2013

Competency in Medication Management Workshop

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Medication Management Competency

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Pomona, CA
Disclosure

Drs. Atkinson and Shimomura have no conflicts of interest to disclose.
At the end of the presentation, the participants will be able to:

- Describe competencies in medication management required for medical students and residents.
- Outline age-related changes and impact on drug selection and dose.
- Identify examples of drug-drug interactions.
- Identify medications that should be avoided or used with caution (Updated Beers Criteria).
- List examples of common adverse effects.
Medication Use Increases with Age

Recent data suggests that up to 60-80% of persons 65 or older are taking 5 or more medications. Marcum et al. JAGS 2012; Crentsil et al. Am J Geriatr Pharmacother 2010

Kaufman et al. JAMA 2002
Adverse Drug Events Increase with Increasing Numbers of Drugs
Competency is the Key!

- Minimum geriatrics competencies for medical students and residents include **Medication Management**
### What is expected: Pharmacology of Aging

<table>
<thead>
<tr>
<th>Medical Students</th>
<th>Internal Medicine and Family Medicine Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Explain</strong> impact of age-related changes on drug selection and dose based on knowledge of age-related changes in renal and hepatic function, body composition, and Central Nervous System sensitivity.</td>
<td>1. <strong>Prescribe</strong> appropriate drugs and dosages considering: age-related changes in renal and hepatic function, body composition, and CNS sensitivity; common side effects in light of patient’s comorbidities, functional status, and other medications; and drug-drug interactions.</td>
</tr>
</tbody>
</table>
## What is expected: ADRs and Interactions

<table>
<thead>
<tr>
<th>2. <strong>Identify</strong> medications, including anticholinergic, psychoactive, anticoagulant, analgesic, hypoglycemic, and cardiovascular drugs that should be avoided or used with caution in older adults and explain the potential problems associated with each.</th>
<th>2. When prescribing drugs which present high risk for adverse events and interactions <strong>discuss and document</strong> the rationale for their use, alternatives, and ways to decrease side effects.</th>
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<tbody>
<tr>
<td>3. Consider adverse reactions to medication in the differential diagnosis of new symptoms or geriatric syndromes</td>
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</table>
What is expected: Assessing your patient and reducing polypharmacy

<table>
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<tr>
<th>3. <strong>Document</strong> a patient’s complete medication list, including prescribed, herbal and over-the-counter medications, and for each medication provide the dose, frequency, indication, benefit, side effects, and an assessment of adherence.</th>
<th>4. Periodically <strong>review</strong> patient’s medications (including meds prescribed by other physicians, OTC, herbals) with the patient and/or caregiver to assess adherence, <strong>eliminate</strong> ineffective, duplicate and unnecessary medications, and <strong>assure</strong> that all medically indicated pharmacotherapy is prescribed.</th>
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<tbody>
<tr>
<td>• This includes reviewing the medication list or “brown bag” review.</td>
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<tr>
<td>• Be sure that everything the patient is taking is accounted for!</td>
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</tbody>
</table>
Knowledge review
### Aging, Pharmacokinetics and Impact on Drug Selection and Dose

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Absorption</strong></td>
<td>Slower time to peak concentrations of most meds, same total absorption</td>
</tr>
<tr>
<td><strong>Distribution</strong></td>
<td>↓ in total body water, ↓ in albumin, ↑ in body fat, ↓ in lean body mass</td>
</tr>
<tr>
<td><strong>Metabolism</strong></td>
<td>Decrease in hepatic flow and liver size with age, clinical effect unclear</td>
</tr>
<tr>
<td><strong>Elimination</strong></td>
<td>GFR is usually lower than you think, always estimate creatinine clearance</td>
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<tr>
<td></td>
<td>CrCl decrease by 50% between age 25 and 85 despite maintained SCr of 1.0 mg/dL</td>
</tr>
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</table>
Pharmacodynamic/Pharmacologic Interactions

• Pharmacodynamic interactions are those where the effects of one drug is changed by the presence of another drug at the site of action

• Pharmacologic interactions can result in either:
  – Synergistic effect
  – Antagonistic effect
Drug-Drug Interactions

Concurrent use of Insulin and Glyburide substantially increases the risk for hypoglycemia.

