals”
- “Providers should be vigilant in preventing severe hypoglycemia in patients with advanced disease and should not aggressively attempt to achieve near-normal A1C levels in patients in whom such targets cannot be safely and reasonably achieved”

Canadian guidelines:

- Deprescribe antihyperglycemic agents that cause hypoglycemia
- Deprescribe antihyperglycemic agents in patients experiencing or at risk of adverse effects
- Individual glycemic targets to goal of care for terminally ill patients

American Diabetes Association, 2020; Canadian Diabetes Association, 2013

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Diabetes Medications: Literature

Patient characteristics/health status	Rationale	Reasonable A1c goal	Fasting or pre-prandial glucose	Bedtime glucose
Healthy	Longer life expectancy	< 7.5%	90-130 mg/dL	90-150 mg/dL
Complex/intermediate	Intermediate life expectancy	< 8%	90-150 mg/dL	100-180 mg/dL
Very complex/poor health	Limited life expectancy	< 8.5%	100-180 mg/dL	110-200 mg/dL
Patients at end of life		Avoid hypoglycemia		

American Diabetes Association, 2020

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Diabetes Medications: Literature

Patient Categories	Life Expectancy	Enteral Intake	Treatment Approach
Active Disease but Relatively Stable	Months to > 1 year	Fair with sporadic improvements or worsening	Goal: prevent hypoglycemia and symptomatic hyperglycemia Management: <ul style="list-style-type: none"> Adjust medication doses for nausea/vomiting, hepatic/renal impairment, decreased oral intake, weight loss, hypoglycemia
Impending Death or Organ or System Failure	Days to weeks	Declining calorie intake with anorexia	Goal: Prevent hypoglycemia Management: <ul style="list-style-type: none"> Adjust medication doses for nausea/vomiting, hepatic/renal impairment, decreased oral intake, weight loss, hypoglycemia T2DM: Discontinue finger-stick glucose checks T1DM: May continue for insulin needs.
Actively Dying	Hours to days	None	Goal: Patient comfort Medications: <ul style="list-style-type: none"> Consensus is lacking for patients in this stage. Most prescribers recommend to DC medications T1DM: May be reasonable to continue insulin with liberal BG targets

Angelo, 2011

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Diabetes Medications: Which cause hypoglycemia?

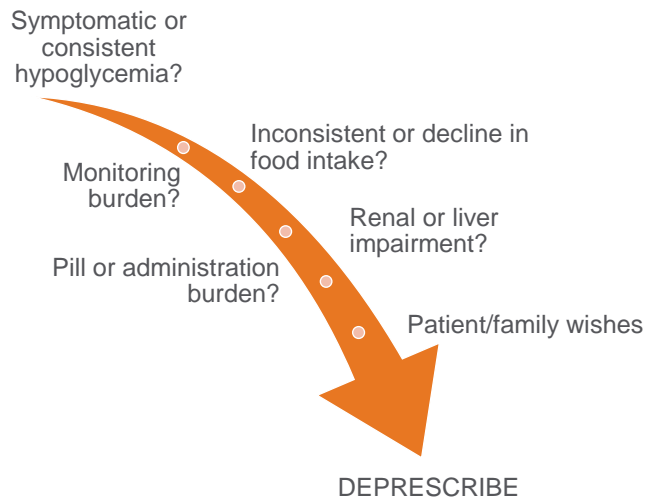
Drug	Examples	Cause Hypoglycemia?
Alpha-glucosidase inhibitors	Acarbose, miglitol	No
Dipeptidyl peptidase 4 (DPP-4) Inhibitors	(ex. sitagliptin, saxagliptin, linagliptin)	No
Glucagon-like peptide-1 (GLP-1) agonists	(ex. dulaglutide, liraglutide)	No
Insulins		Yes; Highest risk with regular and NPH insulin
Meglitinides	(ex. repaglinide, nateglinide)	Yes (low risk)
Biguanides	(ex. metformin)	No
Sodium-glucose linked transporter 2 (SGLT ₂) inhibitors	(ex. canagliflozin, dapagliflozin, empagliflozin)	No
Sulfonylureas	(ex. glipizide, glyburide, glimepiride)	Yes; Highest risk with glyburide
Thiazolidinediones (TZDs)	(ex: pioglitazone, rosiglitazone)	No

**Not a complete list*

Adapted from Farrell, 2017

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Diabetes Medications: Deprescribing



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 - Multivitamin PO daily
 - Calcium/vitamin D PO BID
 - Omeprazole 40 mg BID

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Mrs. Davis – Poll Question 1

- Patient continues on three antihyperglycemic agents:
 - Metformin (Glucophage®) 500 mg PO BID
 - Glipizide (Glucotrol®) 5 mg PO qam
 - Insulin glargine (Lantus®) 20 units QHS

Which statement is correct?

