



POLYPHARMACY AND DEPRESCRIBING

Utah Geriatrics Society

Quarterly Education Session

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Erika M. Noonan MD

DISCLOSURES

- None

OBJECTIVES

- Upon completion of this educational activity, participants will be able to:
 - Explain the risks associated with polypharmacy and recognize patients at high risk for adverse outcomes
 - Recognize the benefits of deprescribing to patients and the healthcare system
 - Make a goal to implement at least one deprescribing practice

Illustration by Jim Unger

HERMAN[®]

by Jim Unger



5-9

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**"I feel a lot better since I ran out
of those pills you gave me."**

WHY SO MANY MEDICATIONS?

- Why polypharmacy?
 - Medications started to prevent or control disease, but not necessarily needed lifelong
 - Disease processes change with age
 - Medications improve
 - Medications can cause more harm than good
 - Fear of the unknown while deprescribing
 - Who “owns” the patient?
 - Patient confusion regarding medications

POLYPHARMACY

5-10 medications

50% of Medicare patients receive >4 medications
(2004)

2.4-6.5 percent of all hospitalizations (all ages) due
to medications

Medication is an independent risk factor for falls

POLYPHARMACY

- Adverse drug reactions
 - 700,000 annual ED visits
 - 120,000 annual hospitalizations
- Canada 2013 estimated cost of
- Inappropriate medications was \$419 million
 - Not including side effects



POLYPHARMACY AND FALLS

Fall risk increasing drugs and odds ratios.

Drug class	Odds ratio	95% CI
Antihypertensive agents	1.24	1.01–1.50
Diuretics	1.07	1.01–1.14
B blockers	1.01	0.86–1.17
Sedatives and hypnotics	1.47	1.35–1.62
Neuroleptics and antipsychotics	1.59	1.37–1.83
Antidepressants	1.68	1.47–1.91
Benzodiazepines	1.57	1.43–1.72
Narcotics	0.96	0.78–1.18
Nonsteroidal anti-inflammatory drugs	1.21	1.01–1.44

Woolcott *et al.* [2009].

