Geriatric Pharmacotherapy Primer: Exploring Multimorbidity

Ask Your Questions for this session at: ascp.com/qa

Pharmacy Educators and Research Council Session

2019 ASCP Annual Meeting & Exhibition
Aged to Perfection
November 7-10, 2019 | Grapevine, Texas
#ASCP50

Katie Connolly, PharmD, MS, BCGP, CPE

- Clinical Pharmacist, Medical University of South Carolina
- Masters of Science in Medical Education
- Board Certified Geriatric Pharmacist
- Certified Pain Educator
Suzanne Dinsmore, PharmD, BSP, BCGP

• Associate Professor of Pharmacy Practice
• Associate Director of the Post BS PharmD Pathway
• MCPHS University Boston
• Board Certified Geriatric Pharmacist

Disclosures

• Katie Connolly – I have no actual or potentially relevant financial relationship to disclose and no conflict of interest in relation to this activity.
• Suzanne Dinsmore – I have no actual or potentially relevant financial relationship to disclose and no conflict of interest in relation to this activity.
Learning Objectives - Pharmacist

• Describe the medication review process to identify, prioritize and assess the appropriateness of drug therapy in older adults.
• Use geriatric assessment skills/tools to identify and evaluate common geriatric syndromes across the continuum of care.
• Given a patient case, develop a therapeutic plan using principles of managing older adults with multi-morbidity.

Learning Objectives – Pharmacy Technician

• Describe the role of the pharmacist in the medication review process for older adults.
• Discuss skills/tools that pharmacists can utilize to identify and evaluate common geriatric syndromes.
• Given a patient case, identify problems that may require pharmacist intervention in older adults with multiple disease states.
Self-Assessment Question 1
We want to know more about our audience!

Please select the answer that best fits you. Are you a:

A. Pharmacy Resident
B. Pharmacy Student
C. Pharmacy Technician
D. Geriatric Pharmacist
E. Pharmacist wanting to learn more about geriatrics

In the next hour, we will:

• Review polypharmacy and multimorbidity
• Explore two different patient cases
  • Inpatient admission
  • Long term care
• Focus on the principles of the medication review process
• Discuss tools used to perform medication review
• ... and more!

Let’s get started!
What is Polypharmacy?

• “The simultaneous use of multiple drugs by a single patient, for one or more conditions”
• Can be defined by quantity
  • Commonly, five or more medications
• Associated with multimorbidity

What is Multimorbidity?

• “The coexistence of multiple health conditions”
  • Often, two or more chronic conditions
• Associated with many challenges
  • Polypharmacy
  • Complex visits with multiple clinicians
  • Lack of clinical data/studies
The Geriatric Patient: Complex Encounter

- Multiple morbidities/Complex regimen
- Potentially inappropriate medications/prescribing
- Functional limitations
- Limited Evidence/Applicability
- Geriatric Syndromes
- Cognitive Impairment/Other Psychosocial Issues
- Age-related PK/PD changes

Patient Case 1: Acute Care Hospital Admission
Case 1: Mrs. Brown

**HPI:** Mrs. Brown is an 82 year old female who was admitted to the acute care for the elderly unit last night, following a fall at home.

