DEPRESCRIBING: A CASE-BASED APPROACH
Cheryl Atherley-Todd, MD, CMD, FAAFP
Assistant Professor Family Medicine/Geriatrics
Nova Southeastern University

Andrea Levin, PharmD, BCACP
Assistant Professor, College of Pharmacy
Nova Southeastern University

Kenya Rivas, MD, CMD
Assistant Professor and Vice Chair Geriatrics Department
Nova Southeastern University
The presenters have nothing to disclose with regard to commercial interests or financial relationships.
Objectives

- Recognize potentially inappropriate medications (PIMs) based on the Beers, STOPP and START lists.
- Consider patient prognosis and time to benefit as well as time to harm when prescribing or deprescribing.
- Describe the role of the consultant pharmacist in the process.
- Describe how age affects pharmacotherapy.
- Implement a systematic plan to review medication lists.
- Deprescribe unnecessary medication using a case-based approach.
Introduction

- Individuals aged 65 and older represented 14.1% of US population in 2013. Expected to increase to 21.7% in 2040 [1].
- Approximately 40% of nursing home residents use 9 or more medications daily.
- Up to 30% of hospital admissions for patients over 75 years are medication related and three quarters of those are potentially preventable [2].
- In 2012 inappropriate polypharmacy resulted in $1.3 billion in avoidable healthcare costs in US [3].
- Taking medications may be necessary for health, improving symptoms or prolonging life expectancy [4].
- The risks and benefits of medication changes with age.
- Polypharmacy increases the risk of harmful effects.
- Deprescribing involves patients, caregivers, healthcare providers and policy makers.
- Deprescribing should be done in partnership with a health care provider.
  - Some medications should not be stopped.
  - Some medications need to be tapered.
  - Patients should not stop medications on their own.

Definition

- Term first used in 2003 by Woodward, an Australian physician. [5]
- Describes a process of optimization of medication regimens through cessation of potentially inappropriate medications (PIMs), supervised by a health care professional with a goal of managing polypharmacy and improving outcomes.[6]


The Deprescribing Protocol [7]

- Ascertain all drugs the patient is taking and the reasons for each one.
- Consider the overall risk of drug-induced harm.
- Assess each drug for its eligibility to be discontinued.
- Prioritize drugs for discontinuation.
- Implement and monitor drug discontinuation regimen.
- Support the patient.
- Document the changes.

Deprescribing Tools

- American Geriatrics Society (AGS) Beers Criteria
- Screening Tool of Older Persons’ Potentially Inappropriate Prescriptions (STOPP)
- Screening Tool to Alert doctors to the Right Treatment (START)
Risks of Polypharmacy

- Increased risks of
  - Falls
  - Delirium
  - Lethargy
  - Depression
  - Adverse drug events
  - Hospital admissions
  - Death

- Increased financial burdens.

Barriers to Deprescribing

- Multiple prescribers
- New patient to this health care provider
- Unclear duration of treatment
- Lack of continuous medication list review
- Fear of adverse drug withdrawal effects
- Pressure to prescribe due to disease specific guidelines
- Family insists

Patients’ view
- Physician giving up on them
- Afraid to stop medications they have taken for years.

Patients’ Attitude Towards Deprescribing [10]

- **Setting**: Survey done at a multidisciplinary ambulatory consulting service at Royal Adelaide Hospital, Australia.

- **Participants**: 18 years and older. (Median 71.5 years). 100 participants, 65 of whom were over 65 years.

- **Results**: An average of 10 different prescription and non-prescription, regular and as-needed medications.
  - More than 60% felt they were taking “a large amount” of medications.
  - 92% stated that they were willing to stop one or more of their current medications if possible.

- **Conclusion**: Revealed concerns about the inconvenience, potential adverse effects and costs of taking multiple medications.

Physicians may not want to stop a medication prescribed by another specialist.

Physicians may not want to stop a medication that is indicated by policy guidelines.

Pharmacists view depends on the setting in which they work and the guidelines for prescribing disease specific medications.

Nurses in long term care facilities usually know if patients are compliant with their medication usage.

