PA – LTC Pharmacist’s Role in Patient Safety and De-Prescribing

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Email: nbrandt@rx.umaryland.edu
“As older patients move through time, often from physician to physician, they are at increasing risk of accumulating layer upon layer of drug therapy, as a reef accumulates layer upon layer of coral.”

Jerry Avorn, MD 2004
Objectives

At the end of this presentation, the participant should be able to:

• Identify commonly overly prescribed medications that result in adverse experience with little benefit to nursing home residents

• Apply de-prescribing skills through case-based discussion led by the presenter.

• Define the role of the consulting pharmacist to assist medical provider in safe and effective de-prescribing practices.
Updates

- High Risk Medications and Tactics to Tackle
- Medication Safety & Literature Updates
- Tools to Assist with Deprescribing
- Case Discussion
When Patients Take Too Many Pills, Doctors Deprescribe

Health-care professionals are screening patients to cut out ineffective medicines and avoid risky combinations.
Top 3 Tips to Improve Medication Safety

✓ Identify High Risk Medications
✓ Assess Medication Use Patterns and Support systems
✓ Medication Therapy Management
OIG report, *Adverse Events in Skilled Nursing Facilities*

- 3 main clinical categories / % of preventable events
  - 37% -- events related to medication / 66%
  - 37% -- events related to ongoing resident care / 57%
  - 26% -- events related to infections / 52%
- Preventable events overlapped multiple categories
- High Priority focus of the National Action plan for ADE
  - Anticoagulants (primary ADE of concern: bleeding)
  - Diabetes agents (primary ADE of concern: hypoglycemia)
  - Opioids (primary ADE of concern: accidental overdoses/over-sedation/respiratory depression)
Are you aware.. Another Metric?

- Public Comment due by: December 19\textsuperscript{th}, 2016
Anticoagulants: *Tactics to Improve Safety for Older Adults*

- Improve provider knowledge of high-quality outpatient anticoagulation management through education
- Improve uptake of evidence-based anticoagulation management models
  - such as anticoagulation clinic services
- Address provider concerns around risk/benefit of anticoagulation
- Address gaps in evidence and provider knowledge with regard to management of NOACs
  - Such as guidelines/algorithms for addressing age related concerns
Antidiabetic Agents: Tactics to Improve Safety for Older Adults

• Medication adjustments in response to changes in oral intake and patient’s treatment goals
• Care coordination across all health care professionals
• Medication reconciliation of diabetes medications
• Caution against use of sliding scale insulin in older adults
• Encourage a multidisciplinary care approach, including pharmacists, nurses, diabetes educators, dietitians
• Incorporate data from patient glucometers into the electronic health record to identify patients at risk
Opioids: Tactics to Improve Safety for Older Adults

• Expand dissemination of evidence-based opioid guidelines/protocols
  – Such as dosing changes, management of high-risk patients
• Improve availability and uptake of safe opioid prescribing practices
• Evaluate patterns of use of prescribed, OTC and illicit substances
• Develop strategies and tools to facilitate integrated team-based care, specialist consultation, and integration with non-pharmacological treatments
# Table 5: Drug-Drug Interactions

Table 5. Potentially Clinically Important Non-infective Drug-Drug Interactions That Should Be Avoided in Older Adults

<table>
<thead>
<tr>
<th>Object Drug/Class</th>
<th>Interacting Drug/Class</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha-1 blockers, peripheral</td>
<td>Loop diuretics</td>
<td>↑ 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>ACEIs</td>
<td>Amiloride or triamterene</td>
<td>↑ risk of hyperkalemia</td>
<td>Avoid routine use; reserve for patients with demonstrated hypokalemia while on an ACEI</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Anticholinergic</td>
<td>Anticholinergic</td>
<td>↑ risk of cognitive decline</td>
<td>Avoid, minimize the number of anticholinergic drugs (see Table 8).</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Antidepressant</td>
<td>*Two or more other CNS drugs</td>
<td>↑ risk of falls</td>
<td>Avoid 3 or more CNS drugs, minimize the number of CNS drugs.</td>
<td>Moderate</td>
<td>Strong</td>
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<tr>
<td>Antipsychotic</td>
<td>*Two or more other CNS drugs</td>
<td>↑ risk of falls</td>
<td>Avoid 3 or more CNS drugs, minimize the number of CNS drugs.</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Benzodiazepines and benzodiazepine-receptor agonists</td>
<td>*Two or more other CNS drugs</td>
<td>↑ risk of falls/fractures</td>
<td>Avoid 3 or more CNS drugs, minimize the number of CNS drugs.</td>
<td>High</td>
<td>Strong</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>NSAIDs</td>
<td>↑ risk of peptic ulcer disease/GI bleed</td>
<td>Avoid; if not possible, provide GI protection.</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Lithium</td>
<td>ACEIs</td>
<td>↑ toxicity</td>
<td>Avoid, monitor lithium concentrations.</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
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<td>Loop diuretic</td>
<td>↑ toxicity</td>
<td>Avoid, monitor lithium concentrations.</td>
<td>Moderate</td>
<td>Strong</td>
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## Table 6: Renal Dosing

