

2017

ASHP Clinical Skills CompetitionSM

NATIONAL COMPETITION CASE

Directions to National 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 and Pharmacist's Care Plan).

IMPORTANT NOTE: Only the **Pharmacist's Care Plan** will be used for evaluation purposes.

Using the patient's data you will be able to develop an effective care plan for your patient. Clearly define the health care problems. Health care problems include treatment of all acute and chronic medical problems, resolution of all actual or potential drug-related problems, and identification of any other health care services from which your patient may benefit.

Remember to think about potential medical problems for which your patient may be at risk and disease prevention and disease screening activities that may be appropriate to recommend. Also, don't forget to consider specific patient factors that may influence your goals and recommendations for therapy (e.g., physical, psychological, spiritual, social, economic, cultural, and environmental).

To complete your care plan, specify all of your patient's health care problems that need to be addressed. Then prioritize the problems into one of three categories: (1) 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/at discharge or next follow up visit). Please note that only one problem should be identified as the "most urgent problem."

Then **for each problem** describe the (1) therapeutic goals, (2) recommendations for therapy, and (3) monitoring parameters and endpoints. Your monitoring parameters should include the frequency of follow-up and endpoints should be measurable by clinical, laboratory, quality of life, and/or other defined parameters (e.g., target HDL is greater than 50 mg/dL within 6 months).

NATIONAL CASE
2017 ASHP CLINICAL SKILLS COMPETITION
PHARMACIST'S PATIENT DATA BASE FORM

Demographic and Administrative Information

Name: Petunia Adams	Patient ID: 008423
Sex: Female	Room & Bed: 4710 (4-North)
Date of Birth: 11/02/1945	Physician: Carter
Height: 62 in. / Weight: 126 lbs. / Race: Caucasian	Pharmacy: Rite Aid
Prescription Coverage	Religion: Baptist
Insurance: Aetna (Medicare Advantage Plan)	
Copay: \$10 generic; \$50 brand	
Cost per month: \$400	
Family's Annual Income: \$47,000	

Chief Complaint: "I'm having a hard time breathing and it hurts when I cough"

History of Present Illness: PA arrives in the emergency department at 18:00 on 12-1-2017 via private vehicle. PA's daughter brought her to the ED from the patient's home because she believes "something is really wrong with Mom's breathing again." PA complains of shortness of breath, dyspnea with cough and inspiration, and feeling unusually fatigued. PA's daughter reports encouraging her mother to use her albuterol inhaler every six hours since she thought her current problems could be related to her COPD. PA reports that this helped her breathing "a little" but did not provide full relief. When PA's daughter stopped by to check on her mother after work, PA was "a bit confused and clammy" which led her daughter to bring her to the ED for evaluation.

Patient's daughter reports that PA had a recent admission to another local hospital for a COPD exacerbation about 4 months ago. She remembers that PA received prednisone and doxycycline outpatient. She finished the course of these prescribed medications at that time. She recalls having previous COPD exacerbations prior to the one 4 months ago and remembers being treated similarly.

In the ED, PA presents as oriented to person and place but not time. Upon further review of her medical history, PA reports that she has COPD, hypertension, and insomnia. She reports rarely missing doses of her medications, and she states that she has taken all of medications today except her sleeping pill.

Past Medical History

1. COPD – Stage D
2. Hypertension
3. Insomnia

Outpatient Drug Therapy				
Drug Name/Dose/Strength/Route	Prescribed Schedule	Duration Start–Stop Dates	Prescriber	Pharmacy
1. albuterol inhaler 90 mcg/actuation	1-2 puffs 4x daily PRN SOB	03/14/2004 – Present	Dr. Carter	Rite Aid
2. clonazepam 1 mg PO	QHS PRN	03/14/2004-- Present	Dr. Carter	Rite Aid
3. lisinopril 40mg PO	Once daily in AM	02/28/1999— Present	Dr. Carter	Rite Aid
4. tiotropium 2.5 mcg/ olodaterol 2.5 mcg	Two inhalations once daily	05/01/2015— Present	Dr. Carter	Rite Aid

5. fluticasone HFA 110 mcg	One inhalation daily	05/01/2015 – Present	Dr. Carter	Rite Aid
6. prednisone 40mg PO	Daily x 5 days	07/20/2017 (no refills)	Dr. Snow	Rite Aid
7. doxycycline 100mg PO	Twice daily x 7 days	07/20/2017 (no refills)	Dr. Snow	Rite Aid
8. fluticasone 250 mcg / salmeterol 50mcg	One inhalation twice daily	03/14/2004 – 04/02/2015	Dr. Carter	Rite Aid

Medication History

PA receives all of her prescriptions from Dr. Carter, her primary care physician.