**PMH:** Fall (last night), Type 2 diabetes, hypertension, insomnia, chronic lower back pain

**SH:** Mrs. Brown lives at home alone. Her daughter lives near by and visits frequently to help with household chores.

**VS:**
- Temperature: 98.7 °F
- Heart Rate: 68 bpm
- Blood Pressure: 126/82 mmHg
- Respiratory Rate: 18 bpm

**Pertinent Labs**

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na</td>
<td>138 mmol/L</td>
</tr>
<tr>
<td>K</td>
<td>4.0 mmol/L</td>
</tr>
<tr>
<td>Cl</td>
<td>104 mmol/L</td>
</tr>
<tr>
<td>CO2</td>
<td>22 mmol/L</td>
</tr>
<tr>
<td>Scr</td>
<td>1.0 mg/dL</td>
</tr>
<tr>
<td>BUN</td>
<td>10 mmol/L</td>
</tr>
<tr>
<td>Hgb</td>
<td>12 g/dL</td>
</tr>
<tr>
<td>Hct</td>
<td>36%</td>
</tr>
<tr>
<td>WBC</td>
<td>4.6</td>
</tr>
<tr>
<td>Plt</td>
<td>200</td>
</tr>
<tr>
<td>HgbA1c</td>
<td>7.2%</td>
</tr>
<tr>
<td>Glucose</td>
<td>144 mg/dL</td>
</tr>
</tbody>
</table>

**Height:** 66 inches

**Weight:** 62 kg

**Imaging**
- CXR – negative for acute disease
- Hip – negative for fracture

**Micro**
- Urinalysis – no bacteria detected
Case 1: Mrs. Brown

Home Medications
- Losartan 50mg PO daily
- Hydrochlorothiazide 12.5mg PO qAM
- Linagliptin 5mg PO daily
- Metformin 500mg PO BID
- Zolpidem 10mg PO HS
- Oxycodone/Acetaminophen 5mg-325mg PO q6h PRN pain

Note:
All home medications were continued upon admission

Self-Assessment Question 2

You arrive as the geriatric pharmacist the next morning after Mrs. Brown’s admission. While preparing for rounds, you review her chart. What guidelines would be appropriate to use to evaluate Mrs. Brown’s medication regimen?

A. Beers Criteria
B. START
C. STOPP
D. All of the above
Self-Assessment Question 2

You arrive as the geriatric pharmacist the next morning after Mrs. Brown’s admission. While preparing for rounds, you review her chart. What guidelines would be appropriate to use to evaluate Mrs. Brown’s medication regimen?

A. Beers Criteria  
B. START  
C. STOPP  
D. All of the above

Tools to Perform Medication Review

Focused on Falls

Beers Criteria & STOPP
- Potentially inappropriate medications

AHRQ 3I tool & CDC: STEADI tool
- Medication fall risk score and evaluation tools

National Council on Aging
- Steps for preventing falls

Health in Aging
- Ten medications older adults should avoid or use with caution
Case 1: Mrs. Brown
Additional Information

• While discussing Mrs. Brown’s medication regimen with the medical team, you learn that Mrs. Brown fell while walking to use the bathroom during the night.
• She states that prior to going to sleep, she took both Zolpidem and Oxycodone

What can we do to help reduce the risk of falls in this patient?

Falls: A Geriatric Syndrome

RISK
- Falls
- Incontinence
- Pressure Ulcers
- Delirium
- Functional Decline

GERIATIC SYNDROMES

POOR OUTCOMES
- Disability
- Nursing Home
- Death

FRAILTY

Optimizing the Medication Regimen

• Chart review
  • Do all medications have an indication?
  • Are medication doses appropriate?
    • Dose adjustments needed? Based on review of:
      • Labs
      • Vital signs
      • Adverse effects

• Develop plan for de-prescribing
  • Include patient and family in discussions

Self-Assessment Question 3

Which medication that Mrs. Brown is taking is most likely to contribute to an increased risk of falls?

A. Zolpidem  
B. Linagliptin  
C. Metformin  
D. Losartan
Self-Assessment Question 3

Which medication that Mrs. Brown is taking is most likely to contribute to an increased risk of falls?

A. Zolpidem  
B. Linagliptin  
C. Metformin  
D. Losartan

Deprescribing

• “Deprescribing is the planned and supervised process of dose reduction or stopping of medication that might be causing harm, or no longer be of benefit.”
  • Deprescribing.org

• Evidence based guidelines and algorithms to help with:
  • Dose reductions and tapering
  • Patient education
  • Non-pharmacologic options
Fall Prevention Recommendations

- Medication changes
  - Recommend deprescribing
  - Develop a plan to taper Zolpidem