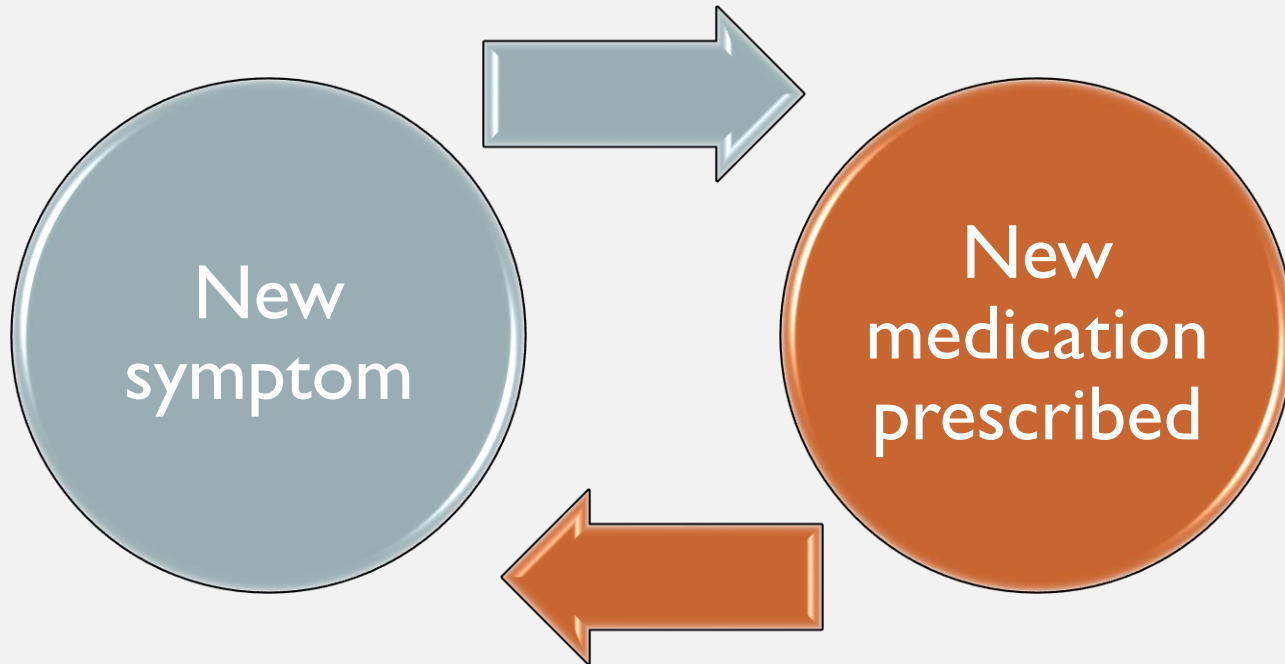
PRESCRIBING CASCADES

- 80 year old male with history significant for depression previously requiring hospitalization and questionable history of Parkinson's presents with worsening delusions. Divalproex was recently increased to help with these. Current medications include:
 - Gabapentin, citalopram, triamterene/hctz, quetiapine, glimepiride, metformin, levothyroxine, divalproex, losartan, carbidopa-levodopa



HONEY, DID YOU
WANT THE ONE
THAT CURES HEADACHE
AND CAUSES STROKE
OR EASES BACK
PAIN BUT CAUSES
HEART ATTACK?

D. W. H. S.
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PRESCRIBING CASCADES

Examples of prescribing cascades

Initial drug therapy	Adverse drug event	Subsequent drug therapy
Antipsychotics	Extrapyramidal signs and symptoms	Antiparkinsonian therapy
Cholinesterase inhibitors	Urinary incontinence	Incontinence treatment
Thiazide diuretics	Hyperuricemia	Gout treatment
NSAIDs	Increased blood pressure	Antihypertensive therapy

AGING

- Medications that were once appropriate are no longer

AGE-ASSOCIATED CHANGES IN PHARMACOKINETICS AND PHARMACODYNAMICS

Parameter	Age Effect	Disease Factor Effect	Prescribing Implications
Absorption	Rate and extent are usually unaffected	Achlorhydria, concurrent medications, tube feedings	Drug–drug and drug–food interactions are more likely to alter absorption
Distribution	Increase in fat:water ratio; decreased plasma protein, particularly albumin	Heart failure, ascites, and other conditions increase body water	Fat-soluble drugs have a larger volume of distribution; highly protein-bound drugs have a greater (active) free concentration
Metabolism	Decrease in liver mass and liver blood flow decrease drug clearance; may be age-related changes in CYP2C19, while CYP3A4 and 2D6 are not affected	Smoking, genotype, other medications, alcohol, and caffeine have more effect than aging on metabolism	Lower dosages may be therapeutic
Elimination	Primarily renal; age-related decrease in glomerular filtration rate	Acute and/or chronic kidney impairment; decreased muscle mass can result in misleadingly low serum creatinine (Cr) levels	Serum Cr not a reliable measure of kidney function; best to estimate Cr clearance using formula
Pharmacodynamics	Less predictable and often altered drug response at usual or lower concentrations	Drug–drug and drug–disease interactions may alter responses	Prolonged pain relief with opioids at lower dosages; more sedation and postural instability from benzodiazepines; altered sensitivity to β -blockers

PROBLEMS WITH MEDICATIONS AND AGING

- Falls
- Confusion
- Urinary retention
- Drug-drug interactions
- Drug-disease interactions

DEPRESCRIBING

- Historically poorly studied
- 2018 Cochrane review
 - All certainty of evidence low or very low
 - Looked at “pharmaceutical intervention”
 - Including computer decision support and other multifaceted complex methods
 - Did not look at cost

Rankin A, Cadogan CA, Patterson SM, Kerse N, Cardwell CR, Bradley MC, Ryan C, Hughes C. Interventions to improve the appropriate use of polypharmacy for older people: Cochrane Database Syst Rev. 2018.