Recommendation:
• Avoid combination
• Educate patient
Drug-Drug Interactions

Concurrent use of Warfarin and NSAIDs may enhance bleeding.

Recommendation:

• Acetaminophen in low doses for mild pain.
• Acetaminophen and opioid combination for moderate to severe pain.
Identification of medications that should be avoided or used with caution (e.g. Updated Beers Criteria)

The original Beers criteria have been revised in 1997, 2003, and most recently in 2012.

The criteria include 53 medications designated in one of three categories:

1) those that should always be avoided (e.g., barbiturates, chlopropamide);
2) those that are potentially inappropriate in older adults with certain diseases or syndromes;
3) those that should be used with caution.

The 2012 updated Beers Criteria is available through the American Geriatrics Society website.
http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/2012
### Examples of medication on Beers List

<table>
<thead>
<tr>
<th>Drugs with anticholinergic side effects</th>
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<tbody>
<tr>
<td>Diphenhydramine and other first generation antihistamines</td>
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</table>

<table>
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<th>Drugs that may lower seizure threshold</th>
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<tr>
<td>Bupropion</td>
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<td>Clozapine</td>
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<th>Hypotension/Orthostatic Hypotension</th>
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<tr>
<td>Methyldopa</td>
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<tr>
<td>Guanethidinide, Guandrel</td>
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<tr>
<th>Miscellaneous</th>
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<tbody>
<tr>
<td>Olanzapine</td>
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<tr>
<td>Negative Formulary (Beer’s List)</td>
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<tr>
<td>---------------------------------</td>
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<tr>
<td><strong>Antiplatelet Drugs</strong></td>
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<tr>
<td>Ticlopidine (Ticlid)</td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td><strong>Antihistamines</strong></td>
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<tr>
<td>Diphenhydramine (Benadryl)</td>
</tr>
<tr>
<td>Promethazine (Phenergan)</td>
</tr>
<tr>
<td>Cyproheptadine (Periactin)</td>
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<td></td>
</tr>
<tr>
<td><strong>Analgesics</strong></td>
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<tr>
<td>Meperidine (Demerol)</td>
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<td>Ketorolac (Toradol)</td>
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<td>Pentazocine (Talwin)</td>
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Common Adverse Effects in Elderly

- Confusion, delirium
- Cognitive impairment
- GI bleeding
- Gastritis, anorexia
- Urinary incontinence, retention
- Syncopal attacks
- Mechanical falls
- Extrapyramidal symptoms
- Digoxin induced arrhythmias
Anticholinergic Adverse Effects

“Can’t see…Can’t spit…Can’t pee…Can’t Poop…!”

- Increased sensitivity in the elderly, leading to:
  - Confusion/Delirium
  - Falls
  - Xerostomia
  - Constipation
  - Urinary Retention
  - ↑Intraocular pressure
Acknowledgment

Thank you Bansari Rao, PharmD Candidate 2014 & Hemant Hirpara, PharmD Candidate 2014 at the WesternU College of Pharmacy, for researching and helping to prepare this presentation.
Questions?
Geriatric Resources

**Competency in Medication Management for Medical Students, Residents and Other Health Care Practitioners**

**FACULTY EDITION**

**Cover Sheet:** Please mark pass and initial each station as learners complete them.

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**Competency in Medication Management for Medical Students, Residents, and Other Health Care Practitioners**

Name:
Medical School: ____________________________
Training Level: MS___

Residency Program: ____________________________
PGY___

Email (to be used to send acknowledgement of participation and tool kit):

Name of person to inform of your participation (e.g. Dean of Education; Residency/Clerkship Director):

Performance Ratings:
- Station 1: Medication History
- Station 2: Drug-Drug Interactions
- Station 3: Integrated Medication Management

Performance: Pass
Faculty Initials: ______

Do you consent to being contacted for a follow-up survey for the AGS Medication Competency Workshop?