Nurses know if and how often PRN medications are used.
Indiana SMART campaign Polypharmacy reduction Project[11]

- Indiana Safer Medication Administration Regimens and Treatment (SMART) campaign
- Funded by Indiana State Department of Health for a pilot period of 2 years (2016-2018)

Objectives
- Reducing the average number of medications per resident
- Reducing the number of antipsychotic, anxiolytic and hypnotic medications
- Reducing the overall medication costs within participating facilities.

Uniqueness of the SMART campaign

- Collaborative effort between an interprofessional team of long term care stakeholders.
- Direct physician to prescriber communication.
- Facilities trained by QI experts to tackle not just the act of deprescribing but the process surrounding medication administration within their facilities.
- Facilities are given freedom to select their own project parameters, select their own focus, and highlight a process improvement area that is of particular salience to their culture.
What is new about SMART?

- Truly interprofessional.
- A State, Industry and Academic partnership.
- Evidence-based with physician input.
- Directed from the bottom up: nursing homes allowed to use project resources selectively and as they see fit to reach desired outcomes.
- Focused beyond the problem at hand (polypharmacy) toward creating a sustainable social infrastructure.

What can patients do?

- Educate themselves about what medications they are taking and why [4].
- Discuss deprescribing options with their health care provider.
- Do not stop medications without first consulting their health care provider.
- Spread the word about deprescribing to friends and family.

PHARMACISTS’ ROLE IN DEPREScribing

Andrea Levin, PharmD, BCACP
Consultant Pharmacist

- Practices in a nursing home facility
- Maintains all drug records
- Establishes drug handling procedures
- Orders and evaluates laboratory and/or clinical testing
  - Laboratory and clinical testing is performed in accordance with the medical director
- Additional training and licensing is required
Ambulatory Care Pharmacist

- Address medication needs
- Develop patient-pharmacist and patient-provider relationships
- Perform direct patient care, medication management, and patient education
- Coordinate care
- Advocate for patients
- Promote health and wellness
- Triage and refer where appropriate

1. Helling DK, Johnson SG. Defining and advancing ambulatory care pharmacy practice: it is time to lengthen our stride. ASHP Ambulatory Care Conference and Summit. 2014. 1-23.
Primary Care Physician Demands

1. Helling DK, Johnson SG. Defining and advancing ambulatory care pharmacy practice: it is time to lengthen our stride. ASHP Ambulatory Care Conference and Summit. 2014. 1-23.
Pharmacodynamic and Pharmacokinetic Changes in the Elderly

Pharmacodynamic
- Increased sensitivity to medications

Pharmacokinetic
- Reduction in renal and hepatic clearance
- Increased volume of distribution
- Drug absorption

BEERS Criteria For Potentially Inappropriate Medication

- Medications to avoid in older adults
  - Increase risk of confusion, falls, and mortality
- 2015 update gave consideration to renal dose adjustments and drug-drug interactions

Screening Tool of Older People’s Prescriptions (STOPP)/Screening Tool to Alert to Right Treatment (START)

- Identifies potential errors in medication use in the elderly
- Identifies potential omissions in prescribing


### Utilizing BEERS Criteria

<table>
<thead>
<tr>
<th>Therapeutic Category, Drugs</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticholinergics (example: diphenhydramine, hydroxyzine, meclizine, etc)</td>
<td>Increased risk of confusion, dry mouth, constipation</td>
</tr>
<tr>
<td>Anti-infective (Nitrofurantoin)</td>
<td>Pulmonary toxicity, hepatotoxicity, peripheral neuropathy</td>
</tr>
<tr>
<td>Alpha blockers (examples: prazosin, doxazosin)</td>
<td>Orthostatic hypotension</td>
</tr>
<tr>
<td>Central acting alpha 2 agonist (example: clonidine, methyldopa)</td>
<td>Bradycardia and orthostatic hypotension</td>
</tr>
</tbody>
</table>
| Digoxin | **Atrial Fibrillation:** Avoid as first line; more effective medications available; may increase mortality  
**Heart failure:** Avoid as first line-increased mortality; unknown benefit in hospitalizations; higher doses not associated with benefit  
**Renal Consideration:** Avoid doses >0.125 mg/day if CKD Stage 4 or 5 |