- Patient Counseling
  - Engage patient and family to support plan for de-prescribing
  - Non-pharmacologic: fall prevention measures
  - Non-pharmacologic: sleep hygiene measures
Objective Data: Pain Assessment

• When asked about her chronic back pain, Mrs. Brown states that she has had it for the past 6 years
• As the pharmacist, you have a discussion with Mrs. Brown to get more details about her pain history
  • Goal is to identify most appropriate medication or treatment modality, while managing Mrs. Brown’s pain

Considerations for Assessing and Treating Pain

• Assessment tool
  • Using cognitive status to guide assessment tool selection
• Treatment selection
  • Adverse effects
  • Anticholinergic burden
    ➔ Fall risk
  • Renal function
  • Risk vs. Benefit
  • Pharmacologic vs. Non-pharmacologic
  • Cost
Pain Assessment

- Palliative, Precipitating, Previous therapy
- Quality
- Region, Radiating
- Severity
- Temporal
- You! Goal setting with patient

Pain Assessment: Mrs. Brown

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Subjective</th>
</tr>
</thead>
</table>
| P          | **Palliating:** takes oxycodone/APAP as needed when her back hurts  
**Precipitating:** back pain is worse after gardening  
**Previous therapy:** after the car accident, she went to physical therapy |
| Q          | Dull, aching pain |
| R          | Localized to the lower back |
| S          | Currently, 0/10 – but escalates to 8/10 after gardening |
| T          | Chronic |
| U          | 0/10 at baseline, would still like to garden with goal pain level 4/10 |

Gathering More Information...

- **What other medications have you tried?**
  - Mrs. Brown states that after the car accident, she tried ibuprofen, which helped relieve her pain.
  - She states she stopped taking this because her physician recommended acetaminophen.
  - But...the acetaminophen alone was not effective. So, she was prescribed oxycodone with acetaminophen.

- **When was the last time you had physical therapy?**
  - Mrs. Brown states that she had several weeks of physical therapy after the car accident, but has not had any physical therapy since then.

---

Treatment of Pain

- **Perform Pain Assessment**
- **Chronic Pain**
- **Develop treatment plan**
Self-Assessment Question 4

Which of the following would be an appropriate alternative medication to consider for treatment of Mrs. Brown’s chronic lower back pain?

A. Naproxen sodium
B. Amitriptyline
C. Diclofenac topical gel
D. Fentanyl patch
Pain Management Recommendations

• Medication changes
  • Recommend discontinuation of oxycodone/APAP
  • Consider initiating a safer alternative, Diclofenac topical gel

• Patient counseling
  • Pain goals
  • Adverse effects, monitoring
  • Non-pharmacologic: refer to physical therapy

Type 2 Diabetes and Hypertension

• Recalling Mrs. Brown’s labs and vital signs:
  • HgbA1c = 7.2%
  • Blood glucose = 144mg/dL
  • BP = 126/82 mmHg
### ADA/AGS 2012 Consensus Report: Diabetes in Older Adults

<table>
<thead>
<tr>
<th>Patient Health Status</th>
<th>Rationale</th>
<th>Reasonable A1C Goal</th>
<th>Blood Pressure</th>
<th>Lipids</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Healthy</strong></td>
<td>Few chronic illnesses, intact functional status and cognition</td>
<td>Long remaining life expectancy</td>
<td>&lt; 7.5%</td>
<td>&lt; 140/80</td>
</tr>
<tr>
<td><strong>Complex/Intermediate</strong></td>
<td>Multimorbidity, impaired 2+ instrumental ADL or mild-mod cognitive impairment</td>
<td>Intermediate life expectancy, high treatment burden, risk hypoglycemia, fall risk</td>
<td>&lt;8.0%</td>
<td>&lt; 140/80</td>
</tr>
<tr>
<td><strong>Very complex/Poor health</strong></td>
<td>Long-term care or end-stage chronic illnesses, dependent 2+ ADL, mod-severe cognitive impairment</td>
<td>Limited life expectancy makes benefit uncertain</td>
<td>&lt;8.5%</td>
<td>&lt; 150/90</td>
</tr>
</tbody>
</table>

Adapted from Table 1. Framework for considering treatment goals for glycemia, blood pressure, and dyslipidemia in older adults with diabetes. Diabetes in Older Adults: A Consensus Report. JAGS, 60: 2342–2356.