WHY DEPRESCRIBE

Reduce	Reduce medication harm
Reduce	Reduce pill burden
Reduce	Reduce cost
Maintain or improve	Maintain or improve quality of life

WHY DEPRESCRIBE



DEPRESCRIBING BASICS

- Medication review
 - Review all medications-bring in bottles lists, call the pharmacy, whatever it takes
 - Screen for medication adherence
 - Discuss with patient and caregiver
 - Check refill history
 - Assess patient's ability to comply with regimen
 - Conduct a complete medication assessment
 - **Indication**
 - Allergies
 - Drug-disease interactions
 - Drug drug interaction

MEDICATION REVIEWS

- New disease diagnosis
- Starting a new medication
- Transition of care
- Annual wellness visit

MEDICATIONS THAT CAN BE STOPPED

- No identifiable indication
- Not having intended response
- No longer effective
- Duplicate therapy
- Not being taken, not critical
- Contraindicated

WHEN CONSIDERING STOPPING A MEDICATION



Involve your patient

Risks vs. benefits



Continue to revisit



**Use those AWV and
physical visits!**

COMMONLY OVERPRESCRIBED

- PPIs
- Diabetes medications
- Benzodiazepine medications
- Levothyroxine
- Antidepressants

- Antihypertensives
- TCAs
- Antimuscarinics (oxybutynin, tolterodine)

DIABETES

- 83 year male with diabetes (A1c 5.3), hypertension, CHF, atrial fibrillation, CKD III (GFR 30s) presents to establish care. The past two years has had significant decline. He has lost 50 pounds. Has significant nausea, lack of appetite, depressed mood. Has had significant workup with dx of “intestinal failure”.
- Current meds Eliquis, furosemide 40 mg daily, metformin 1000 mg bid, lisinopril 20 mg daily, amiodarone 100 mg daily

DIABETES

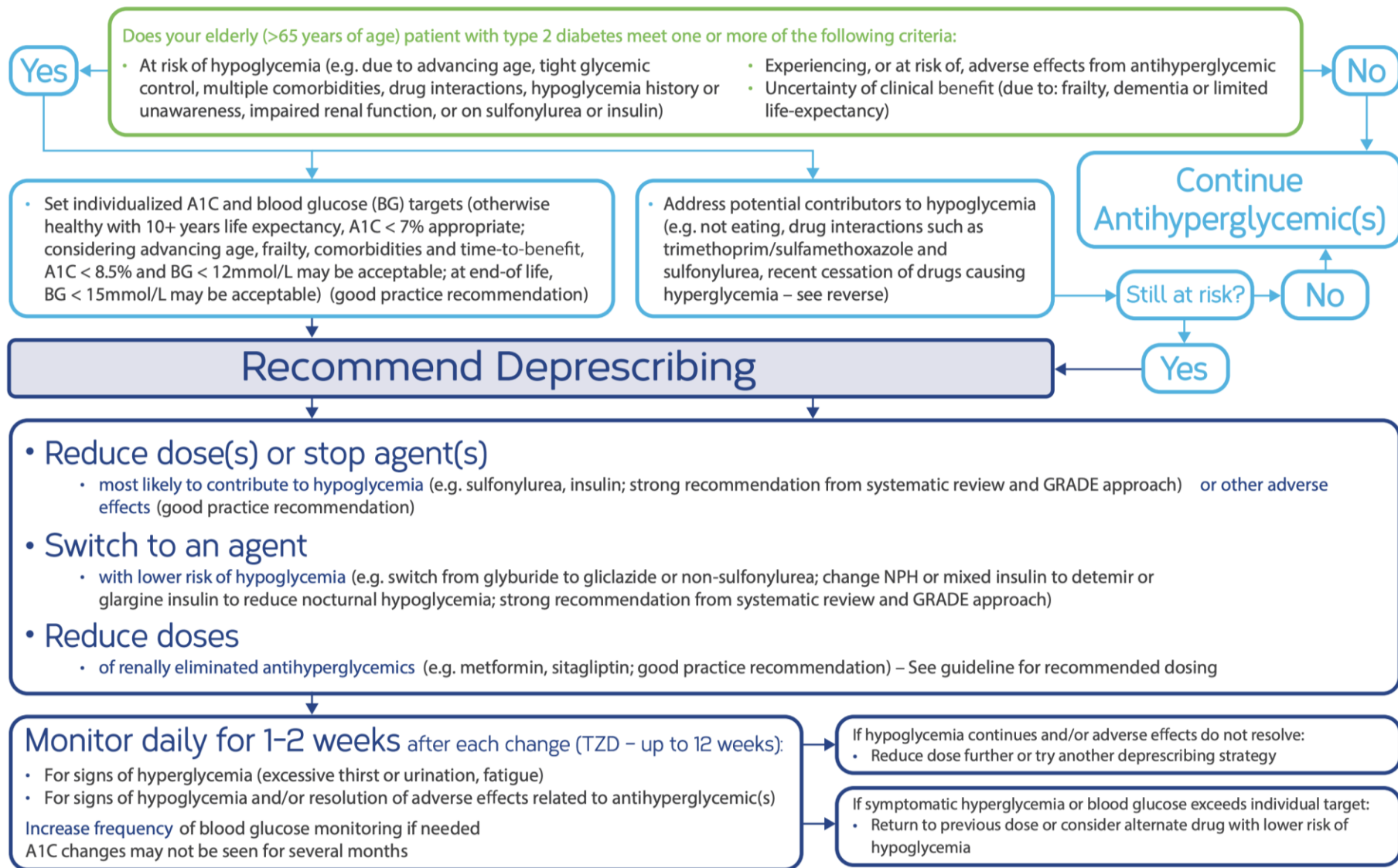
- Stop metformin
- Decrease furosemide
- GFR to the 50s
- GI symptoms stop
- A1c skyrockets to the mid 6s