<table>
<thead>
<tr>
<th>Therapeutic Category, Drugs</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antidepressants (example: paroxetine, amitriptyline, doxepin, etc)</td>
<td>Some are highly anticholinergic, sedating, orthostatic hypotension</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>Increased risk of stroke, increase in cognitive decline, mortality (Avoid in behavioral complications of dementia or delirium unless other options failed)-use acceptable in schizophrenia and bipolar</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Increased risk of cognitive impairment, falls, fractures</td>
</tr>
<tr>
<td>Short and intermediate-examples: alprazolam, lorazepam, temazepam</td>
<td>Long acting may be appropriate for seizure disorder, alcohol withdrawal</td>
</tr>
<tr>
<td>Long-examples: diazepam, clonazepam</td>
<td></td>
</tr>
<tr>
<td>Barbiturates (example, pentobarbital, secobarbital, phenobarbital)</td>
<td>Addiction potential, tolerance to sleep benefit, overdose</td>
</tr>
<tr>
<td>Eszopiclone, Zolpidem, Zaleplon</td>
<td>Increase in delirium, falls, fractures, ED visits, little improvement in sleep</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Therapeutic Category, Drugs</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estrogen +/- Progestin</td>
<td>Carcinogenic, lack of cardio or cognitive protection (Avoid oral and transdermal)</td>
</tr>
<tr>
<td>Insulin sliding scale</td>
<td>Higher risk of hypoglycemia without improvement in hyperglycemia</td>
</tr>
<tr>
<td>Sulfonylureas</td>
<td>Hypoglycemia (avoid glyburide and chlorpropamide)</td>
</tr>
<tr>
<td>Proton-pump inhibitors</td>
<td>Risk of C. diff and bone fractures. Avoid for &gt;8 weeks unless high risk patient</td>
</tr>
</tbody>
</table>

Utilizing BEERS Criteria

<table>
<thead>
<tr>
<th>Organ System, Therapeutic Category, Drugs</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonselective NSAIDs (example, aspirin &gt;325 mg/day, ibuprofen, meloxicam, naproxen)</td>
<td>Increased risk of GI bleeding, peptic ulcer; avoid chronic use</td>
</tr>
<tr>
<td>Muscle relaxants: (example carisoprodol, methocarbamol)</td>
<td>Poorly tolerated (anticholinergic effects), increase in fractures</td>
</tr>
</tbody>
</table>
3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Clinically Important Non-Anti-infective Drug–Drug Interactions That Should Be Avoided in Older Adults

<table>
<thead>
<tr>
<th>Object Drug and Class</th>
<th>Interacting Drug and Class</th>
<th>Risk Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACEIs</td>
<td>Angiotensin or thiazidene</td>
<td>Increased risk of Hypokalemia</td>
<td>Avoid routine use; reserve for patients with demonstrated hypokalemia while taking an ACEI</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Anticholinergic</td>
<td>Anticholinergic</td>
<td>Increased risk of Cognitive decline</td>
<td>Avoid, minimize number of anticholinergic drugs (Table 7)</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Antidepressants (i.e., TCAAs and SSRIAs)</td>
<td>≥2 other CNS-active drugs*</td>
<td>Increased risk of Falls</td>
<td>Avoid total of ≥3 CNS-active drugs*; minimize number of CNS-active drugs</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>≥2 other CNS-active drugs*</td>
<td>Increased risk of Falls</td>
<td>Avoid total of ≥3 CNS-active drugs*; minimize number of CNS-active drugs</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Benzodiazepines and nonbenzodiazepine, benzodiazepine receptor agonist hypnotics</td>
<td>≥2 other CNS-active drugs*</td>
<td>Increased risk of Falls and fractures</td>
<td>Avoid total of ≥3 CNS-active drugs*; minimize number of CNS-active drugs</td>
<td>High</td>
<td>Strong</td>
</tr>
<tr>
<td>Corticosteroids, oral or parenteral</td>
<td>NSAIDs</td>
<td>Increased risk of Peptic ulcer disease or gastrointestinal bleeding</td>
<td>Avoid, if not possible, provide gastrointestinal protection</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Lithium</td>
<td>ACCIs</td>
<td>Increased risk of Lithium toxicity</td>
<td>Avoid, monitor lithium concentrations</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Lithium</td>
<td>Loop diuretics</td>
<td>Increased risk of Lithium toxicity</td>
<td>Avoid, monitor lithium concentrations</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Opioid receptor agonist analgesics</td>
<td>≥2 other CNS-active drugs*</td>
<td>Increased risk of Falls</td>
<td>Avoid total of ≥3 CNS-active drugs*; minimize number of CNS-active drugs</td>
<td>High</td>
<td>Strong</td>
</tr>
<tr>
<td>Peripheral Alpha-1 blockers</td>
<td>Loop diuretics</td>
<td>Increased risk of Urinary incontinence in older women</td>
<td>Avoid in older women, unless conditions warrant both drugs</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Theophylline</td>
<td>Cimetidine</td>
<td>Increased risk of Theophylline toxicity</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Warfarin</td>
<td>Anidronate</td>
<td>Increased risk of Bleeding</td>
<td>Avoid when possible; monitor international normalized ratio closely</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Warfarin</td>
<td>NSAIDs</td>
<td>Increased risk of Bleeding</td>
<td>Avoid when possible; if used together, monitor for bleeding closely</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>

