ASHP CLINICAL SKILLS COMPETITION

Answer Key

PHARMACIST'S PATIENT DATA BASE FORM

Demographic and Administrative Information

Name **Dela Dumone**	Patient ID **12345678**	Room No.
Address **7272 Wisconsin Avenue**	MD **Pepper**	
Bethesda, MD	Pharmacy **Osco**	
Date of Birth **2/28/67**	Race **Caucasian**	Gender **Female**
Height **62"** Weight **51.7 kg**	Religion **Catholic**	
Admission Date **6/30/99**	Occupation **Accountant**	

History of Present Illness

CC: "I have stabbing pain on my left side." Presents to ER with fever and chills and decreased alertness that started about 2 days ago. Drank a little fluid today. C/O LLQ pain for past 24 hours. Right sub clavian vein central line with mild purulent drainage from exit site. Patient has chosen no additional chemotherapy treatment and has a DNR order.

Past Medical History/Surgery

2/98: Metastatic cervical CA Stage I-B squamous cell, radical hysterectomy.
8/98: Vaginal biopsy–infiltrating reoccurrence of CA, received pelvic radiation & cisplatin X4. 2/99: Hospitalized for back pain/seizures, received cisplatin & paclitaxel X2. Chemo stopped 6 weeks ago since CA progressing despite treatment.

Family and Social History

Father died MI 59 yo
Mother alive
4 yo healthy son

Lifestyle

Single mother with a 4 yo son, lives with mother. Works as an accountant, however, has been on medical leave of absence for 1 month.

Acute and Chronic Medical Problems

1. Febrile illness, r/o bacteria
2. Pain management
3. Metastatic Cervical Cancer, palliative care
4. Anemia
5. Hypokalemia
6. Nutritional status
7. History of Seizures

Acute and Chronic Medical Problems (con't)

Vital Signs/Laboratory Data—Initial/Followup

Date	6/30
Wt	51.7kg
Temp	102.5
BP (supine)	84/54
BP (standing)	
Pulse (supine)	
Pulse (standing)	144
Na	136
K	3.1
Cl	103
CO_2	25
BUN	19
Cr	1.2
Glu	83
Glyc Hgb	
Ca	9.1
Phos	
T Prot	5.2
Alb	2.1
Hgb	9.4
Hct	27.4
WBC	11.3
PLT	253
AST	
ALT	
LDH	
Alk Phos	124
Bili	
MCV	81
MCH	29
MCHC	33
Ret. Ct.	2.7%

(continued)

ASHP CLINICAL SKILLS COMPETITION

Answer Key

PHARMACIST'S PATIENT DATA BASE FORM

(continued)

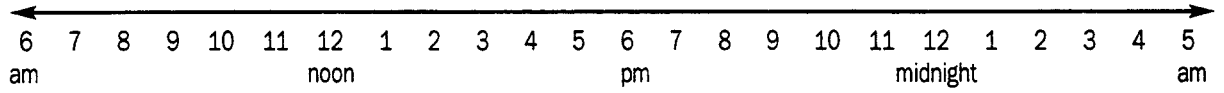
Current Drug Therapy

Drug Name/Dose/Strength/Route	Prescribed Schedule	Duration Start-Stop Dates	Compliance/Dosing Issue
1. Gent 100mg IVPB	Loading Dose		Pkinetic consult
2. Unasyn 3g IVPB	q6h		
3. APAP 650mg po/PR	q4h prn T>100°F		
4. Baclofen 20mg po	TID		
5. Oxycontin 60mg po	TID		
6. Neurontin 300mg po	TID		
7. Klonopin 0.5mg po	BID		
8. Dexamethasone 4mg po	QD		
9. D5/.45NS + KCl 10 mEq/L	150cc/hr		

Medications PTA

1. Decadron 4mg po QD
2. Sulfasalazine 500mg po BID
3. Neurontin 300mg po TID
4. Oxycontin 60mg po TID
5. Baclofen 20mg po TID
6. Dilaudid 4mg po PRN pain
7. Chronic Augmentin tx (for suppressive tx)
8.
9.