Yes ______ No ______

Congratulations on completing the AGS 2013 Competency Certification for Medication Management! Please submit this completed form to a workshop faculty member. You will receive acknowledgement of participation within 4 weeks. You may keep the rest of this packet.
**Station 1: Medication History**

**Name of the patient:** Pat Glenn  
**Date of Birth:** February 22, 1935

*You will also be given a virtual brown bag (a sheet of paper with medication labels) to share with your learner if asked.*

**Information from:** Patient  
**Medical Problems:** High blood pressure, Hyperlipidemia, Depression

List all prescription & over the counter medications, herbal therapy, and supplements that patient uses with the patient understanding of each detail in the space provided. Identify at least 2 patient education needs at the bottom of the page.

<table>
<thead>
<tr>
<th>Name of medication</th>
<th>Dose</th>
<th>Frequency</th>
<th>Indication</th>
<th>Benefit</th>
<th>Side effects</th>
<th>Adherence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisinopril/Zestril</td>
<td>20mg po</td>
<td>q am</td>
<td>BP</td>
<td>“Doctor says my BP is ok”</td>
<td>none</td>
<td>“I forget to take my pills sometimes.” If asked how often: Forget all meds 2-3 times a month</td>
</tr>
<tr>
<td>Simvastatin/Zocor</td>
<td>40mg po</td>
<td>Takes q am prescribed qhs</td>
<td>Lipids</td>
<td>“My number is getting better”</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Metoprolol/Lopressor</td>
<td>50mg po</td>
<td>Takes q am prescribed bid</td>
<td>BP</td>
<td>“Doctor says my BP is ok”</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Citalopram/Celexa</td>
<td>20mg po</td>
<td>q am</td>
<td>Per patient: Hypertension</td>
<td>“Not sure, for my blood pressure I think”</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>St. John Wort not in brown bag</td>
<td>q am</td>
<td>Depression</td>
<td>“I think it helps, I’m not sad”</td>
<td>none</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Identified Patient Education Needs:**
1. Citalopram treats depression, not hypertension  
2. Using Metoprolol once, not twice a day as prescribed  
3. Inform doctor of St. John Wort (or not to take with Citalopram)  
4. Missing dose of meds 2-3 times per month  
5. Should take simvastatin as prescribed at night instead of morning

**Passing Criteria:**
1) Generates complete med list from brown bag and history  
2) Asks for OTCs/herbals (St. Johns Wort in this case)  
3) Assesses adherence  
4) Identifies 2 or more education needs (see info on left)
**Station 2 Medication Grid: ANSWER KEY**

Learner Instructions: Using the slide show, match each visual depiction of an adverse drug reaction (slides 1 – 5) with the most likely drug pair responsible for this reaction (shaded boxes). Each slide and each box is used only 1 time; 5 shaded boxes will not be used.

<table>
<thead>
<tr>
<th></th>
<th>Diphenhydramine (Anticholinergic)</th>
<th>Warfarin (Vitamin K antagonist)</th>
<th>Levothyroxine (Hypothyroidism Txt)</th>
<th>Ibuprofen (NSAIDs)</th>
<th>Azithromycin (Macrolide Antibiotic)</th>
</tr>
</thead>
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<tr>
<td>Quetiapine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Slide 1*</td>
</tr>
<tr>
<td>(Atypical Antipsychotic)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Slide 5*</td>
</tr>
<tr>
<td>Lisinopril</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Slide 4*</td>
</tr>
<tr>
<td>(ACE Inhibitor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Slide 2*</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td></td>
<td></td>
<td>Slide 1*</td>
<td></td>
<td>Slide 3*</td>
</tr>
<tr>
<td>(Fluoroquinolones Antibiotics)</td>
<td></td>
<td></td>
<td>Slide 2*</td>
<td></td>
<td>Slide 3*</td>
</tr>
<tr>
<td>Oxybutynin</td>
<td>Slide 1*</td>
<td></td>
<td>Slide 3*</td>
<td></td>
<td>Slide 3*</td>
</tr>
<tr>
<td>(Overactive Bladder Med)</td>
<td></td>
<td></td>
<td>Slide 3*</td>
<td></td>
<td>Slide 3*</td>
</tr>
<tr>
<td>Calcium</td>
<td>Slide 3*</td>
<td></td>
<td>Slide 3*</td>
<td></td>
<td>Slide 3*</td>
</tr>
<tr>
<td>(Essential Minerals)</td>
<td>Slide 3*</td>
<td></td>
<td>Slide 3*</td>
<td></td>
<td>Slide 3*</td>
</tr>
</tbody>
</table>