*Central nervous system (CNS)-active drugs; antipsychotics; benzodiazepines; nonbenzodiazepine; benzodiazepine receptor agonist hypnotics; tricyclic antidepressants (TCAAs); selective serotonin reuptake inhibitors (SSRIAs); and opioids.

ACEI = angiotensin-converting enzyme inhibitor; NSAID = nonsteroidal anti-inflammatory drug.
Table 6. 2015 American Geriatrics Society Beers Criteria for Non-Anti-Infective Medications That Should Be Avoided or Have Their Dosage Reduced with Varying Levels of Kidney Function in Older Adults

<table>
<thead>
<tr>
<th>Medication Class and Medication</th>
<th>Creatinine Clearance, mL/min, at Which Action Required</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular or hemostasis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amiloride</td>
<td>&lt;30</td>
<td>Increased potassium, and decreased sodium</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Apixaban</td>
<td>&lt;25</td>
<td>Increased risk of bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Dabigatran</td>
<td>&lt;30</td>
<td>Increased risk of bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Edoxaban</td>
<td>30–50</td>
<td>Increased risk of bleeding</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>&lt;30 or &gt;95</td>
<td></td>
<td>Avoid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enoxaparin</td>
<td>&lt;30</td>
<td>Increased risk of bleeding</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Fondaparinux</td>
<td>&lt;30</td>
<td>Increased risk of bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>30–50</td>
<td>Increased risk of bleeding</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>&lt;30</td>
<td></td>
<td>Avoid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spironolactone</td>
<td>&lt;30</td>
<td>Increased potassium and decreased sodium</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Triamterene</td>
<td>&lt;30</td>
<td></td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Central nervous system and analgesics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duloxetine</td>
<td>&lt;30</td>
<td>Increased Gastrointestinal adverse effects (nausea, diarrhea)</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Weak</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>&lt;60</td>
<td>CNS adverse effects</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Levetiracetam</td>
<td>≤80</td>
<td>CNS adverse effects</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Pregabalin</td>
<td>&lt;60</td>
<td>CNS adverse effects</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Tramadol</td>
<td>&lt;30</td>
<td>CNS adverse effects</td>
<td>Immediate release: reduce dose Extended release: avoid</td>
<td>Low</td>
<td>Weak</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cimetidine</td>
<td>&lt;50</td>
<td>Mental status changes</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Famotidine</td>
<td>&lt;50</td>
<td>Mental status changes</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Nizatidine</td>
<td>&lt;50</td>
<td>Mental status changes</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Ranitidine</td>
<td>&lt;50</td>
<td>Mental status changes</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Hyperuricemia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colchicine</td>
<td>&lt;30</td>
<td>Gastrointestinal, neuromuscular, bone marrow toxicity</td>
<td>Reduce dose; monitor for adverse effects</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Probenecid</td>
<td>&lt;30</td>
<td>Loss of effectiveness</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>

CNS = central nervous system.

