

2009
ASHP National Clinical Skills Competition
CASE

2009 ASHP Clinical Skills Competition

NATIONAL COMPETITION CASE

Directions to Clinical Skills Competition Participants

Identify the patient's acute and chronic medical and drug therapy problems. Recommend interventions to address the drug therapy problems using the forms supplied (Pharmacist's Patient Data Base, Drug Therapy Assessment Worksheet [DTAW], and Pharmacist's Care Plan).

IMPORTANT NOTE: Only the Pharmacist's Care Plan will be used for evaluation purposes. The Drug Therapy Assessment Worksheet is simply a tool to assist you in the decision-making process.

**ASHP CLINICAL SKILLS COMPETITION
PHARMACIST'S PATIENT DATA BASE FORM**

Demographic and Administrative Information		
Name: DP		Patient ID: 718729
Address: 356 Golden Way Pittsburgh, PA		Location: Cancer Center Clinic Physician: O'Connell
Date of Birth: 6/12/1946		Pharmacy: East Side Specialty Pharmacy
Height: 5'6" Weight: 175 # (79.5kg)		Race: Asian
Gender: Female		Religion: Unknown
CC: shortness of breath, diarrhea, skin rash		
History of Present Illness	Vitals & Other Tests	
DP presents to the medical oncology clinic today (12/5/09) for diarrhea which she describes as 4-6 more stools over baseline, but it does not interfere with her activities of daily living. She also states she has a rash on her face and back. She also complains of progressively worsening shortness of breath. Finally the patient reports increased left arm pain of 7/10 intensity, changed from a baseline 2/10 intensity on 9/15/09.	9/15/09	12/5/09
	BP 128/90 mm/Hg	110/75 mm/Hg
	Pulse 67 bpm	110 bpm
	Tmax 36.7°C	37.9°C
	Resp 12 breaths/min	20 breaths/min
	Weight 165.2 pounds	175 pounds
	O2 Sat	92% on room air
Past Medical History	Labs	
Metastatic breast cancer (ER /PR negative, Her2Neu positive) treated with left mastectomy, trastuzumab, and FAC (5-fluorouracil, doxorubicin, and cyclophosphamide) as adjuvant chemotherapy. DP is also taking a nutritional supplement called Avemar because she heard it could be useful in the treatment of breast cancer. Avemar has been associated with diarrhea, nausea, flatulence, soft stool, and constipation.	9/15/09	12/5/09
	Na 140 mEq/L	Na 138 mEq/L
	K 4.1 mEq/L	K 3.7 mEq/L
	Cl 100 mEq/L	Cl 104 mEq/L
	CO ₂ 22 mEq/L	CO ₂ 18 mEq/L
	BUN 19 mg/dL	BUN 52 mg/dL
	SCr 0.8 mg/dL	SCr 1.6 mg/dL
	Glucose 94 mg/dL	Glucose 108 mg/dL
She developed metastatic disease (to the liver and bones) in June 2009 and is currently on lapatinib and paclitaxel. She has had some worsening dyspnea since starting that regimen.	WBC 5.8 K/μL	WBC 9.9 K/μL
	Hgb 13.0 gm/dL	Hgb 12.5 gm/dL
	HCT 36%	HCT 33%
DP also has a 6 month history of neuropathic pain in the left axillary area associated with her malignancy.	Plts 242 K/μL	Plts 211 K/μL
The patient has no cardiac history and all cardiac studies prior to her cancer therapy have been within normal limits. She has a history of type II diabetes for the past 15 years. She checks her blood glucose before meals and it is usually between 80-100 mg/dL.	Calcium 10.2 mg/dL	Calcium 10.5 mg/dL
Two days ago the patient visited her primary care physician for shortness of breath. The physician prescribed clarithromycin for suspected community acquired pneumonia.	AST 104 IU/L	AST 115 IU/L
	ALT 88 IU/L	ALT 97 IU/L
	Total bili 0.6 mg/dL	Total bili 0.7 md/dL
	Direct bili 0.4 mg/dL	Direct bili 0.3 mg/dL
	Albumin 4 g/dL	Albumin 3.9 g/dL
	INR 1	INR 1.1
	A1C 7.5%	BNP - Pending
Family History	Cultures 12/5/09	
Father: 85, alive, DM, HTN	Stool for ova and parasites: negative	
Mother: 84, alive, osteoporosis	<i>Clostridium difficile</i> toxin: negative	
Sister: 60, alive, pancreatic cancer		
Brother: 66, alive, HTN		