### Table 6. Non-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/Medication</th>
<th>Creatinine Clearance (mL/min) When Action Required</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardiovascular/Hemostasis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amiloride</td>
<td>&lt;30</td>
<td>↑ potassium and ↓ sodium</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Apixaban</td>
<td>&lt;25</td>
<td>↑ bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Dabigatran</td>
<td>&lt;30</td>
<td>↑ bleeding</td>
<td>Avoid</td>
<td>High</td>
<td>Strong</td>
</tr>
<tr>
<td>Edoxaban</td>
<td>30–50</td>
<td>↑ bleeding</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>&lt;30</td>
<td>↑ bleeding</td>
<td>Avoid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enoxaparin</td>
<td>&lt;30</td>
<td>↑ bleeding</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Fondaparinux</td>
<td>&lt;30</td>
<td>↑ bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>30-50</td>
<td>↑ bleeding</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spironolactone</td>
<td>&lt;30</td>
<td>Hyperkalemia</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Triamterene</td>
<td>&lt;30</td>
<td>Increased risk of kidney injury; ↑ potassium and ↓ sodium</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td><strong>Central Nervous System/ Analgesics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duloxetine</td>
<td>&lt;30</td>
<td>↑ GI 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>≤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 For extended release</td>
<td>Weak</td>
<td>Weak</td>
</tr>
</tbody>
</table>
Application to Clinicians

• Think of Beers Criteria as a warning light
  – Why is patient taking the drug; is it truly needed?
  – Safer and/or more effective alternatives?
  – Does patient have particular characteristics that increase or mitigate risk of this medication?
  – At time of initial Rx and at follow-up

• Actively assess for symptoms, and assess whether these could be related to meds

• Don’t automatically defer to colleagues
Recent Literature Updates on Medication Errors and Adverse Drug Events

CMS official says drug costs are ‘unsustainable’ and there are ‘too many’ bad actors
Medication Affordability and Adherence

• Trends show an increasing erosion of the Medicare drug benefit and burden on most vulnerable patients
• Highest Total Spend:
  – Abilify (treats certain mental/mood disorders)
  – Advair Diskus (prevents asthma or lung disease symptoms)
  – Crestor (lowers bad and raise good cholesterol)
  – Nexium (treats heartburn and other stomach disorders)
  – Sovaldi (treats Hepatitis C)
• Largest Percent Price Increases:
  – Part D: Vimovo (naproxen/esomeprazole), increased more than 500% – from $1.94 to $12.46/tablet
  – Part B: Cyanocobalamin Injection, increased 78%