DIABETES MEDICATIONS

- Targets
 - HgA1c 7.0-7.5 in those who are otherwise healthy
 - AgA1c 7.5-8.0 in those with 3+ chronic illnesses or 2+ IADL impairments or mild to moderate cognitive impairment
 - HgA1c 8.5-9 in the very frail, very limited life expectancy ie LTC or 2+ ADL impairments or moderate to severe cognitive impairment
 - Avoid hypoglycemia

DEPRESCRIBING DIABETES MEDICATIONS

- Set an A1c target with patient
- Stop selected agent
- Monitor fasting glucose and one postprandial glucose daily for 1-2 weeks
 - May not be needed if A1c is 5.4



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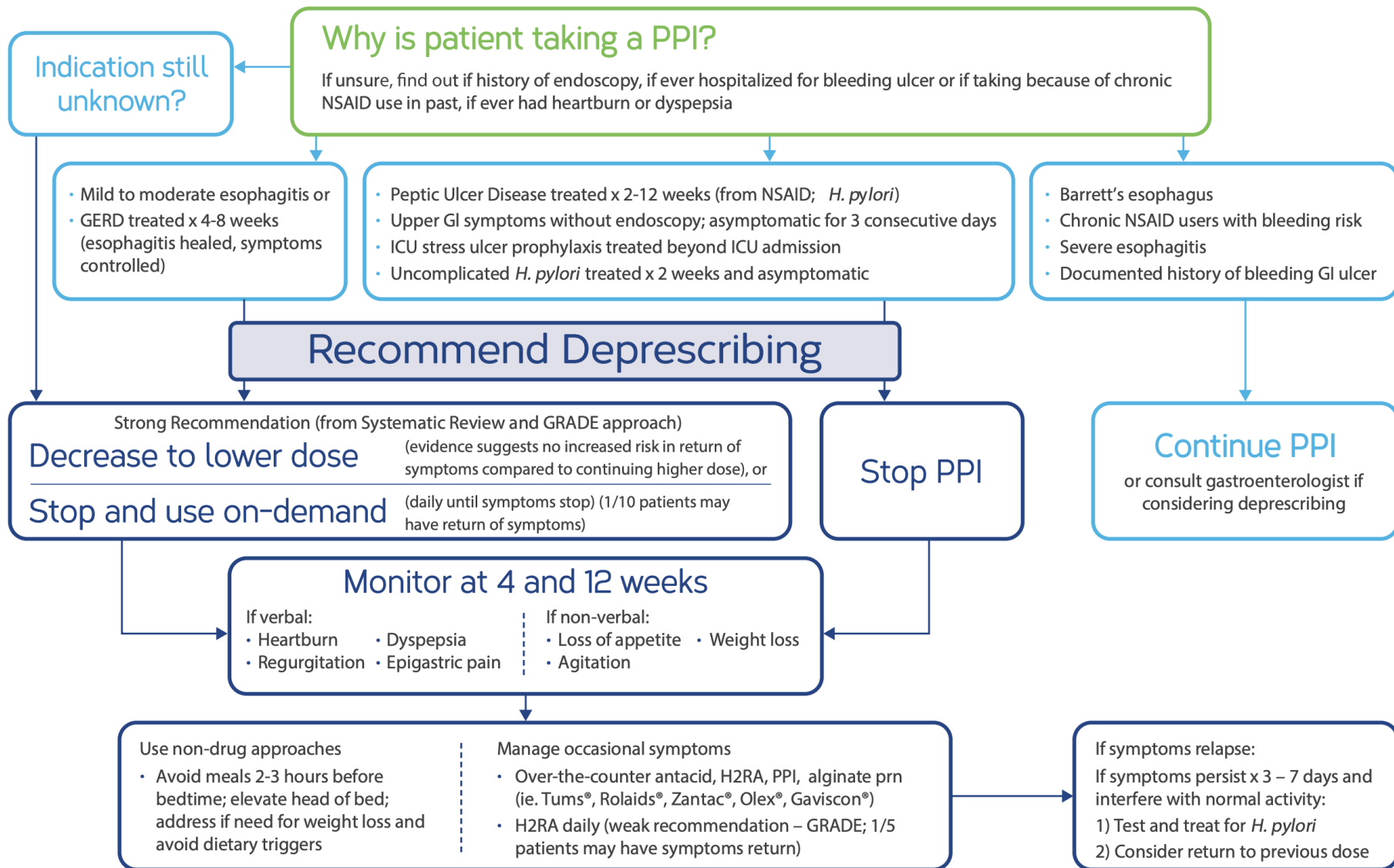
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deprescribing.org

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deprescribing.org



ANTIMUSCARINICS

- 78 year old patient comes in for her first visit. She is very pleasant. Is unable to confirm whether she is taking any of the medications in her list. Does not know any history of her medications. We call her son and have him come in to the appointment. He has noticed memory problems for the past year. Recent hospital stay for hyponatremia