- A. Discontinue metformin due to decline in renal function
- B. Discontinue glipizide due to risk of lactic acidosis
- C. Insulin glargine should be changed to insulin NPH to reduce risk of hypoglycemia.
- D. Glipizide should be changed to glyburide to reduce risk of hypoglycemia.

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Mrs. Davis – What should we do?

- Patient continues on three antihyperglycemic agents:
 - Metformin (Glucophage®) 500 mg PO BID
 - Glipizide (Glucotrol®) 5 mg PO qam
 - Insulin glargine (Lantus®) 20 units QHS
- Agents:
 - Metformin: renally cleared and has risk of lactic acidosis
 - Glipizide: risk of hypoglycemia
 - Insulin glargine: risk of hypoglycemia and burden of injections
- What are our options?
 - 1) Discontinue one agent
 - 2) Reduce doses



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Too much stuff?



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Antihypertensives

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Antihypertensives: Literature

2017 ACC/AHA Guidelines

Recommendations for Treatment of Hypertension in Older Persons (≥65 years of age)

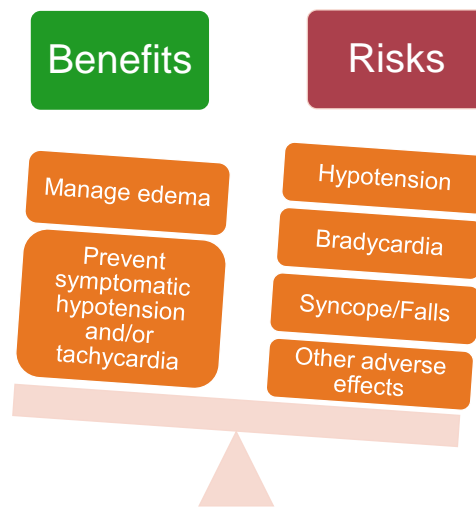
- For noninstitutionalized ambulatory community-dwelling adults
 - Treatment of hypertension with a SBP treatment goal of <130 mmHg is recommended
- For older adults with hypertension & **high burden of comorbidity & limited life expectancy**
 - Clinical judgement, patient preference, and team-based approach to assess risk/benefit is appropriate for decisions regarding BP lowering and choice of antihypertensive medications

J Am Coll Cardiol. 2018

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Antihypertensives: Risk vs. Benefit



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Select Antihypertensives – Adverse Effects

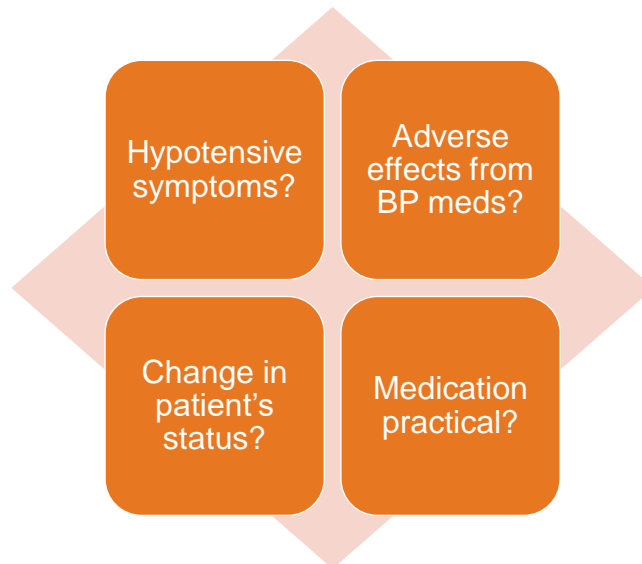
Antihypertensive Class	Examples	Adverse Effects <i>Hypotension, dizziness, fatigue</i>
ACE-Inhibitors	lisinopril, ramipril, enalapril	Hyperkalemia, dry cough, angioedema
Angiotensin Receptor Blockers	irbesartan, losartan, valsartan	Hyperkalemia, angioedema, chest pain, diarrhea
Alpha-1 Blockers	doxazosin, terazosin	Orthostatic hypotension, edema
Alpha-2 Agonist	clonidine	Orthostatic hypotension, anticholinergic effects, edema
Beta-Blockers	atenolol, carvedilol, metoprolol	Bradycardia, bronchospasms (non-selective), cold extremities, mask symptoms of hypoglycemia
Calcium Channel Blockers – Dihydropyridine	amlodipine, felodipine, nifedipine	Edema, flushing, headache
Calcium Channel Blockers – Non-Dihydropyridine	diltiazem, verapamil	Edema, bradycardia, constipation, flushing
Diuretics	furosemide, hydrochlorothiazide	Electrolyte imbalance, dehydration, nocturnal diuresis
Direct Vasodilators	hydralazine	Headache, palpitations, angina, sodium & water retention