Adherence/dosing issue: PA reports taking all of her medications routinely and rarely missing doses. She believes she is getting good benefit from her medications, except her inhalers. She isn't sure if she is using them correctly. Her daughter picks up her prescriptions from Rite Aid, and her daughter couldn't remember all of the directions the pharmacist gave her regarding using the inhalers. She takes clonazepam at bedtime "just as needed" and sometimes "feels groggy the morning after" so she tries to limit usage.

Allergies/Intolerances:

amlodipine—swelling in the ankles

metronidazole—hives

Surgical History

No past surgeries

Family History

Father died of heart attack at age 63

Mother died in car accident at age 52

Sister, age 65, living with diagnosis of type 2 diabetes

Brother, age 74, living with heart disease

Social History

Alcohol: drank socially up until early 2000s; has not consumed alcohol in years

Tobacco: 28.5 pack years; smoked about 1 pack daily since age 15; reports previous "cold turkey" quit attempts that were unsuccessful and would like to stop smoking; has decreased smoking recently due to breathing trouble – 1 pack lasts about 3-4 days now and she has her first cigarette 15 minutes after waking up in the morning

Illicit drugs: denies

Employment: worked as a florist until retiring in 2004

Widowed in 2005; lives alone at home currently; has been able to maintain ADL

Vaccination history

Completed childhood vaccines; last influenza vaccine in 01/2017

ROS

Positive for dyspnea, febrile, cough, confusion, and SOB; no angina

Physical Exam

General: Elderly female in moderate distress

HEENT: WNL; PERRLA

Chest: Crackles present bilaterally, more pronounced on the left; egophony positive on left; dyspnea

Cardiovascular: negative JVD, no gallops/murmurs

Abdomen: positive bowel sounds

Genitourinary: WNL

Extremities: No edema present; capillary refill < 2 seconds; WNL

Neuro: AO x 2; unsteady balance

Psych: Mood: "a bit foggy" per patient; "not herself" per daughter

Vital signs

HR: 84 bpm

RR: 25 breaths/min

O2 Saturation: 95%

BP: 162/102 mmHg; repeat 164/100 mmHg

Temp: 99.8° F

Pain score: 4/10 with cough; 0/10 at rest

Labs

	12/01/2017
Metabolic Panel	
Na (mEq/L)	135
K (mEq/L)	4.2
Cl (mEq/L)	101
CO ₂ (mEq/L)	30
BUN (mg/dL)	20
SCr (mg/dL)	1.2
Glucose (mg/dL)	85
Calcium (mg/dL)	8.6
Phosphorus (mg/dL)	3.1
Magnesium (mEq/L)	1.6
Albumin (g/dL)	3.6
AST (IU/L)	22
ALT (IU/L)	34
Total bili (mg/dL)	1.3
CBC	
WBC (million/mm ³)	19.2
Hgb (g/dL)	13
Hct (%)	39
Plt (K/mm ³)	300
Other	
BNP (pg/mL)	98
PT (seconds)	12
INR	1.0
Ethanol (mg/dL)	None detected
A1c (%)	5.5%
MRSA screening	Negative

Tests

Chest X-ray: infiltrates present in left lower lobe; mild consolidation in right lower lobe

EKG: Sinus rhythm; no ischemic changes; QTc= 440 ms

Sputum culture collected on 12/1 at 19:30: pending

Blood cultures x2 collected on 12/1 19:30: pending

Current Drug Therapy

Drug name/dose/strength/route	Prescribed schedule and administration	Start date	Indication
Vancomycin 1000 mg IV x 1, then dose per pharmacy	1000 mg x 1 given at 19:45	12/01/17	Pneumonia
Fluticasone 250 mcg / salmeterol 50 mcg	Twice daily	12/01/17	COPD
Zosyn 3.375 g IV x 1, then dose per pharmacy	3.375 g x 1 given at 20:00	12/01/17	Pneumonia
Lisinopril 40 mg PO	Every 24 hours	12/01/17	Hypertension
Clonazepam 1 mg PO	QHS PRN insomnia	12/01/17	Insomnia
Acetaminophen 500 mg PO	Every 6 hours as needed	12/01/17	Fever and/or pain
Ondansetron 4 mg IV	Every 6 hours as needed	12/01/17	Nausea