**ASHP CLINICAL SKILLS COMPETITION
PHARMACIST'S PATIENT DATA BASE FORM (Cont.)**

Social History
Tobacco: 1 ppd x 35 years, has not smoked in 2 years ETOH: 1-2 drinks/month Illicit Drugs – None Caffeine: 1-2 cups of coffee/day <u>Occupation</u> : Investment banker <u>Status</u> : Married <u>Children</u> : 2 (1 male 40, 1 female 37) <u>Physical Activity</u> : No regular exercise, limited ADLs <u>Diet</u> : No specifics
Imaging 12/5/09
Chest X-ray Radiologist preliminary report: Bilateral fluid in bases of lungs, inconsistent with pneumonia. MUGA Cardiologist preliminary report: EF of 35% (most recent MUGA reported 55% on 5/1/09)
Physical Exam (12-5-09)
General – Pleasant, slightly obese woman with slight shortness of breath
Skin – Warm, left mastectomy scar present; acneiform rash on face and back
Neck/LN - Neck supple; no lymphadenopathy, thyromegaly, or masses. No supraclavicular or infraclavicular adenopathy
HEENT – PERRLA, EOMI, pink conjunctivae, TMs intact
Chest – crackles at both bases
CV – RRR, S1, S1 normal; (+) S3; (-) S4; normal carotid pulses without bruits
Abdomen - Soft, obese; hyperactive bowel sounds with diarrhea; no rebound tenderness or guarding; no hepatosplenomegaly
Genit/Rect: Deferred
MS/Ext: 1+ edema in both lower extremities; no clubbing or cyanosis
Neuro: A&O x 3; CN II-XII intact; DTRs 2+ throughout; (-) Babinski, Severe allodynia centered in L axillary region extending from the left mid-clavicular line to the left mid-scapular line between the 2nd and 5th ICS

**ASHP CLINICAL SKILLS COMPETITION
PHARMACIST'S PATIENT DATA BASE FORM (Cont.)**

Allergies/Intolerances		Prescription Coverage	
Cephalexin – Rash		Insurance: Big Company Insurance	
		Copay: \$30/brand \$15/generic	
		Cost per month: \$400	
		Annual Income: \$75,000	
Current Drug Therapy			
Drug Name/Dose/Strength/Route	Prescribed Schedule	Duration Start–Stop Dates	Compliance/Dosing Issue
1. Wheat Germ Extract (Avemar)	9 g po daily	7/22/09-present	
2. Clarithromycin	500 mg po BID	12/3/09-present	
3. Duloxetine	30 mg po daily	5/5/09-present	
4. Pregabalin	50 mg po tid	6/1/09-present	
5. Oxycodone CR	40 mg po bid	6/1/09-present	No fills in the last 15 days
6. Oxycodone IR	10 mg po q3h prn pain	6/1/09-present	
7. Senna	8.6 mg po bid	6/20/09-present	
8. Rosiglitazone	4 mg po bid	2/08-present	
9. Pamidronate (Aredia)	90mg IV q month	10/7/09-present	
10. Paclitaxel (Taxol)	175 mg/m ² IV q3 wks	6/15/09-present	
11. Lapatinib (Tykerb)	1250 mg po daily	6/15/09-present	
Medication History			
<p>The patient has not missed any doses of paclitaxel in the clinic and has had consistent refills of lapatinib. All pain medications have been filled regularly, except the controlled release oxycodone has not been filled in the last 2 weeks. The herbal product (Avemar) compliance cannot be confirmed, since the patient's pharmacy does not stock this product. There is no compliance history for the over the counter medication(s).</p> <p>The patient reports that she takes all her medications regularly. She continues to take the oxycodone CR, although she does not take the oxycodone IR since it does not seem to help the pain much. She is not currently comfortable on her current pain regimen. Prior to this clinic visit she was having bowel movements regularly every other day.</p>			
Patient Case Narrative			
<p>The attending physician will admit the patient to the inpatient hospital ward for treatment. As the clinical pharmacist, you are seeing the patient for the first time with the attending physician at this time. The attending has stated that she is not considering adding any new therapy for DP's cancer treatment, but would entertain any recommendations you may have on her current regimen.</p> <p>The attending considers DP's diarrhea as grade II, which is defined as an increase of 4-6 stools/day over baseline, not interfering with activities of daily living.</p>			