Lexi-Comp

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Antihypertensives: Deprescribing



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Antihypertensives: Deprescribing

- Risk of discontinuation
 - Rebound hypertension
- How to discontinue?
 - Abrupt discontinuation
 - Taper (ex. beta blockers, clonidine)
- What to discontinue first?
 - Medication that is causing adverse drug effects
 - Medication with least benefit or without dual benefit
 - Medication that is inconvenient for patient/family
 - Medication that was last started

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Deprescribing Antihypertensives – Which To Taper?

Beta-blockers

- Abrupt discontinuation may result in rebound hypertension, tachycardia, or angina
- Gradually taper over 1-2 weeks

Alpha-2 agonist (clonidine)

- Abrupt discontinuation may result in rebound hypertension, nervousness, agitation, headache, or tremor
 - Less likely to occur with clonidine transdermal patch (compared to oral therapy)
- Gradually taper over 6-10 days by reducing dose by 30-50% every 2-3 days
- If patient is taking a beta-blocker and clonidine, taper and discontinue the beta-blocker several days before tapering clonidine

Calcium channel blockers – non-dihydropyridine (diltiazem, verapamil)

- Abrupt discontinue may result in angina
- Consider a gradual dose reduction

Lexi-Comp

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Antihypertensives: Beneficial agents

Diabetes	Chronic Kidney Disease	Atrial fibrillation	Heart Failure
<ul style="list-style-type: none"> • ACE-Inhibitors • ARBs 	<ul style="list-style-type: none"> • ACE-Inhibitors • ARBs 	<ul style="list-style-type: none"> • Beta Blockers • Non-DHP CCB (ex. diltiazem) 	<p><u>Benefit:</u></p> <ul style="list-style-type: none"> • ACE-Inhibitors • ARBs • Beta blockers • Loop diuretics <p><u>Possible Benefit</u></p> <ul style="list-style-type: none"> • Vasodilators • Aldosterone antagonist • Thiazide diuretics

Lexicomp; ACC/AHA 2017 Guidelines; Protus, 2015

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Mrs. Davis – Poll Question 2

• Medication List:

- Amlodipine (Norvasc®) 10 mg PO daily
- Carvedilol (Coreg®) 6.25 mg PO BID
- Furosemide (Lasix®) 40 mg PO daily
- Potassium chloride 20 mEq PO daily
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- Insulin glargine (Lantus®) 20 units QHS
- Levothyroxine (Synthroid®) 50 mcg PO daily
- Atorvastatin (Lipitor®) 40 mg PO QHS
- Multivitamin PO daily
- Calcium/vitamin D PO BID
- Omeprazole 40 mg BID

Which medication would you consider reducing or discontinuing FIRST?

- A. Amlodipine (Norvasc®) 10 mg PO daily
- B. Carvedilol (Coreg®) 6.25 mg PO BID
- C. Furosemide (Lasix®) 40 mg PO daily
- D. Hydralazine 25 mg PO TID

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Too much stuff?