Patient Narrative

PA is admitted to the general medical floor and was started on empiric antibiotics for treatment of pneumonia by the medical resident on call. The resident mentions that he calculated a CURB-65 score for this patient to make his decision to admit her for treatment of her pneumonia.

The medical resident asks you to review the patient's report and make recommendations for empiric antibiotic therapy as well as any other suggestions regarding this patient's care.

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

- 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)
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 - 3 = Problems that can be addressed later (e.g. a week or more later/at discharge or next follow up visit)

**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

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<p>Community Acquired Pneumonia</p>	<p>1</p>	<ul style="list-style-type: none"> ● Eradicate infection ● Reduce the risk of morbidity and mortality from infection ● Resolve symptoms of infection ● Provide appropriate antimicrobial coverage for CAP 	<ul style="list-style-type: none"> ● Discontinue vancomycin ● Initiate antibiotic coverage to cover the most common bacterial pathogens for a patient with CAP in the setting of COPD (<i>Haemophilus influenzae</i>, <i>Pseudomonas aeruginosa</i>, <i>Legionella</i> species, <i>S. pneumoniae</i>, <i>Moraxella catarrhalis</i>, <i>Chlamydoiphila pneumoniae</i>) - An anti-pneumococcal, anti-pseudomonal b-lactam (piperacillin-tazobactam, cefepime, imipenem, or meropenem) plus ciprofloxacin or levofloxacin or - Beta-lactam plus an aminoglycoside and azithromycin or - Beta-lactam plus an aminoglycoside and an respiratory fluoroquinolone - CrCl = 33.5 mL/min (IBW = 50.1 kg) ⑦ renal dose adjust all antibiotic choices <p><u>Dosing:</u></p> <ul style="list-style-type: none"> - Piperacillin-tazobactam: 2.25 g IV q6h (or extended infusion starting 4 hours after initial dose: 3.375 g to 4.5 g IV q8h with each dose administered over 4 hours) - Cefepime 2 g IV q12h - Imipenem-cilastatin 300 mg IV q6h - Meropenem 1 g IV q12h - Ciprofloxacin 400 mg IV q12h - Levofloxacin 750 mg IV q48h - Azithromycin 500 mg IV x 2 days minimum, then 500 mg PO daily - Tobramycin/gentamicin 5-7 mg/kg (IBW) x 1 (extended interval dosing) with level collected 6-14 hours after start of infusion to compare to Hartford 	<p><i>Efficacy</i></p> <ul style="list-style-type: none"> ● Daily CBC to monitor WBC ● Resolution of infection (e.g. normalization of temperature, resolution of chills, resolution of dyspnea) ● Follow-up on gram stain and culture results from sputum and deescalate antibiotics as appropriate, possibly switching to PO options ● Signs of CAP-related stability: temperature \leq 37.8C, heart rate \leq 100 beats/min, respiratory rate \leq 24 breaths/min, systolic blood pressure \geq 90 mm Hg, arterial oxygen saturation \geq 90% or pO₂ \geq 60 mm Hg on room air, ability to maintain oral intake, normal mental status <p><i>Safety</i></p> <ul style="list-style-type: none"> ● S/Sx of hypersensitivity and other adverse effects ● Monitor for anaphylactic reaction to antibiotics ● Development of nausea/vomiting/diarrhea, c. diff. risk (any antibiotics) ● Piperacillin-tazobactam: renal function, anemia, seizures,