## Type 2 Diabetes and Hypertension Recommendations

- While the patient is in the hospital:
  - Prioritizing:
    - Focus on admitting diagnosis
    - Address any other acute issues
  - In Mrs. Brown’s case:
    - HgbA1c = 7.2%
    - BP = 126/82 mmHg
    - Both metrics are at goal for this community dwelling, independent older adult
- Recommendation
  - Continued follow up with PCP in outpatient setting
Patient Case 2: Long Term Care Admission

Case 2: MJ Long Term Care Admission

**General:** 77-year-old-female with Dementia admitted to Long Term Care (LTC) after surgery related to fracture right radius

**Past Medical History:** hypothyroidism, anxiety, depression, moderate dementia, nausea, constipation, osteoporosis

**Social History:**

**Allergies:** penicillin, sulfa

**Height:** 60", **Weight:** 115#
**Current Medications**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage/Route/Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levothyroxine 50 mcg PO Daily</td>
<td></td>
</tr>
<tr>
<td>Ondansetron 4mg PO Q8 hours Nausea</td>
<td></td>
</tr>
<tr>
<td>Docusate 100mg PO BID</td>
<td>Diclofenac 75mg PO TID</td>
</tr>
<tr>
<td>Omeprazole 40mg PO Daily</td>
<td>APAP 975mg PO Q8 PRN Pain</td>
</tr>
<tr>
<td>Paroxetine 20mg PO Daily</td>
<td>Lorazepam 0.5mg PO Q6 PRN Anxiety</td>
</tr>
<tr>
<td>Trazodone 200mg PO HS</td>
<td>PEG 17gm PO in 8oz fluid BID PRN</td>
</tr>
<tr>
<td>Haloperidol 1mg PO BID</td>
<td>Ranitidine 300mg PO BID PRN</td>
</tr>
<tr>
<td>Donepezil 10mg PO HS</td>
<td>Bisacodyl 10mg P0 Q AM Constipation</td>
</tr>
<tr>
<td>Denosumab 60mg SQ Q 6 months</td>
<td></td>
</tr>
</tbody>
</table>

**Collect Information**

**Resources for Information**
- Admission Orders
- Lab Results
- Nursing Notes
- Physician Notes
- Dietary Notes
- Physical Therapy
- Mental Health Notes

**Organizing Information**
- Order of Acuteness
- Chief Complaint
- Documented Diagnosis'
- Medications
- Unnecessary Medications
- Adverse Effects
- Potential Adverse Effects
### Medication Dosing Schedule

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosing Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levothyroxine 50 mcg PO Daily (30 years)</td>
<td>Ondansetron 4mg PO Q8 hours nausea (2 weeks)</td>
</tr>
<tr>
<td>Docusate 100mg PO BID (5 months)</td>
<td>Diclofenac 75mg PO TID <strong>Arthritis Pain</strong> (4 week)</td>
</tr>
<tr>
<td>Omeprazole 40mg PO Daily (3 weeks)</td>
<td>APAP 975mg PO Q8 PRN Pain (none)</td>
</tr>
<tr>
<td>Paroxetine 20mg PO Daily (20 years)</td>
<td>Lorazepam 0.5mg PO Q6 PRN Anxiety (1 week)</td>
</tr>
<tr>
<td>Trazodone 200mg PO HS <strong>Sleep</strong> (6 months)</td>
<td>PEG 17gm PO in 8oz fluid BID PRN Const (5 months)</td>
</tr>
<tr>
<td>Haloperidol 1mg PO BID <strong>Nausea</strong> (3 weeks)</td>
<td>Ranitidine 300mg PO BID PRN Upset Stomach (1 week)</td>
</tr>
<tr>
<td>Donepezil 10mg PO HS (1 year)</td>
<td>Bisacodyl 10mg PO Q AM Const (1 week)</td>
</tr>
<tr>
<td>Denosumab 60mg SQ Q 6 months for <strong>Osteoporosis</strong> (2 years)</td>
<td></td>
</tr>
</tbody>
</table>