- Current medications list includes:
 - Losartan, chlorthalidone, allopurinol, oxybutynin, omeprazole, simvastatin, levothyroxine
- MOCA today is 15/30
 - Discussed stopping driving

CASE

- 92 year old male with DM, afib, CHF. On oxygen 24 hours per day, needs assistance with most ADLs. Urine microalbumin/creatinine ratio elevated, started on an ACE.

CASES

- 78 year old with htn, DM, hypothyroidism, chronic pain, incontinence, GERD, anxiety, memory concerns, falls presents with her husband and daughter. She is getting up frequently at night to use the bathroom and falling. They want to put in a Foley catheter.
- Simvastatin, lorazepam 2 mg bid, metformin, celecoxib, hctz, sertraline, amlodipine, gabapentin, norco 10/325 tid, synthroid, metoprolol, toviaz

WHAT DEPRESCRIBING PRACTICE
CAN YOU INITIATE TODAY?



I PREFER TO ORGANIZE MY PILLS BY SIDE EFFECTS...

THIS ONE MAKES ME SLEEPY. THIS ONE MAKES ME MOODY. THIS ONE MAKES ME TIRED...

S M T W T H F

7-9
0201
SPEEDLINE.COM
DIST. BY CREATORS

RESOURCES

- <https://deprescribingresearch.org/>
- <https://deprescribing.org/>

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