Criteria to pass: Students correctly match 3 DDI, Residents correctly match 4 DDI

* See next page for descriptions of each interaction
Station 2: Drug-Drug Interaction descriptions from Epocrates

Slide 1: diphenhydramine <-> oxybutynin (Confusion, constipation/urinary retention, dry mouth, blurry vision)
cautions advised: combo may incr. anticholinergic adverse effects (additive effects)

Slide 2: ciprofloxacin <-> warfarin (Easy bruisingability, bleeding gums)
use alternative or monitor INR: combo may incr. INR, risk of bleeding (hepatic metab. inhibited, altered vitamin K production by gut flora)

Slide 3: calcium carbonate <-> levothyroxine (hypothyroidism, fatigue, myxedema, cold intolerance)
monitor thyroid fxn, separate admin. by >4h from oral calcium salts: combo may decr. thyroid hormone efficacy (absorption decreased via chelation)

Slide 4. ibuprofen <-> lisinopril (renal insufficiency)
monitor BP, renal fxn: combo may decr. antihypertensive efficacy, incr. risk of nephrotoxicity (antagonistic effects, additive effects)

Slide 5. azithromycin <-> quetiapine (prolonged QTc)
cautions advised: combo may incr. risk of QT prolongation, cardiac arrhythmias (additive effects)

The following drug pairs have no significant interactions known or found for selected drugs. Caution always advised with multiple medications.
Quetiapine & Levothyroxine
Lisinopril & Warfarin
Ciprofloxacin & Diphenhydramine
Oxybutynin & Azithromycin
Calcium & Ibuprofen
Pat Glenn, a 78 y.o. patient, came to your clinic for a 3-month follow-up. Patient states that all is well, and that the knee pain from ‘arthritis’ is better after being started on a new pain medication by an orthopedist. The only complaint is feeling a little jittery and too sleepy during the daytime. You find that several pill bottles have a rubber band around them, which patient explains is to help keep track of which pills have been taken that day.

PMH:
Hypertension
Hyperlipidemia
Depression
OA

Physical Examination:
Vitals: Blood Pressure = 139/74 Pulse=92  Respirations = 16
General: In no distress
Heart: Regular rate and rhythm
Lungs: Clear to auscultation
Extremities: No edema
Neurological: Muscle strength 5/5 throughout, biceps, patellar and ankle reflexes brisk bilaterally. Gait normal.

Here’s a list of medications on record from his last visit:
Lisinopril (Zestril) 20 mg PO daily
Simvastatin (Zocor) 40 mg PO at bedtime
Metoprolol (Lopressor) 50 mg PO twice daily
Citalopram (Celexa) 20 mg PO at bedtime
St. John’s Wort 1 tab PO daily

I. What other information do you need to complete a medication history?
**Meds** (Brown bag med list—to be given to learner if he/she asks for a med list or pill bottles. If learner does not ask for this, you may answer questions as you are asked):

- Lisinopril (Zestril) 20 mg PO daily
- Simvastatin (Zocor) 40 mg PO at bedtime
- Metoprolol (Lopressor) 50 mg PO twice daily
- Citalopram (Celexa) 40 mg PO at bedtime
- Hydrocodone/acetaminophen (Vicodin) 1 tab PO every 4-6 hrs as needed
- St. John’s Wort 1 tab PO daily
- Tylenol PM as needed

*Criteria to pass (Students and residents): Must verify medications by some method: med list, pill bottles, or detailed history.*

II. What additional questions about medications would you ask Pat Glenn?

Questions:

1. **Citalopram** (Celexa)
   a. Why was dose changed? or Who changed the dose? **Answer:** “I saw my psychiatrist and he thought it was a good idea.”
   b. Any side-effects with change? **Answer:** “I feel a little jittery, but I don’t think so.”