			<p>nomogram for choosing dosing interval OR traditional dosing with 1-2.5 mg/kg/dose every 24 hours (adjusted interval for renal function) targeting peak of 7-10 mcg/mL and trough of < 1-2 mcg/mL. Levels for traditional dosing should be planned around the dose #3-4.</p> <ul style="list-style-type: none"> • Treat CAP for a minimum of 5 days, until afebrile for 48-72 hours, and no more than one sign of CAP-related instability present • Switch to PO antibiotic regimen when clinically appropriate, if possible based on culture results • Optional: add oral steroids (prednisone 20-60 mg PO daily with food in AM) • BONUS: request viral panel and/or influenza screen • Continue low dose acetaminophen for fever control. 	<p>elevated LFTs, rash</p> <ul style="list-style-type: none"> • Cefepime: rash, seizures, positive direct Coombs test, renal function • Imipenem/meropenem: renal function, liver function, CBC, rash, seizures, CNS effects • Levofloxacin/ciprofloxacin: renal function, QTc prolongation, tendon rupture • Aminoglycosides: ototoxicity, neurotoxicity, nephrotoxicity, levels, urine output • Azithromycin: QTc prolongation, rash, LFTs • Prednisone: elevated blood glucose, hypertension, GI upset • APAP: number of doses administered
Hypertension (uncontrolled)	2	<ul style="list-style-type: none"> • Target blood pressure of < 150/90 mmHg 	<ul style="list-style-type: none"> • Blood pressure is not currently at goal • Recommend continuing lisinopril • Recommend starting an additional antihypertensive agent: calcium channel blocker should be avoided due to past adverse event with amlodipine. Thiazide would be appropriate • Hydrochlorothiazide 12.5 mg PO daily or • Chlorthalidone 25 mg PO daily • Recommend lifestyle modifications (e.g. DASH diet and increased exercise, as tolerated) 	<p><i>Efficacy</i></p> <ul style="list-style-type: none"> • Blood pressure at goal range of < 150/90 mmHg • Monitor while inpatient and follow up outpatient within 1 month <p><i>Safety</i></p> <ul style="list-style-type: none"> • Prevent hypotension: maintain blood pressure > 90/60 mmHg • Lisinopril: cough, BUN/SCr, hyperkalemia • Thiazide: photosensitivity, hypokalemia, dyspepsia, BUN/SCr
Smoking cessation	2	<ul style="list-style-type: none"> • Reduce or cease smoking over time • Prevent further degradation of lung function 	<ul style="list-style-type: none"> • Recommend the 5 A's as recommended in the GOLD guideline (Ask, Advise, Assess, Assist, Arrange) • If patient is ready to attempt quitting as is noted in her history, recommend smoking cessation pharmacotherapy: • Nicotine patch 14 mg/patch daily for six weeks; then 7 mg/day for 2 weeks • Nicotine gum: chew 1 piece when urge to smoke occurs; chew 1 piece every 1-2 hours for weeks 1-6 	<p><i>Efficacy</i></p> <ul style="list-style-type: none"> • Follow up on quit attempt to provide support and continuation of 5 A's <p><i>Appropriate use/Safety:</i></p> <ul style="list-style-type: none"> • Patch: may remove before bed, do not cut patch, do not place heat on patch, do not apply to exposed skin. May cause skin irritation or sleep disturbances

