Team #_____

2020
ASHP Clinical Skills Competition℠
LOCAL 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, and Pharmacist's Care Plan).

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

Pharmacist's Care Plan

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).

LOCAL CASE

2020 ASHP CLINICAL SKILLS COMPETITION

Demographic and Administrative Information

Name: Gilbert Blythe	**Patient ID:** 202019968
Sex: M	**Room & Bed:** 814
Date of Birth: 2/8/1952	**Physician:** Dr. Wright (Family Medicine)
Height: 5' 7" / **Weight:** 270 lbs / **Race:** Caucasian	**Religion:** Catholic
Prescription Coverage Insurance: Blue Cross Blue Shield Medicare Part D	**Pharmacy:** Publix
Copay: Tier 1 $3.00, Tier 2 $15.00, Tier 3 $37.00 for 30 day supply	**Annual Income:** $34,419

Chief Complaint

"I'm having difficulty breathing"

History of Present Illness

Mr. Blythe is a 68-year-old Caucasian male presenting to the Emergency Department on 7/15/2020. He complains of shortness of breath and chest pain. Two hours after presentation to the Emergency Department, he becomes hypotensive requiring vasopressor administration and intubation.

Past Medical History

Unprovoked left lower extremity DVT (May 2020)
Coronary artery disease
Osteoarthritis (bilateral knees)
Epilepsy (last seizure 2015)

Outpatient Drug Therapy

Prescription Medication & Schedule	Start Date	Last Fill Date	Prescriber	Pharmacy
Apixaban 5 mg – One tablet by mouth twice daily	5/3/2020	6/12/2020	Dr. Wright (Family Medicine)	Publix
Lovastatin 10 mg – One tablet by mouth daily at bedtime	8/12/2018	6/28/2020	Dr. Wright (Family Medicine)	Publix
Meloxicam 15 mg – One tablet by mouth daily	9/22/2019	7/5/2020	Dr. Gupta (Family Medicine)	Publix
Carvedilol 12.5 mg – One tablet by mouth twice daily	3/24/2018	6/21/2020	Dr. Wright (Family Medicine)	Publix
Lisinopril 10 mg – One tablet by mouth daily	1/6/2019	6/21/2020	Dr. Wright (Family Medicine)	Publix
Phenytoin 200 mg CR – One capsule by mouth twice daily	3/3/2014	6/28/2020	Dr. Fable (Epileptologist)	Publix
Levetiracetam 1500 mg – One tablet by mouth twice daily	11/29/2012	6/28/2020	Dr. Fable (Epileptologist)	Publix

Non-Prescription Medications	Start Date
Aspirin 325 mg – One tablet by mouth daily	8/12/2018
Docusate / Senna – One tablet by mouth twice daily as needed for constipation	Unsure

Medication History
Medication fills are confirmed with Publix by a pharmacy technician on the hospital medication history service. Mr. Blythe reports adherence with all medications including nonprescription, and he uses a medication box. He reports taking his docusate / senna a few days per month, and thinks he last took it around the July 4th holiday. His last dose of medication was this morning; however, he forgot to pick up his apixaban refill earlier in the week so has not taken this medication for the past two days.

Allergies/Intolerances
No known drug allergies

Surgical History
PCI (one drug eluting stent placed in the LAD coronary artery) in August 2018

Family History
Father: prostate cancer, diabetes, and hypertension; still living
Mother: hypertension, died of a myocardial infarction at age 73

Social History
Alcohol: drinks 4-6 beers per day, several shots of whiskey on weekends
Tobacco: denies
Illicit drugs: denies

Immunization History
Received all recommended immunizations through age 18
Influenza: 10/3/2019
Tdap: 8/12/2013

Review of Systems (7/15/20 @15:15)
Shortness of breath (+)
Right sided chest pain described as “crushing 9/10 pain”
Minor bilateral knee pain 1/10
Denies other pain
Denies nausea/vomiting/diarrhea
Last BM this morning
Denies fever/chills

Physical Exam (7/15/20 @15:15)
General: appears in significant distress
HEENT: PERRLA
Respiratory: bilateral rales, tachypnea
Cardiovascular: normal rate, regular rhythm, no murmur
Abdomen: soft, normal bowel sounds
Genitourinary: WNL
Extremities: +1 LLE pitting edema
Neuro: alert/oriented x3, cranial nerves II-XII intact, no nystagmus, no signs of seizure
Psych: cooperative, appropriate affect

Vital Signs (7/15/20)	**15:15**	**17:15**
Heart rate (bpm)	72	89
Respiratory rate (breaths / minute)	18	23
O2 saturation (%)	94	82
Blood Pressure (mmHg)	128 / 77	80 / 45
Temperature (◦F)	98.6	98.6

Labs (7/15/20)