2. **Hydrocodone/acetaminophen** (Vicodin)
   a. How often are you taking this medication? **Answer:** “Oh, only once or twice a week, when the pain is really bad.”
   b. Any side-effects? **Answer:** Constipation – yes, taking milk of magnesia; Dizziness – yes, after taking medication, a little dizzy and wobbly.
   c. Do you take any other medications for pain? **Answer:** “No”

3. **Acetaminophen/Diphenhydramine** (Tylenol PM)
   a. What are you taking this for? **Answer:** “I take it when I can’t fall asleep.”
   b. Any side-effects? **Answer:** “Not really, but I feel a bit unsteady on my feet when I get up to go to the bathroom in the middle of the night.”
   c. Do you take anything else for sleep/insomnia? **Answer:** “No.”

**Number needed to pass:** Medical students and residents, at least 3 questions.
III. What specific medication adjustments/changes would you make and why?

Medication adjustments/changes:

a. Decrease dose of citalopram (or switch to another antidepressant).
   Rationale: Maximum dose for citalopram in patients over age 65 is 20 mg daily (due to risk of QT prolongation).

b. Discontinue St. John’s Wort.
   Rationale: Combined with an SSRI, the risk of serotonin syndrome is increased. Signs/symptoms of serotonin syndrome: increased blood pressure/heart rate, shivering, sweating, twitching (myoclonus), hyperreflexia, hyperthermia, shock, renal failure, seizures.

c. Discontinue hydrocodone/acetaminophen and consider scheduled acetaminophen.
   Rationale: Patient is taking opioid only intermittently when pain is severe. Scheduled acetaminophen may be adequate to control his knee pain and avoid side effects of hydrocodone (constipation, dizziness in this patient).

d. Discontinue Tylenol PM
   Rationale: Tylenol PM is a combination of acetaminophen and diphenhydramine, which is on the Beers List of potentially harmful medications. In addition, the patient is already taking Vicodin (hydrocodone/acetaminophen) and the patient is at risk of exceeding the maximum daily dose for acetaminophen of 3 grams/day, above which hepatotoxicity may occur.

*Number needed to Pass: Medical Students: at least 1; Residents/Fellows/Health Professionals: at least 3.*

*Note: If learner does not recognize that Tylenol PM contains diphenhydramine, you can inform him/her. In addition, only if time permits, you could discuss monitoring strategies for QT prolongation including obtaining an EKG and monitoring renal function and electrolytes on ACE inhibitor.
Competency in Medication Management for Medical Students, Residents, and Other Health Care Practitioners

LEARNER EDITION

Name:

Medical School:                      Residency Program:

Training Level: MS___   PGY___

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Name of person to inform of your participation (e.g. Dean of Education; Residency/Clerkship Director):

Performance Ratings:                       Faculty Initials

Station 1: Medication History          □ Pass  _____

Station 2: Drug-Drug Interactions      □ Pass  _____

Station 3: Integrated Medication Management □ Pass  _____

Do you consent to being contacted for a follow-up survey for the AGS Medication Competency Workshop?

_____ Yes       _____ No

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Information from: Patient
Medical Problems: High blood pressure, Hyperlipidemia, Depression

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Identified Patient Education Needs:

1.

2.
**Station 2: Medication Grid Learner Instructions**  
Ten potential drug-drug interactions are indicated with a shaded area. On a continuous loop, visual images are projected of 5 common drug pair adverse effects (SLIDES 1-5). 
Match each of the 5 images of adverse effects to the most likely drug pair causing the ADE. Each image is matched with only one shaded box; 5 of the drug pairs do not match an ADE image. 
Each learner reviews her/his performance with faculty before moving on to the next station.

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Neurological: Muscle strength 5/5 throughout, biceps, patellar and ankle reflexes brisk bilaterally. Gait normal.

Here’s a list of medications on record from his last visit:

- Lisinopril (Zestril) 20 mg PO daily  
- Simvastatin (Zocor) 40 mg PO at bedtime  
- Metoprolol (Lopressor) 50 mg PO twice daily  
- Citalopram (Celexa) 20 mg PO at bedtime  
- St. John’s Wort 1 tab PO daily

I. **What other information do you need to complete a medication history?**
II. What additional questions about medications would you ask Pat Glenn?

