Team #_____

2019
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.

Team #_____

LOCAL CASE
2019 ASHP CLINICAL SKILLS COMPETITION

Demographic and Administrative Information

Name: Rosemary Smith	**Patient ID:** 236598
Sex: Female	**Room & Bed:** 1305-01
Date of Birth: 7/14/1939	**Physician:** Dr. Mason
Height: 5 ft. 1 in / **Weight:** 145 lbs / **Race:** Caucasian	**Religion:** Catholic
Prescription Coverage Insurance: Blue Cross/Blue Shield Medicare	**Pharmacy:** Price Chopper
Copay: $5 generic; $10 brand	**Annual Income:** $50,000

Chief Complaint

"I feel feverish and my lower back pain has been worsening over the last couple of days."

History of Present Illness

RS presents to the emergency department from home with her daughter at 0730 on 9/5/2019. The patient complains of generalized bilateral flank pain. The pain has been coming and going for the last day and a half. RS states that she has a decrease in appetite as well as an increase in nausea.

In the emergency department, the provider is concerned for a urinary tract infection, obtains urine and blood cultures, and initiates ceftriaxone. In addition, the provider ordered a complete blood count, comprehensive metabolic panel, and urinalysis. RS is transferred to the medical floor for further management.

Past Medical History

1. Pyelonephritis, recurrent
2. Atrial fibrillation
3. Hypertension
4. Type 2 diabetes
5. Rheumatoid arthritis
6. GERD
7. CKD stage 3B
8. DVT-12/2/2013

Outpatient Drug Therapy

Prescription Medication & Schedule	Duration Start–Stop Dates	Prescriber	Pharmacy
Albuterol 90 mcg/inhalation 1 puff every 4-6 hours as needed for shortness of breath	12/5/2018-Present	Dr. Murphy (Urgent care)	Price Chopper
Amlodipine 2.5 mg 1 tab by mouth daily	10/8/2005-Present	Dr. Roberts (PCP)	Price Chopper
Glipizide 2.5 mg 1 tab by mouth daily	6/12/2008-Present	Dr. Roberts (PCP)	Price Chopper
Metoprolol tartrate 25 mg by mouth twice daily	7/14/2015-Present	Dr. Roberts (PCP)	Price Chopper
Oxycodone 5 mg 1 tab by mouth twice a day as needed for severe pain	10/31/2018-Present	Dr. Petrillo (Rheumatologist)	Price Chopper
Prednisone 2.5 mg 1 tab by mouth daily	12/4/2000-Present	Dr. Petrillo (Rheumatologist)	Price Chopper
Docusate/senna 50 mg/8.6 mg 2 tablets by mouth daily	10/31/2018-Present	Dr. Petrillo (Rheumatologist)	Wegmans

Non-Prescription Medication/Herbal Supplements/Vitamins	Duration Start–Stop Dates	Prescriber	Pharmacy
Famotidine 20 mg 1 tab by mouth twice a day	11/30/1999-Present	No prescriber	Wegmans

Medication History
RS reports she rarely misses any doses of her medications. According to the patient's daughter and confirmed with the prescription monitoring program, the patient takes oxycodone 1-2 times per week. The patient's prednisone and oxycodone dose have been stable and her rheumatoid arthritis is well controlled. The patient reports that her GERD symptoms are well controlled with famotidine. The patient has received five courses of intravenous antibiotics in the past year with the most recent treatment being 6/24/2019.