### Lab Results

<table>
<thead>
<tr>
<th></th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin</td>
<td>11 g/dL</td>
</tr>
<tr>
<td></td>
<td>&lt;13 g/dL (130 g/L) men</td>
</tr>
<tr>
<td></td>
<td>&lt;12 g/dL (120g/L) women</td>
</tr>
<tr>
<td>Thyroid-stimulating hormone (TSH)</td>
<td>15.4 uU/mL</td>
</tr>
<tr>
<td></td>
<td>0.5-5.0 uU/mL (0.5-5.0 mU/L)</td>
</tr>
<tr>
<td>Serum Creatinine</td>
<td>1.0 mg/dL</td>
</tr>
<tr>
<td></td>
<td>0.7-1.3mg/dl (61.9-115 umol/L)</td>
</tr>
<tr>
<td>eCrCl</td>
<td>33.8ml/min</td>
</tr>
</tbody>
</table>

Important Information

- No bleeding; occult stool neg.
- Daytime Lethargy
- Severe Dry Mouth
- Mild Arthritis Pain
- Upset Stomach with Diclofenac
- Nausea with Diclofenac
- Constipation
- Moderate Confusion

Problem List

1. Anemia
2. Hypothyroidism
3. Depression
4. Dementia
5. Constipation
6. Arthritis
7. Osteoporosis
8. Anxiety

Concerns

- Medications
- Lethargy
  - Severe Dry Mouth
  - Constipation
  - Moderate Confusion
- Upset Stomach
- Nausea

Self-Assessment Question #5

How many of MJ’s medications might be considered Potentially Inappropriate?

A. Less than 3  
B. 4 to 6  
C. 7 to 10  
D. Greater than 10
Self-Assessment Question #5

How many of MJ’s medications might be considered Potentially Inappropriate?

A. Less than 3  
B. 4 to 6  
C. 7 to 10  
D. Greater than 10

Geriatric Assessment Tools

- **Beers Criteria**: Systematic Reviews, Meta-Analyses, Randomized Controlled Trials, Observational Studies
- **STOPP/START**: Systematic Reviews, Randomized Controlled Trials, Textbooks, Guidelines
- **Anticholinergic Risk Scale**: Review and Evaluation of 500 most prescribed medications
- **Medication Appropriateness Index**: Review of pharmacy specialty journals on drug-related problems
### Anticholinergic Risk Scale

| 0=Limited or None; 1=Moderate; 2=Strong; 3=Very Strong Anticholinergic Potential |
|---|---|---|
| **1 Point** | **2 Points** | **3 Points** |
| Haloperidol |  |  |
| Paroxetine |  |  |
| Ranitidine |  |  |
| Trazodone |  |  |

Central - falls, dizziness, confusion
Peripheral - dry mouth, dry eyes, constipation
ARS score = 3 would likely lead to an adverse effect in >70% of patients


### Medication Appropriateness Index

| 1=Appropriate; 2=Marginally Appropriate; 3=Inappropriate |
|---|---|---|
| **1. Indication** | **7. Clinically Significant Drug-Disease Interactions** |
| **2. Effective for the Condition** | **8. Duplication of Therapy** |
| **3. Correct Dosage** | **9. Acceptable Duration** |
| **4. Correct Directions** | **10. Least Expensive Alternative** |
| **5. Practical Directions** |  |
| **6. Clinically Significant Drug-Drug Interactions** |  |

Medication Appropriateness Index

1. Levothyroxine
2. Docusate
3. Omeprazole
4. Paroxetine
5. Trazodone
6. Haloperidol
7. Donepezil (ok)
8. Ondansetron
9. Lorazepam
10. PEG
11. Ranitidine
12. Bisacodyl