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
<th>Coverage Type</th>
<th>Total Spending</th>
<th>Beneficiary Count</th>
<th>Total Annual Spending Per User</th>
<th>Average Annual Beneficiary Cost Share*</th>
<th>Annual Change In Average Cost Per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Januvia</strong></td>
<td>Sitagliptin Phosphate</td>
<td>Part D</td>
<td>$1,775,295,533</td>
<td>789,934</td>
<td>$2,247</td>
<td><strong>S351</strong></td>
<td><strong>15%</strong></td>
</tr>
<tr>
<td><strong>Lantus</strong></td>
<td>Insulin Glargine, Hum. Rec. Analog</td>
<td>Part D</td>
<td>$2,166,972,757</td>
<td>973,018</td>
<td>$2,673</td>
<td><strong>S699</strong></td>
<td><strong>27%</strong></td>
</tr>
<tr>
<td><strong>Levulan</strong></td>
<td>Aminolevulinic Acid HCl</td>
<td>Part B</td>
<td>$35,284,382</td>
<td>85,957</td>
<td>$410</td>
<td><strong>S89</strong></td>
<td><strong>44%</strong></td>
</tr>
<tr>
<td><strong>Lyrica</strong></td>
<td>Pregabalin</td>
<td>Part D</td>
<td>$1,404,488,160</td>
<td>79,107</td>
<td>$1,775</td>
<td><strong>S322</strong></td>
<td><strong>20%</strong></td>
</tr>
<tr>
<td><strong>Namenda</strong></td>
<td>Memantine HCl</td>
<td>Part B</td>
<td>$1,375,513,421</td>
<td>722,050</td>
<td>$1,905</td>
<td><strong>S381</strong></td>
<td><strong>13%</strong></td>
</tr>
<tr>
<td><strong>Neulasta</strong></td>
<td>Pegfilgrastim</td>
<td>Part B</td>
<td>$1,173,794,493</td>
<td>98,519</td>
<td>$11,914</td>
<td><strong>S2,417</strong></td>
<td><strong>10%</strong></td>
</tr>
<tr>
<td><strong>Nexium</strong></td>
<td>Esomeprazole Magnesium</td>
<td>Part D</td>
<td>$2,660,421,777</td>
<td>1,405,799</td>
<td>$1,892</td>
<td><strong>S250</strong></td>
<td><strong>11%</strong></td>
</tr>
<tr>
<td><strong>Olmesin</strong></td>
<td>Simvastatin Sodium</td>
<td>Part D</td>
<td>$383,283,319</td>
<td>12,646</td>
<td>$66,881</td>
<td><strong>S3,077</strong></td>
<td><strong>2%</strong></td>
</tr>
</tbody>
</table>

*Note: the Average Annual Beneficiary Cost Share is the average amount that beneficiaries using the drug paid out of pocket during the year; for Part D drugs, the amount displayed here is based only on Part D beneficiaries without a Low Income Subsidy (LIS).
Deprescribing AKA Pharmacologic Debridement
Deprescribing Framework

Clinical So WHAT... EMPOWER

• Eliminating Medications through Patient Ownership of End Results (EMPOWER)
• Designed to evaluate the effectiveness of personalized direct patient education on benzodiazepine discontinuation or dose reduction

• Key Findings:
  – 6 months: 27% of the intervention group had achieved complete cessation & 11% dose reduction vs 5 & 6% control
  – 42% of the patients experienced adverse drug withdrawal events

Risks of Long-Term Proton Pump Inhibitor (PPI) Use$^{1,2}$

- PPIs are commonly used and provide superior efficacy against GI disorders such as GERD and erosive esophagitis compared to H$_2$-blockers.
- Long Term use of PPIs, especially in a more vulnerable population like the elderly, increases the risk of nutritional deficiencies, C Difficile, dementia.
  - Possible affected minerals include magnesium, potassium, and iron as well as Vitamin B12.

3. JAMA Neurology study link Gomm et al., Association of Proton Pump Inhibitors with Risk of Dementia: A Pharamacoepidemiological Claims Data Analysis, JAMA Neurology published online February 15, 2016
Why is patient taking a PPI?

- If unsure, find out if history of endoscopy, if ever hospitalized for bleeding ulcer or if taking because of chronic NSAID use in past, if ever had heartburn or dyspepsia

**Indication still unknown?**

- Mild to moderate esophagitis or GERD treated x 4-8 weeks (esophagitis healed, symptoms controlled)
- Peptic Ulcer Disease treated x 2-12 weeks (from NSAID; H. pylori)
- Upper GI symptoms without endoscopy; asymptomatic for 3 consecutive days
- ICU stress ulcer prophylaxis treated beyond ICU admission
- Uncomplicated H. pylori treated x 2 weeks and asymptomatic
- Barrett's esophagus
- Chronic NSAID users with bleeding risk
- Severe esophagitis
- Documented history of bleeding GI ulcer

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**Recommend Deprescribing**

**Strong Recommendation (from Systematic Review and GRADE approach)**

- Decrease to lower dose (evidence suggests no increased risk in return of symptoms compared to continuing higher dose), or (daily until symptoms stop) 1/10 patients may have return of symptoms
- Stop PPI
- Continue PPI or consult gastroenterologist if considering deprescribing

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**Monitor at 4 and 12 weeks**