Allergies/Intolerances
Penicillins-gastrointestinal upset
Levofloxacin-tendon rupture

Surgical History
Right hip replacement-5/3/2009
Tendon repaired-11/25/2014

Family History
Mother died of natural causes at age 90
Father died of myocardial infarction at age 88
Sister, age 75, living with type 2 diabetes mellitus

Social History
Alcohol: Denies
Illicit drugs: Denies
Tobacco: 25 pack year history, smokes ½ pack per day, 1st cigarette 4 hours after waking
Employment: Retired from IBM in 2005
Marital status: Married for 58 years; spouse deceased
Housing: Single family home; lives alone
Transportation: Does not drive; relies on daughter who works

Immunization History
Received all recommended childhood and adolescent immunizations through age 18.
Influenza: 9/29/2017
Tdap: 4/24/2007
Td booster: 5/21/2017
VAR: history of varicella infection as a child
RZV: 7/2/2018 and 11/5/2018
PCV13: 8/2/2005
PPSV23: 9/5/2006

Review of Systems
Positive for bilateral flank pain (pain score of 5), dysuria, urinary frequency, fever; denies dyspnea on exertion, dry cough, fatigue, headache, chest pain, diarrhea

Physical Exam
General: Overweight female in mild distress
HEENT: Conjunctiva clear, mucosal membranes appear wet and moist; no palpable lymphadenopathy
Pulmonary: No rhonchi/crackles
Cardiovascular: Negative JVD; tachycardic without murmurs/rubs/gallops
Abdomen: normal bowel sounds

Genitourinary: WNL
Extremities: No pitting edema
Neuro: AO X 3

Vital signs

	9/8/2019	9/7/2019	9/6/2019	9/5/2019	8/1/2019
Heart rate (beats/min)	105	99	92	77	75
Blood pressure (mmHg)	135/85	132/80	134/86	133/82	129/81
Respiratory rate (breaths/min)	16	17	18	16	17
O_2 Saturation (%)	97	98	97	98	98
Temperature (◦C)	38.1	38.4	38.5	38.6	37.1

Labs and Microbiology

	9/8/2019	9/5/2019	8/1/2019
Metabolic Panel			
Na (mEq/L)	140	141	139
K (mEq/L)	4	4.2	3.8
Cl (mEq/L)	99	101	102
CO_2 (mEq/L)	23	25	24
BUN (mg/dL)	16	20	17
SCr (mg/dL)	1.6	1.7	1.5
eGFR (mL/min/1.73 m^2)	33	30.7	35.5
Glucose (mg/dL)	114	123	117
Calcium (mg/dL)	8.6	8.7	8.7
Phosphorus (mg/dL)	3.1	3.3	3.2
Magnesium (mg/dL)	1.9	2	2
Albumin (g/dL)	3	2.9	3.4
AST (IU/L)	18	20	19
ALT (IU/L)	31	32	32
Total bili (mg/dL)	1.2	1.2	1.2
CBC			
WBC ($X10^3$/µL)	15	18	7.4
Hgb (g/dL)	12.1	12.2	12.4
Hct (%)	31	33	32
Plt ($X10^3$/µL)	220	210	232
Fasting Lipid Panel			
Total cholesterol (mg/dL)			150
LDL (mg/dL)			86
HDL (mg/dL)			60
Triglycerides (mg/dL)			133
Urinalysis			
Clarity		Cloudy	
Color		Dark yellow	
Glucose		Negative	
Hemoglobin		Moderate	
Ketone		Negative	
Leukocyte esterase		Positive	
Nitrite		Positive	

Urine pH		5	
Specific gravity		1.015	
Protein		30 mg/dL	
Squamous epithelial		3 /HPF	
RBC		45/HPF	
WBC		960/HPF	
Bacteria per high-power field		4+	
Mucous		Occasional	
Other			
MRSA nares screening		Negative	
$HbA1_C$ (%)			6.6
Microbiology			
Urine culture (collected 9/5/2019 at 0745) (finalized 9/8/2019 at 0700)	>100,000 CFU/mL *Klebsiella pneumoniae* Ampicillin/sulbactam – Resistant Ampicillin – Resistant Cefazolin – Resistant Cefepime – Resistant Ceftriaxone - Resistant Ceftazidime/avibactam – Susceptible Ciprofloxacin - Susceptible Ertapenem – Resistant Gentamicin – Intermediate Meropenem – Resistant Nitrofurantoin – Susceptible Piperacillin/tazobactam – Resistant Tobramycin – Intermediate Trimethoprim/sulfamethoxazole - Resistant		
Blood culture, aerobic (collected 9/5/2019 at 0803)	No growth at 72 hours		
Blood culture, anaerobic (collected 9/5/2019 at 0803)	No growth at 72 hours		

Other Diagnostic Tests

EKG (9/5/2019): Atrial fibrillation; QTc = 380 ms

CT abdomen/pelvis without contrast (9/5/2019): No change from previous CT on 7/22/19. No hydronephrosis, renal calculi or obstructing stone.