Drug Therapy Assessment Worksheet (DTAW)

The Drug Therapy Assessment Worksheet (DTAW) will serve as a guide to identify any drug-related problems that your patient may have. You may make notes on the DTAW. **However, the Drug Therapy Assessment Worksheet will not be scored.** As you proceed through all the questions on the DTAW, you will accumulate a list of drug therapy problems. All of these problems should be assessed on your Pharmacist's Care Plan. Drug-related problems may be listed as separate items on your Pharmacist's Care Plan or addressed in your recommendations for therapy of the acute or chronic disease states that the medicines are being used to treat. Teams will be evaluated on identifying and making appropriate recommendations for drug-related problems in the following areas below:

1. Correlation between drug therapy and medical problems
2. Appropriate drug selection
3. Drug regimen
4. Therapeutic duplication
5. Drug allergy or intolerance
6. Adverse drug events
7. Interactions: drug–drug, drug–disease, drug–nutrient, and drug–laboratory test
8. Social or recreational drug use
9. Failure to receive therapy
10. Financial impact
11. Patient knowledge of drug therapy

ASHP CLINICAL SKILLS COMPETITION DRUG THERAPY ASSESSMENT WORKSHEET (DTAW)

Type of Problem	Assessment	Presence of Drug-Related Problem	Comments/Notes
Correlation between Drug Therapy and Medical Problems	<p>Are there drugs without a medical indication?</p> <p>Are any medications unidentified (are any unlabeled or are any—prior to admission/clinic visit—unknown)?</p> <p>Are there untreated medical conditions? Do they require drug therapy?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Appropriate Drug Selection	<p>What is the comparative efficacy of the chosen medication(s)?</p> <p>What is the relative safety of the chosen medication(s)?</p> <p>Has the therapy been tailored to this individual patient?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Drug Regimen	<p>Are the prescribed dose and dosing frequency appropriate—within the usual therapeutic range and/or modified for patient factors?</p> <p>Is pm use appropriate for those medications either prescribed or taken that way?</p> <p>Is the route/dosage form/mode of administration appropriate, considering efficacy, safety, convenience, patient limitations, and cost?</p> <p>Are doses scheduled to maximize therapeutic effect and compliance and to minimize adverse effects, drug interactions, and regimen complexity?</p> <p>Is the length or course of therapy appropriate?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Therapeutic Duplication	<p>Are there any therapeutic duplications?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Drug Allergy or Intolerance	<p>Is the patient allergic to or intolerant of any medicines (or chemically related medications) currently being taken?</p> <p>Is the patient using any method to alert health care providers of the allergy/intolerance (or serious medical problem)?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	

ASHP CLINICAL SKILLS COMPETITION DRUG THERAPY ASSESSMENT WORKSHEET (DTAW)