III. What specific medication adjustments/changes would you make and why?
<table>
<thead>
<tr>
<th>Name</th>
<th>Treatment</th>
<th>Instructions</th>
<th>RX</th>
<th>Date</th>
<th>Quantity</th>
<th>Refills</th>
<th>Prescriber</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAT GLENN</td>
<td>LISINOPRIL 20MG TABLETS</td>
<td>TAKE 1 TABLET BY MOUTH DAILY</td>
<td>128201</td>
<td>1/18/13</td>
<td>30</td>
<td>3</td>
<td>DR JOHN MCNEIL</td>
</tr>
<tr>
<td></td>
<td>METOPROLOL 50MG TABLETS</td>
<td>TAKE 1 TABLET BY MOUTH TWICE DAILY</td>
<td>128202</td>
<td>1/18/13</td>
<td>60</td>
<td>3</td>
<td>DR JOHN MCNEIL</td>
</tr>
<tr>
<td></td>
<td>SIMVASTATIN 40MG TABLETS</td>
<td>TAKE 1 TABLET BY MOUTH EVERY NIGHT AT BEDTIME</td>
<td>128234</td>
<td>1/18/13</td>
<td>30</td>
<td>3</td>
<td>DR JOHN MCNEIL</td>
</tr>
<tr>
<td></td>
<td>CITALOPRAM 20MG TABLETS</td>
<td>TAKE 1 TABLET BY MOUTH EVERY NIGHT AT BEDTIME</td>
<td>128248</td>
<td>1/18/13</td>
<td>30</td>
<td>3</td>
<td>DR JOHN MCNEIL</td>
</tr>
</tbody>
</table>
Station 2: Identify the Drug-Drug Interaction (Station 2 Handout) to Explain these Signs (Slides 1-5)
Slide 3:

Before DDI

After DDI

Before DDI

After DDI
Pre-DDI
serum creatinine = 0.8

Post-DDI
Serum creatinine = 2.9
Slide 5:

Before Drug-Drug Interaction

After Drug-Drug Interaction
PAT GLENN

LISISOPRIL 20MG TABLETS
TAKE 1 TABLET BY MOUTH DAILY
RX 128201
QTY 30
NO REFILLS - DR AUTH REQUIRED
DATE 4/15/13
DR JOHN MCNEIL

PAT GLENN

LISISOPRIL 20MG TABLETS
TAKE 1 TABLET BY MOUTH DAILY
RX 128202
QTY 30
NO REFILLS - DR AUTH REQUIRED
DATE 4/15/13
DR JOHN MCNEIL

PAT GLENN

SIMVASTATIN 40MG TABLETS
TAKE 1 TABLET BY MOUTH EVERY NIGHT AT BEDTIME
RX 128234
QTY 30
NO REFILLS - DR AUTH REQUIRED
DATE 4/15/13
DR JOHN MCNEIL

PAT GLENN

CITALOPRAM 40MG TABLETS
TAKE 1 TABLET BY MOUTH EVERY NIGHT AT BEDTIME
RX 128234
QTY 30
NO REFILLS - DR AUTH REQUIRED
DATE 4/15/13
DR JOHN MCNEIL

PAT GLENN

METOPROLOL 50MG TABLETS
TAKE 1 TABLET BY MOUTH TWICE DAILY
RX 128202
QTY 30
NO REFILLS - DR AUTH REQUIRED
DATE 4/15/13
DR JOHN MCNEIL

PAT GLENN

HYDROCODONE/ACETAMINOPHEN 5/325 TABLETS
TAKE 1 TABLET BY MOUTH EVERY 4 TO 6 HOURS AS NEEDED
RX 128725
QTY 50
1 REFILL
DATE 4/25/13
DR JOHN MCNEIL

PAT GLENN

ST. JOHN'S WORT
450 mg Extract
May Help Enhance Mood
48 TABLETS
Taking Your Competency Home

Zaldy S. Tan, M.D., M.P.H.
Director, California Geriatric Education Center
Associate Professor, David Geffen School of Medicine, University of California Los Angeles
Disclosures

• No conflicts of interest to declare
Round of Applause!

• Faculty (and fellow) preceptors who volunteered time to participate in this program!

• Your participation in this competency assessment workshop!
What Have you Learned?

• Medication interactions can result in adverse reactions
• Older patients are more prone to have serious consequences from medication errors and interactions
• Medication errors are preventable
• Good medication history can save lives
So What?