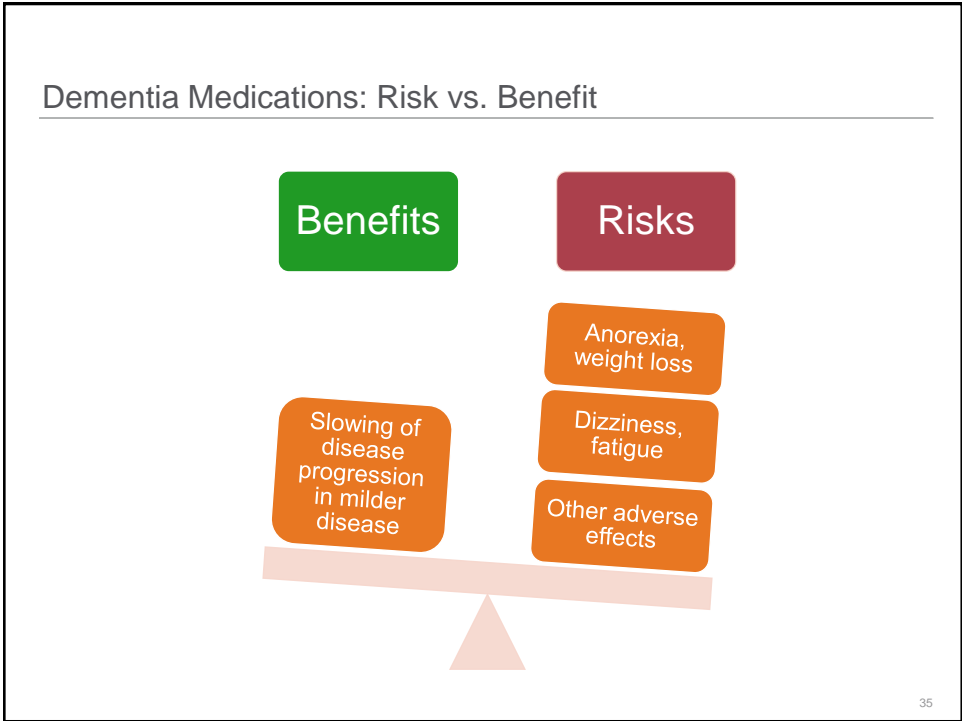


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Dementia Medications

Acetylcholinesterase inhibitors
NMDA-receptor antagonist

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Dementia Medications

Medication	Adverse Effects	Notes
Acetylcholinesterase Inhibitors (AChEI)		
Donepezil (Aricept®)	Anorexia, diarrhea, nausea, bradycardia, heart block, urinary incontinence, insomnia, headache, hallucinations, agitation, confusion	<ul style="list-style-type: none"> Mild to severe Alzheimer's Dementia
Rivastigmine (Exelon®)	Anorexia, diarrhea, nausea, bradycardia, heart block, urinary incontinence, insomnia, headache, hallucinations, agitation, confusion, dizziness, fatigue	<ul style="list-style-type: none"> Mild to severe Alzheimer's dementia; mild to moderate Parkinson's dementia Capsule must be swallowed whole Apply patch to the upper or lower back (alternatively may be applied to upper arm or chest) Safety risk with patches – patient picking; medication error with other patches
Galantamine (Razadyne®)	Anorexia, diarrhea, nausea, bradycardia, heart block, urinary incontinence, insomnia, headache, hallucinations, agitation, confusion, dizziness, fatigue, depression	<ul style="list-style-type: none"> Mild to moderate Alzheimer's dementia Caution in renal, hepatic impairment
NMDA Receptor Antagonist		
Memantine (Namenda®)	Dizziness, headache, constipation, hallucinations, confusion	<ul style="list-style-type: none"> Moderate to severe Alzheimer's dementia Caution in renal, hepatic impairment Entire content of capsules may be sprinkled on applesauce and swallowed immediately. Do not chew, crush or divide Do not mix oral solution with any other liquid

Lexicomp 36

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Dementia Medications

- In nursing home patients with advanced dementia, 53.9% received at least one medication with questionable benefit
 - Cholinesterase inhibitors were most commonly used
- 2009 Survey of hospice medical directors
 - 20% of patients were taking a cholinesterase inhibitor and 20% were taking memantine
 - Majority did not believe either medication class was effective in patients with end-stage dementia
 - 80% recommended discontinuing these therapies
 - Some benefits noted in the study (for continuing therapy):
 - Improve or stabilize cognition and function
 - Decrease challenging behaviors
 - Improve quality of life and energy
 - Reduce time spent caregiving or need for nursing home placement
 - Reduce caregiver burden or improve caregiver quality of life

Shega, 2009

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Dementia Medications: Deprescribing

Considerations to Continue	Considerations to Discontinue
<ul style="list-style-type: none"> ➤ Patient has demonstrated beneficial effects of the drug: <ul style="list-style-type: none"> • Improved cognition • Managed behaviors • Improved verbal communication • Improved functional ability ➤ Family or patient resistant to discontinuation 	<ul style="list-style-type: none"> ➤ Decline (rapid or over the past 6 months) in cognition and functional status ➤ Severe/end-stage dementia (dependent on all ADLs, inability to respond to stimuli) ➤ Adverse effects <ul style="list-style-type: none"> • Diarrhea, nausea/vomiting, dizziness, headache, insomnia, weight loss, falls ➤ Drug interactions ➤ Reduce pill burden ➤ Reduce cost of care ➤ No longer part of goals of care ➤ Family or patient decision to discontinue

Liao, 2018; Reeve, 2018; Renn, 2017

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Dementia Medications – Taper or No Taper?