Metabolic Panel	**16:30**
Na (mEq/L)	137
K (mEq/L)	4.0
Cl (mEq/L)	101
CO_2 (mEq/L)	24
BUN (mg/dL)	14
SCr (mg/dL)	0.8
Glucose (mg/dL)	93
Calcium (mg/dL)	8.7
Albumin (g/dL)	2.0
AST (IU/L)	81
ALT (IU/L)	114
Alkaline Phos (IU/L)	177
Total bili (mg/dL)	1.3
Direct bili (mg/dL)	0.5
Indirect bili (mg/dL)	0.8
CBC	
WBC (million/mm^3)	6.9
Hgb (g/dL)	13.8
Hct (%)	41.6
Plt (K/mm^3)	121
Lipid Panel	
LDL (mg/dL)	117
HDL (mg/dL)	48
Total Cholesterol (mg/dL)	185
Triglycerides (mg/dL)	98
Other	
Prothrombin time (seconds)	16.1
INR	1.3
aPTT (seconds)	32.5
Troponin (ng/mL)	3.3
D-dimer (ng/mL)	1200

Diagnostic Tests (7/15)
CT angiography: bilateral pulmonary embolism
Echocardiogram: dilated right ventricle with RV/LV ratio of 1.1
EKG: normal sinus rhythm, no ST elevation, QTc 407 msec
SARS-CoV2 (COVID-19) PCR: not detected

Other Tests (Prior to Admission)
7/9/20 – Phenytoin trough level: 8.3 mcg/mL
6/23/20 – Genetic thrombophilia panel, including protein C and S, factor V Leiden, G20210A prothrombin mutation, homocysteine, factor VIII, anticardiolipin antibodies, and lupus anticoagulant: all negative

Current Drug Therapy

Medication Orders & Schedule	**Start Date / Time**
Norepinephrine 4 mg in 250 mL normal saline IV continuous infusion – titrate to goal MAP > 65 mmHg (currently running at 6 mcg/min, may titrate up by 2 mcg/min every 5 min to max of 35 mcg/min, may wean by 0.5 mcg/min every 10 minutes until off)	7/15/20 @ 17:23
Fentanyl 1350 mcg in 135 mL normal saline IV continuous infusion – titrate to CPOT score less than 2 (currently running at 25 mcg/hr, may titrate up by 25 mcg/hr every 15 min to max of 300 mcg/hr)	7/15/20 @ 17:44
Propofol 500 mg / 50 mL premix IV continuous infusion – titrate to RASS -2 to 0 (currently running at 5 mcg/kg/min, may titrate up by 5 mcg/kg/min every 10 min to max of 50 mcg/kg/min)	7/15/20 @ 17:44
Lorazepam 2 – 4 mg IV every 2 hours as needed for CIWA-Ar protocol – give 2 mg for CIWA-Ar score 10 – 25, give 4 mg for CIWA-Ar score >25	7/15/20 @ 15:30
Acetaminophen 650 mg PR every 6 hours as needed for mild pain (score 1-3)	7/15/20 @15:30
Ondansetron 4 mg IV every 8 hours as needed for nausea / vomiting	7/15/20 @ 15:30
Phenytoin 100 mg IV every 6 hours	7/16/20 @ 06:00
Levetiracetam 1500 mg IV twice daily	7/16/20 @ 06:00
Pantoprazole 40 mg IV daily	7/16/20 @ 06:00

Assessment & Plan

After being intubated, Mr. Blythe is admitted to the intensive care unit for further treatment. You have assessed his pain/agitation/sedation and vasopressor regimens; these are appropriate and will not need adjustments. The medical resident asks for your recommendations regarding acute problems as well as any other pharmacotherapy recommendations you may have to optimize this patient's care in the hospital and at discharge.

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LOCAL CASE ANSWER KEY

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)
   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	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

Pulmonary Embolism
 	
(BONUS: if PE identified as high-risk or massive)
	1	• Administer tPA
		  ○ Alteplase 100 mg IV over 2 hours
		  ○ OR
		  ○ Tenecteplase 50 mg IV push (for weight ≥ 90 kg)
		  ○ OR
		  ○ Reteplase 10 units IV every 30 minutes for two doses
		• Start unfractionated heparin drip after completion of tPA
		  ○ Heparin IV bolus of 10,000 units (80 units/kg capped at max dose of 10,000 units)
		  ○ Heparin IV infusion started at 2,000 units/hour (18 units/kg/hour capped at max dose of 2,000 units/hour)
		NOTE: LMWH is not recommended for a massive PE needing alteplase
			• Therapeutic goals:
			  ○ MAP > 65 mmHg
			  ○ Prevent complications (e.g. cardiac arrest)
			• Monitoring Parameters:
			  ○ Blood pressure
			  ○ aPTT or heparin anti-Xa per local protocol
			  ○ CBC
			  ○ Signs of bleeding: hemoptysis, melena, hematochezia, hematuria, prolonged bleeding, excessive or worsening bruising