- If verbal: Heartburn, Dyspepsia, Regurgitation, Epigastric pain
- If non-verbal: Loss of appetite, Weight loss, Agitation

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**Use non-drug approaches**

- Avoid meals 2-3 hours before bedtime; elevate head of bed; address if need for weight loss and avoid dietary triggers

**Manage occasional symptoms**

- Over-the-counter antacid, H2RA, PPI, alginate pm (e.g. Tums®, Rolaid®s, Zantac®, Olex®, Gaviscon®)
- H2RA daily (weak recommendation – GRADE; 1/5 patients may have symptoms return)

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**If symptoms relapse:**

- If symptoms persist x 3 – 7 days and interfere with normal activity:
  1. Test and treat for H. pylori
  2. Consider return to previous dose

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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 (Losec®) - 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>DEXLansoprazole (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-erosive reflux disease |
| b Reflux esophagitis |
| c Symptomatic non-erosive gastroesophageal reflux disease |
| d Healing of erosive esophagitis |
| + Can be sprinkled on food |

* Standard dose PPI taken BID only indicated in treatment of peptic ulcer caused by H. pylori, PPI should generally be stopped once eradication therapy is complete unless risk factors warrant continuing PPI (see guideline for details).

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 risk 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 it on-demand 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.
EQUiPPED

• Enhancing the Quality of Prescribed Practice for older veterans discharged from the Emergency Department

• Goal: Reduce ED PIM prescription
  – PIMs prescribed: 9.4 v. 4.6 (RR=0.48, CI = 0.40-0.59)
  – 50% decline in PIM prescription over 1 year, then effects plateau

Top 3 Tips to Improve Medication Safety

✓ Identify High Risk Medications
✓ Assess Medication Use Patterns and Support systems
✓ Medication Therapy Management
Medication Therapy Management

Definition

• MTM is a patient-centric and comprehensive approach to improve medication use, reduce the risk of adverse events, and improve medication adherence. MTM programs include high-touch interventions (such as CMR) to engage the beneficiary and their prescribers.

Evidence

• MTM consistently and substantially improved medication adherence and quality of prescribing of evidence-based medications for CHF, COPD and diabetes. The effects of these programs were found to be strongest among those beneficiaries who received CMRs.


Optimal therapeutic recommendations are based on the experience/needs of the patient. Coordinated Medication Management involves the patient, Clinical Pharmacist, Physicians/PA’s/ANP’s, Nurses/Social Workers, Family members/Aides. The patient understands his/her medications and participates in a care plan to improve health. Gaps in clinical goals are determined, drug therapy problems identified, and therapeutic recommendations made. Appropriate, Effective, Safe and Adherent Medication Use! Clinical goals of therapy are determined and medication recommendations are considered.
“Through collaboration, ASCP and AMDA have identified specific roles, functions, and tasks related to the care process that can be identified for attending physicians, medical directors, and consultant pharmacists.

These levels of collaboration range from coordination in medication regimen review and medication utilization to collaborative practice, as defined by various state laws and regulations.”
Case Discussion
Advancing Choosing Wisely®

Take action to reduce unnecessary care and avoid harm

For additional resources, frequently asked questions and implementation support, visit www.stepsforward.org!
<table>
<thead>
<tr>
<th>Educational Resource</th>
<th>Description</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td><strong>OPEN: Ontario Pharmacy Research Collaboration</strong></td>
<td>Developed deprescribing protocols focusing on proton pump inhibitors, benzodiazepines and antipsychotics</td>
<td><a href="http://www.open-pharmacy-research.ca/research-projects/emerging-services/deprescribing-guidelines">http://www.open-pharmacy-research.ca/research-projects/emerging-services/deprescribing-guidelines</a></td>
</tr>
<tr>
<td></td>
<td>• Deprescribing.org</td>
<td></td>
</tr>
<tr>
<td><strong>Bohemian Polypharmacy</strong></td>
<td>Entertaining video illustrating the importance of addressing polypharmacy</td>
<td><a href="https://www.youtube.com/watch?v=Lp3pFjKoZl8">https://www.youtube.com/watch?v=Lp3pFjKoZl8</a></td>
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Take Home Points

• Medication Safety in Older Adults continues to be an area of concern.
• More awareness and work needs to be done to educate patients, families as well as healthcare practitioners.
• Ongoing Collaboration is key.
Questions ???

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Email: nbrandt@rx.umaryland.edu