Cornell Scale for Depression in Dementia

<table>
<thead>
<tr>
<th>A=unable to evaluate; 0=absent; 1=mild or intermittent; 2=severe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mood-related</strong></td>
</tr>
<tr>
<td>Anxiety</td>
</tr>
<tr>
<td>Sadness</td>
</tr>
<tr>
<td>Lack of reactivity to pleasant events</td>
</tr>
<tr>
<td>Irritability</td>
</tr>
</tbody>
</table>
Deprescribing

1. Recommendations for Evaluations
   • Pain
     • Discontinue Diclofenac, Omeprazole, Ranitidine
     • Schedule Acetaminophen
   • Anemia
   • Depression
     • Citalopram vs. Paroxetine
     • Activities

2. Hypothyroidism
   • Increase Levothyroxine

3. Haloperidol

4. Monitor Constipation
   • PEG, Bisacodyl, Docusate

5. Monitor Nausea
   • Discontinue Ondansetron

6. Monitor Sleep
   • Taper Trazodone

Geriatric Assessment Tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Interventions Identified in MJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beers Criteria</td>
<td>7</td>
</tr>
<tr>
<td>STOPP/START</td>
<td>3/1</td>
</tr>
<tr>
<td>Anticholinergic Risk Scale</td>
<td>4</td>
</tr>
<tr>
<td>Medication Appropriateness Index</td>
<td>&gt;10</td>
</tr>
</tbody>
</table>
Guiding Principles for the Care of Older Adults with Multimorbidity

I. Patient Preferences
II. Interpreting the Evidence
III. Prognosis
IV. Clinical Feasibility
V. Optimizing Therapies and Care Plans


Self-Assessment Question #6

Which of the Following Is the Best Approach in Promoting the Safe Use of Medication in Older Adults Residing in Long Term Care?

A. Collect and Review all Available Information about the Resident or Patient
B. Consider Adverse Events and Potential Adverse Events
C. Make Appropriate Recommendations
D. All of the Above
Self-Assessment Question #6

Which of the Following Is the Best Approach to Promote the Safe Use of Medication in Older Adults Residing in Long Term Care?

A. Collect and Review all Available Information about the Resident or Patient  
B. Consider Adverse Events and Potential Adverse Events  
C. Make Appropriate Recommendations  
D. All of the Above

In Summary...

Clinical practice guidelines provide a framework for managing disease states in older adults.

Pharmacists should be able to collect, review and evaluate patient information and use clinical skills, tools and guidelines along with good clinical judgement to optimize safe and appropriate medication use in older adults.
Geriatric Pharmacist Resources

• ASCP Practice Resource Center
  • https://www.ascp.com/page/prc
• App Corner:
  • National Kidney Foundation
    • eGFR Calculator
  • Alzheimer’s Association
    • Alzheimer’s Disease Pocket Card
  • American Geriatrics Society
    • iGeriatrics
    • MCC GEMS
  • US Preventive Services Task Force Recommendations
    • ePSS

Geriatric Pharmacist Resources

• Delivered to your “In-Box’
  • ACCESSSSS (SMART SEARCH)
  • DG News
  • DOCGuide Weekly (Geriatrics)
  • Evidence Alerts
  • McMaster Optimal Aging Portal
  • QxMD
References

- Deprescribing.org. What is deprescribing? https://deprescribing.org/what-is-deprescribing/

2019 ASCP Annual Meeting & Exhibition
Aged to Perfection
#ASCP50

References


2019 ASCP Annual Meeting & Exhibition
Aged to Perfection
#ASCP50
Geriatric Pharmacotherapy Primer: Exploring Multimorbidity

Ask Your Questions for this session at: ascp.com/qa
Pharmacy Educators and Research Council Session

2019 ASCP Annual Meeting & Exhibition
Aged to Perfection
November 7-10, 2019 | Grapevine, Texas
#ASCP50

Live Content Slide
When playing as a slideshow, this slide will display live content

Social Q&A