- Reduce dose by 50% (or the next available dosage form) every 4 weeks
- Consider a faster taper if time is limited: reduce the dose by 25-50% every 1-2 weeks
- If there is no time to taper, abrupt discontinuation is appropriate
- After taper and/or discontinuation
 - Monitor cognition, function, and neuropsychiatric symptoms
 - If patient has changes, consider other causes of changes (i.e., infection, delirium, dehydration)

Liao, 2018; Reeve, 2018

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Dementia Medications – Monitoring After Discontinuation

Less than 1
week

Severe symptoms including agitation, aggression, hallucinations, or reduced consciousness

- Cause: Likely withdrawal of medication(s)
- Plan: Restart medication at previous dose

2 – 6 weeks

Worsening of cognition, behavioral or psychological symptoms, or function

- Cause: Re-emergence of symptoms that were controlled by medication(s)
- Plan: Consider restarting medication at previous dose and evaluate

6 weeks to
3 months

Worsening of cognition, behavioral or psychological symptoms, or function

- Cause: Re-emergence of symptoms that were controlled by medication(s)
- Plan: Evaluate

> 3 months

Re-emergence of any symptoms

- Cause: Progression of condition
- Plan: Evaluate

Liao, 2018; Reeve, 2018

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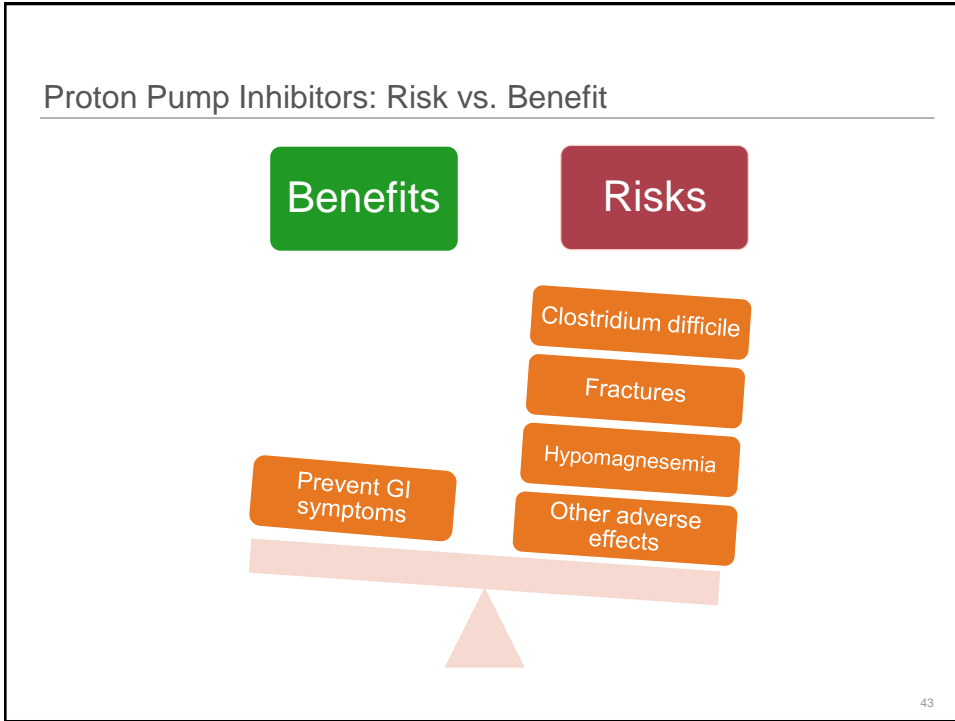
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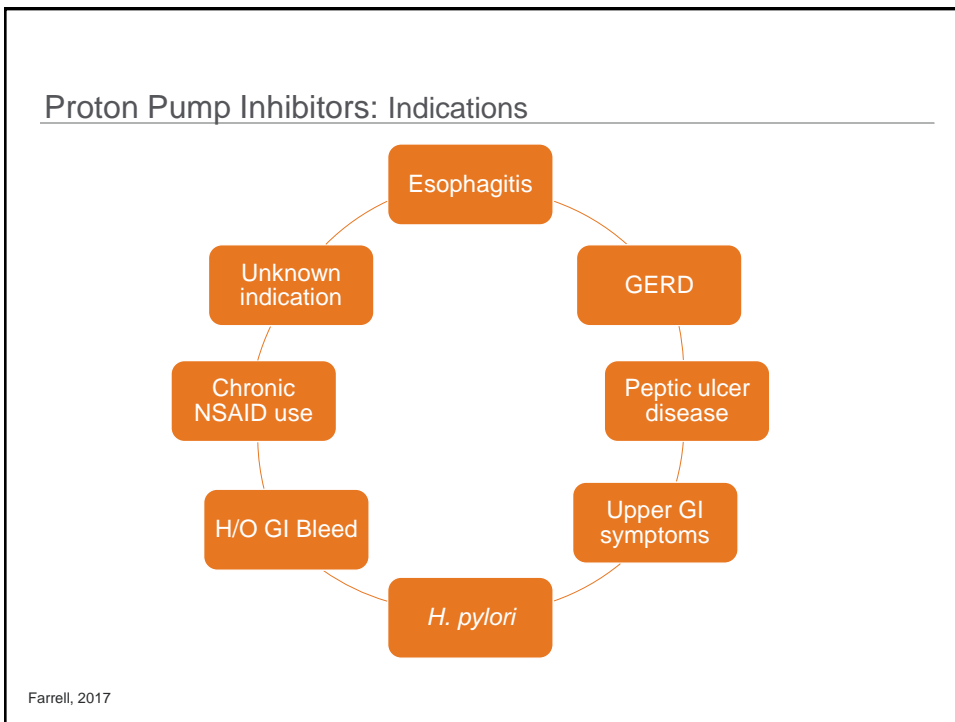
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Proton Pump Inhibitors (PPI)