Current Drug Therapy

Medication Prescription & Schedule	**Start Date**
Ceftriaxone 1 g IV q24h	9/5/2019 at 0815
Amlodipine 2.5 mg po daily	9/5/2019 at 1015
Glipizide 2.5 mg po daily	9/5/2019 at 0815
Hydrocodone/acetaminophen 5/325 mg po bid prn moderate pain (pain 4-6)	9/5/2019 at 1015
Oxycodone 5 mg po bid prn severe pain (pain scale 7-10)	9/5/2019 at 1015

Prednisone 2.5 mg po daily	9/5/2019 at 1015
Docusate/senna 100 mg/17.2 mg po daily	9/5/2019 at 1020
Albuterol HFA 90 mcg/inh 1 puff q4h prn SOB	9/5/2019 at 1014
Pantoprazole 40 mg po daily	9/5/2019 at 1015
Acetaminophen 500 mg po q6h prn fever (≥ 38◦C) and/or mild pain (pain scale 1-3)	9/5/2019 at 1013
Enoxaparin 30 mg SC q24h	9/5/2019 at 1100

Assessment & Plan

On 9/8/2019, RS is diagnosed with a urinary tract infection based on her clinical presentation, urinalysis, and urine culture. The medical team asks you, as the family medicine pharmacist, for recommendations in regards to antibiotics and any other suggestions regarding RS's care.

Team #_____

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).

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Evaluated for competition

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

TEAM #____

ASHP Clinical Skills Competition - Pharmacist's Care Plan

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

TEAM #_____

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

TEAM #_____

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

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Problem Identification and Prioritization with Pharmacist's Care Plan

Health Care Problem	Priority	Recommendations for Therapy	Therapeutic Goals & Monitoring Parameters

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2019

ASHP Clinical Skills Competition℠

LOCAL CASE ANSWER KEY

ASHP Clinical Skills Competition - Pharmacist's Care Plan – 2019 Answer Key

Evaluated for competition

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

Pyelonephritis (also acceptable complicated urinary tract infection)
 	
Bonus: Carbapenem-resistant Enterobacteriaceae (CRE)
	1	• Change ceftriaxone to one of the following appropriate regimens:
		  ○ Ceftazidime/avibactam 0.94 g IV every 12 hours for 7-14 days depending on clinical response
		  ○ Meropenem/vaborbactam 2 g IV every 8 hours for 7-14 days depending on clinical response
		  ○ Students need to pick a specific number of days within the 7-14 days
		• Inappropriate treatment options:
		  ○ Ampicillin/sulbactam, ampicillin, cefazolin, cefepime, ceftriaxone, ertapenem, meropenem, piperacillin/tazobactam, and trimethoprim/sulfamethoxazole given resistance to these agents
		  ○ Ciprofloxacin given allergy to levofloxacin with tendon rupture
		  ○ Gentamicin and tobramycin given intermediate to these agents
		  ○ Nitrofurantoin given patient has pyelonephritis
		• Follow-up cultures after 48 hours of antibiotics and remain afebrile
		• Continue inpatient medications acetaminophen 500 mg po q6h prn fever (≥ 38◦C) and/or mild pain (pain scale 1-3) and hydrocodone/APAP 5/325 mg po bid prn moderate pain (pain scale 4-6)
		  ○ For severe pain see rheumatoid arthritis treatment plan
		• Bonus: infection prevention
		  ○ Isolation precautions
			• Therapeutic Goals
			  ○ Eradicate bacteria causing acute pyelonephritis
			  ○ Reduce the risk of morbidity and mortality from infection
			• Efficacy
			  ○ Monitor WBC and SCr daily
			  ○ Resolution of signs of infection-fevers, tachycardia, flank pain
			  ○ Follow-up cultures negative
			• Safety
			  ○ Hypersensitivity (itching, rash, shortness of breath, hives)
			  ○ Positive direct coombs test, phlebitis, skin rash, pruritus, vomiting, diarrhea, nausea, constipation, upper