Type of Problem	Assessment	Presence of Drug-Related Problem	Comments/Notes
Adverse Drug Events	Are there symptoms or medical problems that may be drug induced? What is the likelihood that the problem is drug related?	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Interactions: Drug-Drug, Drug-Disease, Drug-Nutrient, and Drug-Laboratory Test	<p>Are there drug-drug interactions? Are they clinically significant?</p> <p>Are any medications contraindicated (relatively or absolutely) given patient characteristics and current/past disease states?</p> <p>Are there drug-nutrient interactions? Are they clinically significant?</p> <p>Are there drug-laboratory test interactions? Are they clinically significant?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Social or Recreational Drug Use	<p>Is the patient's current use of social drugs problematic?</p> <p>Could the sudden decrease or discontinuation of social drugs be related to patient symptoms (e.g., withdrawal)?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Failure to Receive Therapy	<p>Has the patient failed to receive a medication due to system error or noncompliance:</p> <p>Are there factors hindering the achievement of therapeutic efficacy?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Financial Impact	<p>Is the chosen medication(s) cost effective?</p> <p>Does the cost of drug therapy represent a financial hardship for the patient?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	
Patient Knowledge of Drug Therapy	<p>Does the patient understand the purpose of his or her medication(s), how to take it, and the potential side effects of therapy?</p> <p>Would the patient benefit from education tools (e.g., written patient education sheets, wallet cards, and reminder packaging)?</p>	<ol style="list-style-type: none"> 1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed. 	

Evaluated for
competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

- A. List all health care problems that need to be addressed in this patient using the table below.
 B. Prioritize the problems by indicating the appropriate number in the "Priority" column below:
 1 = Most urgent problem (**Note:** There can only be one most urgent problem)
 2 = Other problems that must be addressed immediately or during this clinical encounter; **OR**
 3 = Problems that can be addressed later (e.g. a week or more later)
**Please note, there should be only a "1", "2", or "3" listed in the priority column, and the number "1" should only be used once.*

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

ASHP Clinical Skills Competition - Pharmacist's Care Plan

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Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

ASHP Clinical Skills Competition - Pharmacist's Care Plan

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ASHP Clinical Skills Competition - Pharmacist's Care Plan

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ASHP Clinical Skills Competition - Pharmacist's Care Plan

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Problem Identification and Prioritization with Pharmacist's Care Plan

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Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

2009
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ANSWER KEY

ASHP Clinical Skills Competition - Pharmacist's Care Plan

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**Please note, there should be only a "1", "2", or "3" listed in the priority column, and the number "1" should only be used once.*

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
Shortness of breath/CHF	1	Decrease CHF-related mortality, decrease shortness of breath, improve ADLs	<p>D/C lapatinib (for cardiotoxicity)</p> <p>D/C clarithromycin (drug interaction with lapatinib)</p> <p>D/C rosiglitazone (d/t CHF) – also in diabetes section</p> <p>Start captopril 6.25 mg po bid and titrate to 50 mg tid OR Start enalapril 2.5 mg po daily to bid and titrate to 20 mg bid (or equivalent) *short term with increased SCr and NOT IV</p> <p>Morphine 2 to 5 mg IV x1 (repeat doses if necessary q5 min prn x3)</p> <p>Ok to start furosemide (NMT than 20 mg IV x1)</p> <p>Do not start metoprolol (or other beta blocker) since patient's blood pressure is low and patient is euvolemic</p> <p>Consider decreasing alcohol intake</p>	<p>Monitor LVEF, HR, SCr, BP, glucose, electrolytes, urine output.</p> <p>Endpoint: no further decrease in LVEF, symptom control of CHF, no hospitalizations</p>