Medications to Target for Deprescribing 3,4,5

- Antihypertensives
- Antihyperglycemic medications
- NSAIDs
- CNS medications
- Proton pump inhibitors
- Statins
- Bisphosphonates


PPI Availability

<table>
<thead>
<tr>
<th>PPI</th>
<th>Standard dose (healing) (once daily)*</th>
<th>Low dose (maintenance) (once daily)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omeprazole (Lozenges) - Capsule</td>
<td>20 mg*</td>
<td>10 mg*</td>
</tr>
<tr>
<td>Esomeprazole (Nexium) - Tablet</td>
<td>20 mg or 40 mg*</td>
<td>20 mg</td>
</tr>
<tr>
<td>Lansoprazole (Prevacid) - Capsule</td>
<td>30 mg*</td>
<td>15 mg*</td>
</tr>
<tr>
<td>Devranprazole (Dexilant) - Tablet</td>
<td>30 mg or 60 mg*</td>
<td>30 mg</td>
</tr>
<tr>
<td>Pantoprazole (Tecta, Pantoloc) - Tablet</td>
<td>40 mg</td>
<td>20 mg</td>
</tr>
<tr>
<td>Rabeprazole (Pariet) - Tablet</td>
<td>20 mg</td>
<td>10 mg</td>
</tr>
</tbody>
</table>

Legend

a. Non-eroding reflux disease
b. Reflux esophagitis
c. Symptomatic non-eroding gastroesophageal reflux disease
d. Healing of erosive esophagitis
+ Can be sprinkled on food
* Standard dose PPI taken BID only indicated in a group with peptic ulcer disease caused by H. pylori; PPI should generally be stopped once eradication therapy is complete unless risk factors warrant continuing PPI (see guideline for details)

Key

GERD = gastroesophageal reflux disease
NSAID = nonsteroidal anti-inflammatory drugs
H2RA = H2 receptor antagonist
GRADE = Grading of Recommendations Assessment, Development and Evaluation

Engaging patients and caregivers

Patients and/or caregivers may be more likely to engage if they understand the rationale for deprescribing (risks of continued PPI use; long-term therapy may not be necessary), and the deprescribing process.

PPI side effects

- When an ongoing indication is unclear, the risk of side effects may outweigh the chance of benefit
- PPIs are associated with higher risk of fractures, C. difficile infections and diarrhea, community-acquired pneumonia, vitamin B12 deficiency and hypomagnesemia
- Common side effects include headache, nausea, diarrhea and rash

Tapering doses

- No evidence that one tapering approach is better than another
- Lowering the PPI dose (for example, from twice daily to once daily, or halving the dose, or taking every second day) OR stopping the PPI and using an on-demand approach are equally recommended strong options
- Choose what is most convenient and acceptable to the patient

On-demand definition

Daily intake of a PPI for a period sufficient to achieve resolution of the individual’s reflux-related symptoms; following symptom resolution, the medication is discontinued until the individual’s symptoms recur, at which point, medication is again taken daily until the symptoms resolve.
Steps to Deprescribing

- Thorough medication history/medication reconciliation
- Medication assessment
  - Quantity and type of medications
  - Multiple prescribers
- Determine if a medication should be discontinued
  - Life expectancy
  - Patient preference
  - Symptom control, quality of life, cure, prevention
- Develop a plan for medication discontinuation
- Monitor effects of discontinued medication