Secondary Prevention of VTE	**2**	• Start oral anticoagulant (must have at least 2 of the criteria below)
		  ○ Initiate warfarin at dose of 2.5 – 5 mg PO daily
		  ○ Bridge with parenteral anticoagulant for 5 days and until INR >2 for 24 hours
		  ○ May convert to LMWH to complete 5 days and INR >2 for 24 hours
		  ▪ Enoxaparin 120 mg SC two times daily (1 mg/kg rounded to nearest pre-filled syringe)
		  ▪ Dalteparin 12500 units SC two times daily (100 units/kg rounded to nearest pre-filled syringe)
		  ▪ Fondaparinux 10 mg SC daily
		  ▪ Educate on self-injection
		  ○ Treat for at least three months
			• Therapeutic Goals:
			  ○ Prevent future VTE events
			  ○ INR goal 2-3
			• Monitoring Parameters:
			  ○ PT/INR
			  ○ CBC
			  ○ SCr (if on enoxaparin, dalteparin, or fondaparinux)
			  ○ Signs of bleeding: hemoptysis, melena, hematochezia, hematuria, prolonged bleeding, excessive or worsening bruising

		• Minimize drug interactions with warfarin (must have at least 2 of the criteria below)
		  ○ Decrease aspirin dose from 325 mg to 81 mg PO daily
		  ○ Discontinue meloxicam
		  ○ Dose warfarin alongside phenytoin drug interaction by titrating to goal INR
		• Create a safe discharge plan for new start warfarin (at least underlined statements need to be addressed)
		  ○ <u>Discharge education</u> including indication, dose, INR monitoring, drug interactions, vitamin K / food / alcohol interactions, signs of bleeding, signs of recurrent thromboembolic event
		  ○ Instruct patient to stop taking apixaban
		  ○ <u>Appointment for INR</u> follow up within 1 week of discharge
		  ○ Monitor INR routinely outpatient, about every 4 weeks	

Alcohol Use	**2**	• Treat alcohol withdrawal symptoms
		  ○ Continue CIWA-Ar protocol
		• Dietary supplementation to correct nutritional deficiencies (must select thiamine + one other critrion)
		  ○ Thiamine 100 mg PO daily
		  ○ Folic acid 1 mg PO daily
		  ○ Multivitamin 1 tablet PO daily
		  ○ NOTE: may initially give IV/IM or in IV fluids (e.g. rally pack, banana bag, etc.)
		• Recommend decreasing alcohol use
		  ○ No more than two drinks per day
			• Therapeutic Goals:
			  ○ CIWA-Ar goal < 10
			  ○ Prevent seizures / delirium tremens
			  ○ Prevent Wernicke's encephalopathy
			  ○ Prevent development of liver disease / cirrhosis
			  ○ Decrease risk of bleeding with anticoagulant use
			• Monitoring Parameters:
			  ○ CIWA-Ar

Epilepsy	**3**	• Evaluate phenytoin dose (At least first criterion must be addressed)
		  ○ Correct phenytoin level for low albumin (Corrected Phenytoin = Measured Phenytoin / [(0.25 x albumin) + 0.1]); Corrected level is therapeutic at approximately 13 mcg/mL
		  ○ Continue current regimen of phenytoin 200 mg CR PO twice daily upon discharge based on therapeutic level and lack of seizure activity
		  ○ Repeat level in 1-4 weeks once warfarin is at steady state to assess for increase in phenytoin level with drug interaction
		NOTE: if students choose to address levetiracetam, it should be continued at the current dose
			• Therapeutic Goals:
			  ○ Prevent seizure activity and minimize side effects
			  ○ Goal phenytoin level 10 – 20 mcg/mL (whole level adjusted for albumin) or 1-2 mcg/mL (free level)
			• Monitoring Parameters:
			  ○ Phenytoin level
			  ○ Monitor for seizure activity
			  ○ Monitor for side effects that can result from phenytoin toxicity: drowsiness, ataxia, vertigo, nystagmus, arrhythmias

Coronary Artery Disease	**3**	• Increase statin to high intensity given history of PCI ○ Rosuvastatin 20 mg – 40 mg PO daily OR ○ Atorvastatin 40 mg – 80 mg PO daily	• Therapeutic Goals: ○ Reduce risk of further cardiovascular events • Monitoring Parameters: ○ Myopathy ○ LFTs
Osteoarthritis	**3**	• Recommend a new regimen for osteoarthritis control (meloxicam discontinued above) ○ Acetaminophen, topical treatment, or intraarticular glucocorticoid injection AND ○ Nonpharmacologic therapy including weight loss	• Therapeutic Goals: ○ Optimize joint pain control • Monitoring Parameters: ○ Pain
Immunizations	**3**	• Administer appropriate immunizations based on age ○ PPSV23 (Pneumovax) x 1 dose AND ○ Recombinant Zoster vaccine (Shingrix) x 2 doses given 2-6 months apart or Live Zoster vaccine (Zostavax) x1 dose	• Therapeutic Goals: ○ Prevent pneumococcal and zoster infections • Monitoring Parameters: ○ Monitor for signs of anaphylaxis: throat swelling, difficulty breathing ○ Local reaction possible at site of injection