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Proton Pump Inhibitors: Literature

American College of Gastroenterologists guideline

- Management of GERD and peptic ulcer disease
 - Suggest short-term treatment (2-12 weeks) for most patients
 - GERD 4-8 weeks
 - Peptic ulcer disease 2-12 weeks
- Recommendations are to discontinue PPI after recommended duration of therapy
- Maintenance/continued therapy is warranted for a compelling indication
 - Erosive esophagitis or Barrett esophagus
 - If continued, use at lowest dose or changing to on-demand or intermittent PPI use

Farrell, 2017

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Proton Pump Inhibitors: Deprescribing

- Discontinuation options
 - Taper dose of PPI
 - Not many indications warrant BID dosing
 - Stop abruptly
 - Change PPI to “as needed” dose
 - Change PPI to an H2 antagonist (ex. famotidine) as an alternative
- Monitor for heartburn, dyspepsia, regurgitation, epigastric pain, decreased appetite, weight loss

Farrell, 2017

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Mrs. Davis – Poll Question 3

- 78 years old with chief complaint of dyspnea
- She is a fall risk, peripheral edema, dysphagia
- Goal: comfort and reduce medications
- Primary diagnosis: CHF
- PMH:
 - Atrial fibrillation
 - Type 2 diabetes
 - Hypothyroidism
 - Hyperlipidemia
 - Renal insufficiency
 - Peptic ulcer disease
- PPS: 30
- BP 100/58; HR 70s

This patient is on omeprazole for peptic ulcer disease. What is the typical recommended duration of therapy?

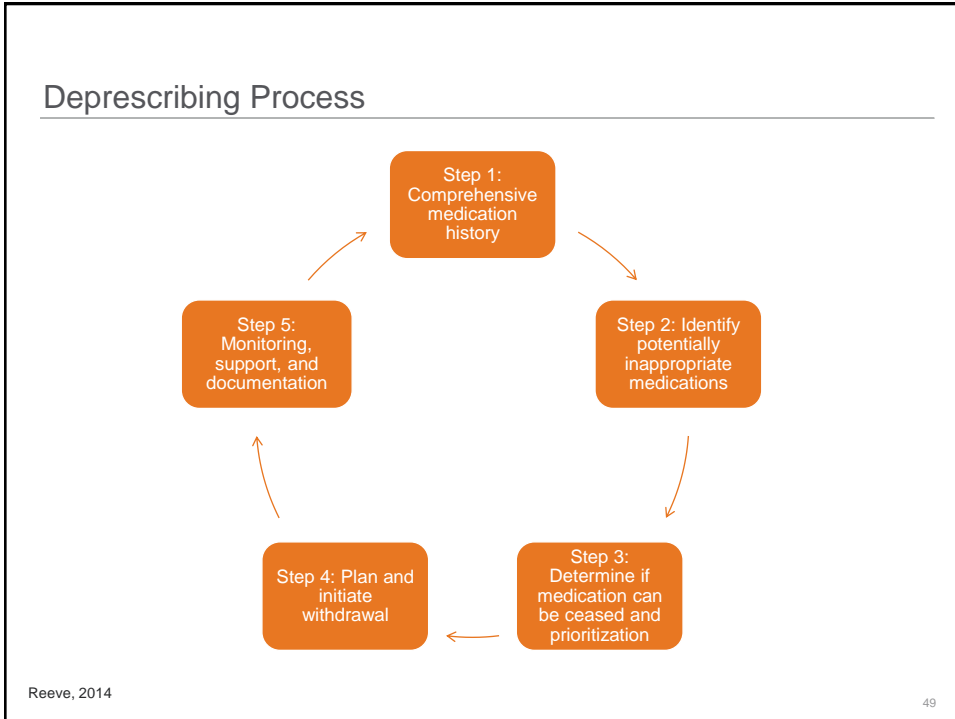
- A) 2-12 weeks
- B) 8-16 weeks
- C) Indefinitely
- D) There are no recommendations on duration of therapy.