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
Diarrhea	2	Resolution of diarrhea	<p>Hold senna</p> <p>d/c Avemar (also in the breast cancer section)</p> <p>D/C clarithromycin (drug interaction with lapatinib)</p> <p>Use loperamide 4 mg po x1, then 2 mg po q4 hrs, until 4 bowel movements per day or no diarrhea (increase to 2 mg po q2 hrs if diarrhea does not decrease, or worsens within 24 hours), In another 24 hours if diarrhea does not decrease or worsens, then start octreotide 100-150 mcg sq tid), If no resolution, continue supportive care and increase doses of octreotide</p> <p>Stop caffeine intake</p> <p>Counsel on avoiding high-fiber diet, high-osmolar dietary supplements, laxatives, milk or milk products</p> <p>Restart oxycodone IR (or equivalent) for pain (ADR effect for diarrhea)</p>	<p>Monitor bowel movement frequency and electrolytes</p> <p>Endpoint: No diarrhea (formed stools and < and no electrolyte abnormalities)</p>

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
Pain	2	Patient has relative comfort or “no pain” if possible	<p>Counsel patient on appropriate use of pain medications</p> <p>Use lidocaine 5% patches on 12 hours and off 12 hours for immediate relief of neuropathic pain</p> <p>*Do not start gabapentin (since patient has been on pregabalin and has increased SCr)</p> <p>Continue oxycodone long acting and immediate release</p> <p>Continue bisphosphonate once SCr WNL (to prevent bone pain)</p> <p>If adding TCA, d/c duloxetine. (<i>NB</i> The TCA is controversial and should be taken in context of the larger case)</p>	<p>Pain scores, prn oxycodone use, ADLs, serotonin syndrome (e.g. fever, rigidity, tachycardia, altered mental status)</p> <p>Endpoint: Decreased pain scores for axillary neuropathic pain (no pain if possible), PRN immediate release usage as low as possible, regular bowel movements (at least 1 qod)</p>
Breast Cancer	3	Optimize efficacy and side effects to improve quality of life	<p>d/c Avemar</p> <p>D/C lapatinib secondary to CHF</p> <p>*Not just hold secondary to diarrhea and rash</p> <p>(<i>NB</i> given the admonition from the attending physician, the student should not be recommending alternate agents at this time, this case takes place on day one of inpatient stay)</p>	<p>Monitor diarrhea and rash (patient report and examination)</p> <p>Monitor signs of disease progression (bone pain, increased LFTs)</p> <p>Endpoint: Resolution of rash and diarrhea, stable disease or regression breast cancer (including metastases) when therapy restarted</p>

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
Increased creatinine	2	Adjust or hold medications which are eliminated by the kidneys	<p>ClCr – 29.7 mL/min (or 15-30 mL/min)</p> <p>Hold pamidronate</p> <p>Hold duloxetine</p> <p>Decrease pregabalin to 50 mg po daily or 25mg po bid</p>	<p>BUN/SCr, urine output</p> <p>Endpoint: Normalization of serum creatinine and BUN to baseline</p>
Rash	2	Resolution of rash	<p>At least hold lapatinib until rash resolves</p> <p>BP + Clindamycin 1% gel apply twice daily</p> <p>Hydrocortisone 1-2.5% cream 2-4 times daily (can mention pimecrolimus 1% cream twice daily or minocycline 100 mg bid if added to the above, but NOT doxycycline 100 mg po bid)</p>	<p>Monitor rash</p> <p>Endpoint: Grade 0 rash (or resolution of rash)</p>
Diabetes	3	HbA1C <7% (per ADA)	<p>Insulin sliding scale acutely, student may mention oral agents as the patient stabilizes</p> <p>D/C rosiglitazone (CHF risks)</p> <p>Change to glipizide 2.5 mg po daily (or other Sulfonylurea)</p> <p>No metformin currently (since serum creatinine is elevated)</p>	<p>Monitor HbA1C</p> <p>Endpoint: Maintain HbA1C below 6-7%</p>
Bowel function (if not mentioned in diarrhea and pain sections above)	3	Regular bowel movements with chronic pain management	<p>Continue senna once diarrhea resolves</p>	<p>Bowel movement frequency</p> <p>Endpoint: Daily BM or every other day</p>