			<p>(max 24 pieces/day; minimum 9 pieces/day for first 6 weeks) (choose 4 mg strength - 1st cigarette is within 30 minutes of waking)</p> <ul style="list-style-type: none"> • Nicotine lozenge: Dissolve one 4 mg lozenge slowly in mouth when urge to smoke occurs or every 1-2 hours; do not eat or drink 15 minutes before using or while lozenge is still in mouth. To increase chances of quitting, use at least 9 lozenges/day during first 6 weeks (maximum 20 lozenges/day) • Bupropion 150mg PO daily for 3 days, then 150 mg PO BID for 7-12 weeks • Varenicline 0.5 mg PO daily for days 1-3, then 0.5 mg PO BID for days 4-7; then 1 mg PO BID for 11 weeks • Avoid nicotine inhaler or nasal spray as use may be inappropriate with COPD • BONUS: offering combination of NRT (increased long-term abstinence rates) 	<ul style="list-style-type: none"> • Gum: chew gum until “peppery” sensation, then park in cheek for absorption of nicotine, continual chewing may upset stomach, do not eat or drink 15min before chewing, may smoke while using. May cause local irritation. • Lozenge: Park lozenge in cheek for absorption, do not eat or drink 15min before chewing, may smoke while using. May cause local irritation. • Bupropion: tachycardia, insomnia, headache, agitation, dizziness, weight loss, xerostomia, constipation, nausea/vomiting/diarrhea, tremor, vision changes, nasopharyngitis • Varenicline: headache, insomnia, abnormal dreams, irritability, suicidal ideation, depression, nausea/vomiting
VTE Prophylaxis	2	<ul style="list-style-type: none"> • Prevent VTE 	<ul style="list-style-type: none"> • Recommend starting one of the following until patient is mobile: • Heparin SubQ 5000 units q 8- 12 hours or • Enoxaparin SubQ 40 mg q 24 hours • Optional: calculated risk score for VTE using Padua Prediction Score risk = 5 (could justify 2 if patient anticipated to be regularly ambulating within 3 days) 	<p>Efficacy</p> <ul style="list-style-type: none"> • Swelling or pain in extremity, sudden increase in dyspnea or decrease in oxygen saturation <p>Safety</p> <ul style="list-style-type: none"> • Signs/symptoms of bleeding • Renal function with enoxaparin • Platelet count daily
COPD	2	<ul style="list-style-type: none"> • Reduce symptoms • Minimize exacerbations/hospitalizations 	<ul style="list-style-type: none"> • Change patient’s inpatient COPD therapy to home LAMA/LABA combination and ICS (therapy is appropriate to continue for COPD Stage D per GOLD 2017 guidelines) • Discontinue fluticasone/salmeterol as this is not a current home medication • Add albuterol inhaler or nebulizer solution (2.5 mg) q6h PRN SOB/dyspnea • BONUS: Avoiding ICS may be appropriate secondary to current pneumonia and potential for increased pneumonia risk 	<p><i>Efficacy</i></p> <ul style="list-style-type: none"> • Symptoms (shortness of breath, exercise capacity) • Hospitalizations • Adherence to inhalers • FEV1, peak flow outpatient <p><i>Safety</i></p> <ul style="list-style-type: none"> • Tiotropium/olodaterol: dizziness, blurred vision, nasopharyngitis, back pain, cough, potassium, glucose,

			<ul style="list-style-type: none"> ● Counsel on inhaler technique (especially since patient is unsure on proper administration) ● Counsel on using albuterol for acute symptoms and long-acting inhalers to decrease frequency of symptoms (prevention) ● BONUS: recommend pulmonary rehabilitation program 	<p>blood pressure, heart rate, signs/symptoms of glaucoma/urinary retention</p> <ul style="list-style-type: none"> ● Fluticasone: fatigue, oral candidiasis, arthralgia, upper respiratory infection ● Albuterol: heart rate, anxiety, glucose, potassium
Insomnia	3	<ul style="list-style-type: none"> ● Improve sleep quality and quantity ● Decrease daytime cognitive disturbances secondary to insomnia 	<ul style="list-style-type: none"> ● Recommend discontinuing clonazepam at bedtime PRN due to grogginess morning after, Beers Criteria, and risk of respiratory depression ● Recommend promoting good sleep hygiene and educating patient (e.g. dark room, cool temperature, bedroom only used for sleep and intimacy, limiting screen time before bed, etc.) ● Recommend cognitive behavioral therapies for insomnia as they are first line ● Identify if patient has sleep onset or maintenance insomnia for appropriate pharmacologic recommendation, if needed 	<p><i>Efficacy</i></p> <ul style="list-style-type: none"> ● Patient's reported duration of sleep ● Resolution of symptoms of grogginess
Immunizations	3	<ul style="list-style-type: none"> ● Prevent potential disease burden through immunization 	<ul style="list-style-type: none"> ● Prior to discharging patient home and after signs of acute infection have resolved (e.g. WBC and temperature), administer appropriate immunizations to the patient: <ul style="list-style-type: none"> - Recommend influenza vaccine for 2017-2018 - Recommend PCV-13 now, followed by PPSV-23 in 1 year - Recommend Tdap - Recommend Zoster vaccine 	<ul style="list-style-type: none"> ● Injection site reactions (local) – redness, swelling, itching, pain ● Low grade fever and general malaise to be expected for a few days ● Observe patient for at least 15 minutes after being vaccinated ● Monitor for signs of anaphylaxis (throat swelling, difficulty breathing)