- Medication errors harm 1.5 million people in the U.S. each year
- Medication errors cost $3.5 billion in extra costs
- Every hospital patient is subjected to as much as one medication error per day

IOM 2006
Post-Workshop Opportunities

• You now have an opportunity to
  – Promote medication safety in older patients
  – Work with faculty (here and at home) to promote teaching and evaluation of competencies in geriatrics
  – Launch your own academic project
  – Present and publish results
Background: Geriatrics Competencies

- Association of American Medical Colleges/Hartford Foundation publishes minimum geriatrics competencies for medical students (2008)

- Institute of Medicine Report: “Retooling for an Aging America” published
  - “All medical students demonstrate the minimal geriatrics competencies before medical school graduation.” (2008)

- Publication of minimal competencies for Internal Medicine and Family Medicine Residents (Williams BC et al. J. Grad Med Ed)
Competency Domains in Geriatrics

- Falls, Balance, and Gait Disorders
- Cognitive and Behavioral Disorders
- Medication Management
- Self-Care Capacity
- Health Care Planning and Promotion
- Atypical Presentation of Disease
- Palliative Care
- Hospital Care for Elders
Competency Domains in Geriatrics

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- Health Care Planning and Promotion
- Atypical Presentation of Disease
- Palliative Care
- Hospital Care for Elders
Competency is the Key!

- Minimum geriatrics competencies for medical students and residents include **Medication Management**
## What is expected: Pharmacology of Aging

<table>
<thead>
<tr>
<th>Medical Students</th>
<th>Internal Medicine and Family Medicine Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Explain</strong> impact of age-related changes on drug selection and dose based on knowledge of age-related changes in renal and hepatic function, body composition, and Central Nervous System sensitivity.</td>
<td>1. <strong>Prescribe</strong> appropriate drugs and dosages considering: age-related changes in renal and hepatic function, body composition, and CNS sensitivity; common side effects in light of patient’s comorbidities, functional status, and other medications; and drug-drug interactions.</td>
</tr>
</tbody>
</table>
What is expected: ADRs and Interactions

2. **Identify** medications, including anticholinergic, psychoactive, anticoagulant, analgesic, hypoglycemic, and cardiovascular drugs that should be avoided or used with caution in older adults and explain the potential problems associated with each.

2. When prescribing drugs which present high risk for adverse events and interactions **discuss and document** the rationale for their use, alternatives, and ways to decrease side effects.

3. Consider adverse reactions to medication in the differential diagnosis of new symptoms or geriatric syndromes.
What is expected: Assessing your patient and reducing polypharmacy

3. **Document** a patient’s complete medication list, including prescribed, herbal and over-the-counter medications, and for each medication provide the dose, frequency, indication, benefit, side effects, and an assessment of adherence.

4. Periodically **review** patient’s medications (including meds prescribed by other physicians, OTC, herbals) with the patient and/or caregiver to assess adherence, **eliminate** ineffective, duplicate and unnecessary medications, and **assure** that all medically indicated pharmacotherapy is prescribed.

- This includes reviewing the medication list or “brown bag” review
- Be sure that everything the patient is taking is accounted for!
Levels of Competency Assessment

- Knows
- Knows How
- Shows
- Does

Ultimate Goal
This Workshop

How do you get it done at home?

- Observed longitudinal practice, chart audit
- Demonstrated skills (standardized patient assessments, simulation exercises)
- Applied knowledge tests
- Factual knowledge tests
National Resources for Competency

• Toolkit will be posted on AGS website with resources for integrating competency into your school or residency program
  – Slides from these talks
  – Competency assessment packet
  – Portal of Geriatric Online education (POGOe)
  – Medical Student/Resident Competency Table
Resources for Geriatrics Competency Evaluation into Your Program or School

- Faculty mentor (preferably, but not necessarily, a geriatrician)
- Program director
- Chief residents
- Key leaders – Education deans, curriculum leaders
- Ongoing OSCEs, SPAs, or simulation exercises at your institution
- Quality improvement efforts in residency clinics
A Great Academic Presentation Resource
Finally…

- We will notify your designated institutional official/faculty of your participation
- The toolkit will be posted on the website within the month
- Please fill out survey and return to Drs. Granville, Atkinson, Shimomura or Tan before leaving
- Thanks again for your participation and to our faculty and fellow preceptors!