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Too much stuff?



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Communication Techniques

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End of Life Communication

Studies have found...

- Avoiding discussions can lead to poor patient satisfaction and psychological morbidity
- Key areas of patient satisfaction include:
 - Talking honestly and straightforward
 - Talking about dying
 - Providing information in a sensitive manner
 - Listening and encouraging questions
 - Being considerate with timing of discussions have been identified as key areas of patient satisfaction

Linsky A, 2015; Reeve, 2014

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The BUILD Model



Collier, 2013

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The BUILD Model

Build a foundation of trust and respect.

Understand what the patient and caregiver know about the medication and disease progression.

Income the patient and caregiver of evidence-based information.

Listen to the patient's and caregiver's goals and expectations.

Develop a plan of care in collaboration with the patient and caregiver.

The BUILD Model: Key Phrases

Building a foundation of trust and respect:

- *"I appreciate you sitting down to talk with me today."*
- *"Your dad is really lucky to have you looking out for him."*

Understanding what the patient and caregiver know about the medication and disease:

- *"What do you know about what this medication is supposed to do?"*
- *"How do you think your husband's symptoms will look once this medication is no longer working?"*

Incoming the patient and caregiver about appropriateness of medications:

- *"We know that this drug works well in milder disease, but it usually stops helping after awhile."*
- *"We'll need to keep making adjustments to your medications as things change."*

The BUILD Model: Key Phrases

Listening to the patient and caregiver as they share goals and expectations:

- *"What other information can I provide to help you decide what is best?"*
- *"Did you and your wife ever talk about what she would want if she couldn't make her own medical decisions?"*

Developing a plan of care in collaboration with the patient and caregiver:

- *"I can't tell you what to do or make the choice for you, but I can provide you with tools so you can make an informed decision."*
- *"We have some options: we can stop the medication now, we can reduce the dose and follow-up next week, or we can leave everything the same for now."*

Collier, 2013

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Planned Discussions

- At time of admission
- Prior to recertification
- During a family or facility care conference
- When it is time to re-order a potentially disease-delaying medication
- When filling the patient's pillbox or ordering refills
- Change in location or level of care
- Change in patient condition

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Key Points

- Continuously reevaluate medication appropriateness at end of life.
- Deprescribing guidelines are lacking and though some clinical guidelines mention medication use at end of life, recommendations are not specific. Clinical judgement is required.
- Medication use of end of life should be prioritized based on the patient's preferences, functional status, goals of care, and prognosis.
- Practicing effective communication leads to increased patient satisfaction, better understanding, and improved clinical outcomes.



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Thank you.