			abdominal pain, acute renal failure ○ Signs of Clostridium difficile infection
Atrial fibrillation (A. fib)	**2**	• Given patient's tachycardia, re-initiate home medication metoprolol tartrate 25 mg po bid • Discontinue enoxaparin 30 mg SC q24h • Begin anticoagulation (CHA_2DS_2-VASc = 7): ○ Initiate apixaban 2.5 mg po bid at the time of the next scheduled dose of enoxaparin ○ Start rivaroxaban 15 mg po qday within 2 hours prior to the next scheduled dose of enoxaparin ○ Initiate edoxaban 30 mg po qday at the time of the next scheduled dose of the parenteral anticoagulant • Inappropriate treatment options: ○ Dabigatran given that it is must be used with extreme caution or consider other treatment options in patients ≥ 75 years (Beers List). ○ Warfarin given that the patient has to rely on her daughter for transportation to monitor her INR.	• Therapeutic Goals ○ Maintain resting heart rate <110 beats per minute ○ Prevention of stroke • Efficacy ○ Monitor heart rate • Safety ○ Monitor blood pressure and heart rate ○ Monitor SCr ○ Metoprolol tartrate: hypotension, bradycardia, dizziness, fatigue ○ Apixaban, rivaroxaban, edoxaban: hemorrhage, nausea, hematuria, anemia, bruise, epistaxis
Drug therapy without indication	**2**	• Discontinue albuterol HFA 90 mcg/inh 1 puff q4h prn SOB since patient does not have asthma, COPD, acute respiratory condition, and potential drug-drug interaction with metoprolol tartrate.	• Therapeutic Goals ○ Avoid unnecessary medication therapy
GERD	**2**	• Given patient's GERD symptoms are well controlled with famotidine, discontinue pantoprazole 40 mg po qday and restart famotidine • Change famotidine 20 mg po bid to famotidine 20 mg po qday for renal function	• Therapeutic Goals ○ Minimize reflux symptoms • Efficacy ○ Reflux symptoms ○ Monitor SCr • Safety ○ Agitation, headache, diarrhea, Stevens-Johnson syndrome, thrombocytopenia

Tobacco cessation	**2**	• Given patient smokes ½ pack per day and her 1st cigarette is 4 hours after waking, provide one of the following nicotine replacement products while hospitalized: ○ Nicotine gum 2 mg every 1-2 hours prn cravings (max: 24 pieces/day) ○ Nicotine lozenge 2 mg every 1-2 hours prn cravings (max: 20 lozenge/day) ○ Nicotine patch 14 mcg/day (patient smokes ≤ 10 cigarettes/day) ○ Nicotine inhaler 10 mg cartridge, 1 cartridge every 1-2 hours prn cravings (max: 16 cartridges/day) ○ Nicotine nasal spray 1 to 2 doses/hour (each dose is 1 spray in each nostril = 1 mg) adjust dose as needed based on patient response (max: 5 doses/hour; 10 sprays/hour; 40 mg/day; 80 sprays/day • Prior to discharge, provide tobacco cessation counseling	• Therapeutic Goals ○ Prevent symptoms of nicotine withdrawal ○ Encourage tobacco cessation • Efficacy ○ Signs and symptoms of nicotine withdrawal (cravings for cigarettes, feeling sad, trouble sleeping, irritable, trouble thinking clearly and concentrating, feeling restless) • Safety ○ Tachycardia, increased blood pressure, insomnia, application site reactions from patch
Chronic Kidney Disease	**2**	• The patient estimated renal function using the Cockcroft-Gault equation on 9/8/2019: ○ CrCl (actual body weight) = 29.2 mL/min ○ CrCl (IBW) = 21.2 mL/min ○ CrCl (adjusted body weight with 30% adjustment) = 23.6 mL/min ○ CrCl (adjusted body weight with 40% adjustment) = 24.3 mL/min • eGFR on 9/8/2019 = 33 mL/min/1.73 m^2 • Dose adjust the following medications for renal function: ○ Ceftazidime/avibactam (CrCl), meropenem/vaborbactam (eGFR) ○ Apixaban (age and SCr), rivaroxaban (CrCl), edoxaban (CrCl) ○ Famotidine (CrCl) ○ Metformin (eGFR)	• Therapeutic Goals ○ Prevent progression of CKD ○ Avoid adverse effects of medications due to renal function
Hypertension	**2**	• Blood pressure and heart rate are slightly elevated ○ Continue home amlodipine 2.5 mg qday po qday and re-initiate home medication of metoprolol tartrate 25 mg po bid.	• Therapeutic Goals ○ Target blood pressure of < 130/80 mmHg (based on 2017 American College of Cardiology guidelines) ○ Reduce associated morbidity and mortality