### Pharmacists Effect on Deprescribing


#### Table 1
Clinical controlled studies to reduce medication exposure

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Study Setting*</th>
<th>Study Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pharmacist-based interventions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical pharmacist medication review combined with physician and patient</td>
<td>Outpatient managed care (n = 195,971)</td>
<td>Significant reduction in the number of prescriptions</td>
</tr>
<tr>
<td>education26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical pharmacist consultation and computer-based medication profiles</td>
<td>Internal medicine clinic (n = 512)</td>
<td>Significant reduction in the number of medications</td>
</tr>
<tr>
<td>provided to physician27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical pharmacist patient tailored medication review provided to physician</td>
<td>Outpatient clinic (n = 562)</td>
<td>Significant reduction in the number and costs of</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td>medications</td>
</tr>
<tr>
<td>Medication review performed by pharmacist and reviewed by the primary care</td>
<td>Geriatric outpatient clinic (n = 250)</td>
<td>Significant reduction in the mean number of medications</td>
</tr>
<tr>
<td>provider29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pharmacists Effect on Deprescribing**

<table>
<thead>
<tr>
<th>Multidisciplinary-based interventions</th>
<th>Nursing homes (n = 139)</th>
<th>Pharmacists prescribed significantly less medications than physicians</th>
<th>Improved survival ($P = .05$); more patients discharged to lower levels of care ($P = .03$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical pharmacists prescribed medications under the supervision of a family physician</td>
<td>Pharmacists prescribed significantly less medications than physicians</td>
<td>Improved survival ($P = .05$); more patients discharged to lower levels of care ($P = .03$)</td>
<td></td>
</tr>
<tr>
<td>Case conference involving health professionals including general practitioner, pharmacist, nurses and other health professional</td>
<td>Nursing home (n = 245)</td>
<td>Nonsignificant reduction in the number of medications</td>
<td>No effect on mortality</td>
</tr>
</tbody>
</table>
DEPRESCRIBING USING DIFFERENT CASES

Kenya Rivas MD, CMD
Deprescribing Steps

- Step 1: Recognize an indication for discontinuing.
- Step 2: Identify and prioritize the medications targeted for discontinuation.
- Step 3: Discontinue, communicate with patient and other providers.
- Step 4: Monitor effects.¹

¹ Bain et al. JAGS 56:1946-1952
Top 3 drugs causing Adverse Reactions

- Warfarin
- Insulin
- Digoxin

Herbal and dietary supplements

*Use of them by older adults has been increasing from 14 percent in 1998 to 63 percent in 2010.*

Mr T

A 62 year old male with history of hypertension and atrial fibrillation, on Warfarin 3 mg oral daily, depression on Citalopram 20 mg daily. He started taking the following medications recently for memory, knee pain and depression.

- Ginkgo biloba
- Acetaminophen
- St. John’s wort
Mr P

- 71 year old male at Skill Nursing Facility (SNF) for rehabilitation post fall, hip fracture, ORIF.
- On warfarin for atrial fibrillation. History of urinary retention, since hospitalization failed Foley removal.
- Urodynamic testing done at Urology office, sent back to SNF on Cipro x 10 days.
- Is the Cipro necessary? What effect will it have on INR.
Antibiotic Treatment Duration

- Antibiotic Stewardship
  - Streamline antibiotics and add stop dates.
  - Stop dates are just as important as start dates.

Ex: Plavix duration after Acute Coronary Syndrome (ACS)
  - Need for treatment to occur after 12 months?

  *Deescalation to aspirin.*
Mr B

- 85 year old male admitted for rehabilitation after prolonged hospital stay due to sigmoid colectomy with colostomy, following rupture diverticulitis/peritonitis/sepsis. He is on Diazepam 10 mg BID and Quetiapine 50 mg qhs for sleep.

- What should be done about his BEERs list of medications?
  - Sedatives and Hypnotics:
  - Medications classes to consider used to reduce sleep or treat insomnia;
    - Barbiturates, Benzodiazepines, non-Benzodiazepines, antihistaminics, tricyclic antidepressants.
Sedatives and Hypnotics:

- BEERs Criteria recommends against the use of sedatives and hypnotics, for the management of insomnia, or agitation and recommends against chronic use of Z-drugs * ( > 90 days) for management of insomnia to prevent dependence.

- * Z-drugs-Ambien (Zolpidem), Lunesta (eszopiclone), Sonata (Zaleplon)
Long Term Risk of Medications

Do drugs cause dementia?

- **Anticholinergics:**
  - Patients taking oxybutynin, amitriptyline, olanzapine, meclizine or similar anticholinergic burden for 3 years had 1.5 times risk of developing dementia in next 10 years.