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Hospice Pharmacy Services

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References

- 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol*. 2018;71(19):e127-e248. <https://doi.org/10.1016/j.jacc.2017.11.006>
- American Diabetes Association. Standards of medical care in diabetes - 2020. *Diabetes Care* 2020;43(Suppl. 1):S152-S162 https://care.diabetesjournals.org/content/43/Supplement_1/S152
- Angelo M, Ruchalski C, Sproge BJ. An approach to diabetes mellitus in hospice and palliative medicine. *Journal of Palliative Medicine*. 2011;14(1):83-87.
- Boghossian TA, Rashid FJ, Thompson Q, et al. Deprescribing versus continuation of chronic proton pump inhibitor use in adults (Review). *Cochrane Database of Systematic Reviews*. 2017(3). DOI: 10.1002/14651858.CD011969.pub2.
- Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Diabetes in the elderly. *Can J Diabetes*. 2013; 37:S184-S190.
- Collier KS, Kimbrel J, Protus BM. Medication Appropriateness at End of Life: A New Tool for Balancing Medicine and Communication for Optimal Outcomes – the BUILD Model. *Home Healthcare Nurse* 2013;31(9):518-524.
- Farrell B, Black C, Thompson W, McCarthy L, Rojas-Fernandez C, Lochnan H, et al. Deprescribing antihyperglycemic agents in older persons. Evidence-based clinical practice guideline. *Can Fam Physician* 2017;63:832-43 (Eng), e452-65 (Fr).
- Farrell B, Pottie K, Thompson W, et al. Deprescribing proton pump inhibitors. *Canadian Family Physician*. May 2017(63):354-364.
- Holmes HM. Reconsidering medication appropriateness for patients late in life. *Arch Intern Med* 2006;166:605-9
- Lee SJ, Jacobson MA, Johnston CB. Improving Diabetes Care for Hospice Patients. *American Journal of Hospice & Palliative Medicine* 2015.
- Lexicomp. Lexi-Drugs [database online]. Wolters Kluwer Health, Inc. <http://online.lexi.com/lco/action/home>. Accessed March 2021.
- Linsky A, Simon S, Bokhour B. Patient perceptions of proactive medication discontinuation. *Patient Educ Couns* 98 2015;220-225.

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References

- Liao PL, Gerra GA. Fast Facts and Concepts #354: Deprescribing Cholinesterase Inhibitors at the End-of-Life - Palliative Care Network of Wisconsin (mycpnow.org). May 2018
- Lipska KJ, Krumholz H, Soones T, Lee SJ. Polypharmacy in the Aging Patient: A Review of Glycemic Control in Older Adults With Type 2 Diabetes. *JAMA*. 2016 Mar;315(10):1034-45.
- Morley JE. Hypertension: Is It Overtreated in the Elderly? *Journal of the American Medical Directors Association*. 2010; 11(3):147-152. doi:10.1016/J.JAMDA.2009.12.081
- Morley JE. Systolic Hypertension Should Not Be Treated in Persons Aged 80 and Older Until Blood Pressure Is Greater than 160 mmHg. *Journal of the American Geriatrics Society*. 2013; 61(7):1197-1198. doi:10.1111/JGS.12322_1
- Parekh N, Page A, Ali K, Davies K, Rajkumar C. A practical approach to the pharmacological management of hypertension in older people. *Therapeutic Advances in Drug Safety*. 2017; 8(4):117-132. doi:10.1177/2042098616682721
- Protus BMC, Kimbrel JM, Grauer PA. End Stage Heart Disease: Table 1. Medication Considerations in End Stage Heart Failure In: *Palliative care consultant: a reference guide for palliative care: guidelines for effective management of symptoms*. 4th ed. Montgomery, AL: HospiScript Services; 2015:222.
- Reeve E, Shakib S, Hendrix I, et al. Review of deprescribing processes and development of an evidence-based, patient-centered deprescribing process. *Br J Clin Pharmacol* 2014;78(4):738-747
- Reeve E, Shakib S, Hendrix I, et al. Evidence-based Clinical Practice Guideline for Deprescribing Cholinesterase Inhibitors and Memantine. 2018. ISBN-13: 978-0-6482658-0-1 Available from: <http://sydney.edu.au/medicine/cdpc/resources/deprescribing-guidelines.php>
- Ren D, Gurney E, Hornecker JR. *US Pharmacist*. 2019;44(12):25-31. https://www.medscape.com/viewarticle/923739_6
- Renn BN, Asgbar-Ali AA, Thielke S, Catic A, et al. A systemic review of practice guidelines and recommendations for discontinuation of cholinesterase inhibitors in dementia. *Am J Geriatr Psychiatry* 2017;1-14.
- Shega JW, Ellner L, Lau DT, et al. Cholinesterase inhibitor and n-methyl-D-aspartic acid receptor antagonist use in older adults with end-stage dementia: a survey of hospice medical directors. *Journal of Palliative Medicine*. 2009;12(9):779-783.
- Stuart B. *Palliative Care and Hospice in Advanced Heart Failure*. *J Palliat Med* 2007;10:210-228.
- Williams B, Mancia G, Spiering W, et al. 2018 ESC/ESH Guidelines for the management of arterial hypertension. *European Heart Journal*. 2018; 39: 3021-3104. doi:10.1093/eurheartj/ehy339

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