			from CV events (coronary and cerebrovascular events, heart failure, and kidney disease)
			• Efficacy
			  ○ Monitor blood pressure and heart rate
			• Safety
			  ○ Amlodipine: hypotension, edema, flushing, fatigue, dizziness
			  ○ Metoprolol tartrate: hypotension, bradycardia, dizziness, fatigue

Type 2 diabetes mellitus	**3**	• Discontinue glipizide 2.5 mg po qday and begin metformin 250 mg po qday OR
		• Given $HbA1_C$ is 6.6% with glucoses of 114-123 on labs, continue home glipizide 2.5 mg po qday
			• Therapeutic Goals
			  ○ Maintain blood glucose 140-180 mg/dL during hospitalization
			  ○ Target $HbA1_C$ goal of <7%
			• Efficacy
			  ○ Monitor blood glucose, $HbA1_C$, and SCr
			• Safety
			  ○ Hypoglycemia, syncope, dizziness, diaphoresis

Rheumatoid arthritis	**3**	• Continue home prednisone 2.5 mg po qday and oxycodone 5 mg po bid prn severe pain (pain scale 7-10)
		• Continue inpatient medications acetaminophen 500 mg po q6h prn fever (≥ 38◦C) and/or mild pain (pain scale 1-3) and hydrocodone/acetaminophen 5/325 mg po bid prn moderate pain (pain scale 4-6)
		• Continue home docusate/senna 100 mg/17.2 mg po qday
		• Re-evaluate chronic pain management of oxycodone with PCP for appropriateness
		• Counsel patient on naloxone training
			• Therapeutic Goals
			  ○ Maintain adequate pain control and mobility
			  ○ Prevent constipation
			• Efficacy
			  ○ Maintain pain daily using numerical rating scale
			• Safety
			  ○ Oxycodone: respiratory depression, sedation, and constipation

			○ Prednisone: infection, elevated blood glucose, restlessness, CNS disturbances, elevated blood pressure, increased appetite ○ Docusate/senna: abdominal cramps, diarrhea, nausea, vomiting, red/brown urine
Overweight	**3**	• BMI = 27.45 kg/m^2 • Prior to discharge, provide counseling regarding diet and lower impact exercise interventions (swimming and walking)	• Therapeutic Goals ○ Encourage healthy lifestyle modifications including diet and exercise • Efficacy ○ Monitor weight, diet, and exercise
Immunizations	**3**	• Prior to discharge, provide inactivated influenza vaccine 0.5 mL IM once	• Therapeutic Goals ○ Prevent influenza infection • Efficacy ○ Minimize influenza infection and post-influenza complications • Safety ○ Hypersensitivity reaction and injection site pain