  *JAMA Intern Med 1/26/15*

- **Benzodiazepines:**
  - Benzo use for > 3 months increased risk of dementia, longer use and use of medications with longer half life increased risk 84%.

  *BMJ 9/9/14*
Mr R

A newly diagnosed Alzheimer’s patient considering donepezil

Following are his current medications. Which one has the highest anticholinergic burden?

- A. Paroxetine
- B. Cyclobenzaprine
- C. Atenolol
- D. Digoxin
- E. Warfarin
Tapering Antipsychotics

- Typically tapered over 3-6 months or longer to discontinuation or lowest effective dose
  - Avoid withdrawal symptoms
  - Prevent rebound of target symptoms
- Few guidelines on tapering of specific medications are available
- Best method is patient specific based on clinical judgment and close monitoring during discontinuation period.
Mr V

89 y/o male with recent h/o heart surgery triple vessel bypass/valve replacement

- Aspirin 325 mg/d
- Diphenhydramine 50 mg hs
- Astelin
- Sinemet 10/100 mg TID
- Coreg 6.25 mg/Brkfst
- Celexa 10 mg/d
- Donepezil 10 mg/d
- Dulcolax 10 mg/d
- Vitamin B12: 2500 mcg/d
- Kdur 10 meq/d
- Pravachol 40 mg/hs
- Acetaminophen 650 mg q 4h
- Hydroxyzine 25 mg TID anxiety
- Lovenox 40 mg sq/BID
- Pepcid 20 mg/d
- Megace 40 mg/mL
- Vit D 1000 IU/d
- Provigil 100 mg/d
- Micostatin topical BID
- Mirabegron (Myrbetriq) 50 mg/d
- Miralax 17 gm BID
Mrs W

91 y/o female admitted to your SNF following weakness, pacemaker placement

- On warfarin for artificial aortic valve, developed significant hematoma at site of pacemaker replacement, anticoagulation held in hospital.
- When should warfarin be restarted?
Mrs S

- 70 year old woman admitted for rehabilitation post CVA. History of HTN, T2DM, Obesity

*Medication list on admission includes several “orphan” drugs:*
  - Gabapentin 300 TID
  - Meloxicam 15 daily
  - Omeprazole 20 mg daily
Proton Pump Inhibitors (PPI’s)

- Recommended duration of therapy is a maximum of 12 weeks, alternative agents include H2 receptor antagonists

- Reason for PPI’s use:
  - NSAIDs on board and h/o gastric ulcers
  - Failure to suppress symptoms of RA, severe OA

- PPI weaning:
  - Medication should be discontinued slowly over 2-4 weeks
  - Prevents rebound gastric symptoms
  - Use of alternative short acting medications to suppress rebound symptoms
    - H2 receptor antagonists, Antacids
Interpret the evidence

- Assess applicability and quality.
- Most trials do not include > 75 y/o patients with multiple conditions.
- Extrapolating evidence to older adults could be harmful.
- Consider time horizon to benefit in number needed to treat (NNT).
Polypharmacy is a public health problem that adversely affects the lives of vulnerable elders.

Older patients >75 with multiple comorbidities are not included in most studies. Extrapolating findings to these patients could be harmful and erroneous.

Most studies showed that medications could be successfully withdrawn with little or no harm to the patient\textsuperscript{[8]}.

Some trials showed benefits such as reduced fall risk.

All evidence suggests that deprescribing in older patients leads to reduced medication usage and cost.

Practitioners do not have evidence based guidelines on exactly how to deprescribe.

More research needs to be done on the outcomes of deprescribing.

Thank you!
DEPRESCRIBING:
A CASE-BASED APPROACH

Cheryl Atherley-Todd, MD, CMD, FAAFP
Assistant Professor Family Medicine/Geriatrics
Nova Southeastern University

Andrea Levin, PharmD, BCACP
Assistant Professor, College of Pharmacy
Nova Southeastern University

Kenya Rivas, MD, CMD
Assistant Professor and Vice Chair Geriatrics Department
Nova Southeastern University