Time Line: Circle actual administration times, and record appropriate medications and meals below.



Allergies/Intolerances

❑ No known drug allergies

Allergen	Reaction
Codeine	
Morphine	Nausea

Social Drug Use

Alcohol:

Caffeine:

Tobacco:

Denies smoking, alcohol, cocaine or IV drug use

Cost of Meds/month

$

Insurance: ❑ Yes ❑ No

Copay

Medicaid

Annual Income

$

Notes

ADMIT ORDERS: Vital signs q2h; clear liquid diet as tolerated. 1 L NS over 6 hours, then D5/.45NS+KCl 10mEq/L @ 150 cc/hr.
MEDS: Unasyn 3g IVPB q6h, Gentamicin 100mg IVPB now f/u pkinetic consult APAP 650mg po/PR q4h PRN T>100°F, Baclofen 20mg po TID, Oxycontin 60mg po TID, Neurontin 300mg po TID, Klonopin 0.5mg po BID, Dexamethasone 4mg po QD. Bed Rest, CBC, Basic metabolic profile (Chem 7), C&S catheter drainage, Blood Culture X2.

ASHP CLINICAL SKILLS COMPETITION
DRUG THERAPY ASSESSMENT WORKSHEET (DTAW)
ANSWER KEY

Not evaluated for Competition

Type of Problem	Assessment
Correlation between Drug Therapy and Medical Problems	Gentamicin and Ampicillin-Sulbactam – are appropriate empiric therapy pending results of culture & sensitivity, however other considerations must be addressed (see below) Oxycontin scheduled medication for pain relief, however failed to include treatment for breakthrough pain (see below) D5/.45NS + KCl 10mEq/L fluid and potassium replacement is appropriate, however potassium dosage is inappropriate (see below) Acetaminophen is appropriate for temperature greater than 100. Neurontin and Klonopin are appropriate for seizure control, however need to re-assess the cause of seizures from previous admission. Baclofen potential problem, no apparent medical indication for this medication. Dexamethasone appropriate based on previous chemotherapy treatment.
Appropriate Drug Selection	Gentamicin and Ampicillin-Sulbactam - are an appropriate empiric therapy for immune compromised cancer patient with prior chronic augmentin therapy. However, this regimen does not cover methicillin-resistant staph aureus, common pathogen for central line catheters and fungal infections. Should consider adding vancomycin and/or fluconazole ? not routine pending the outcome of the culture & sensitivity results and patient response to current regimen. Oxycontin is inappropriate therapy (vs. dose) since the patient was receiving oxycontin and dilaudid PTA and was admitted with her CC of pain. Reassess patient's previous response, nausea, to morphine. Check if other concurrent medications may have been the cause as well as the morphine dosage form. Assuming patient nausea is not related to the IV form of Morphine. Suggest beginning PCA morphine to help the patient maintain independence and control to match medication delivery to need for analgesia. However, may need to convert to morphine drip if patient's alertness deteriorates. If morphine causes nausea, begin PCA hydromorphone. D5/.45NS + KCl 10mEq solution and electrolyte replacement appropriate. Acetaminophen appropriate therapy since aspirin would be inappropriate (with a rectal bleed.)
Drug Regimen	Ampicillin/Sulbactam dosage is appropriate based on calculated creatinine clearance of 55 [(140-31)x51.7/1.2(72)](0.85) . Gentamicin 100mg loading is appropriate (2mg/kg x 51.7kg = 103.4mg), recommended dosing using K = (0.0024 x CrCl) + 0.01 and ¡ = (-1/K x In Cmin/Cmax) + t' which equals 11.15 hrs therefore recommend 12 hour dosing interval, assuming a volume of distribution of 0.25L/Kg recommend starting dose of 70mg with peak and trough levels around the third dose. Oxycontin recommend discontinuing oxycontin and beginning PCA morphine at 120mg/24hrs (based on morphine 10mg is equivalent to 15mg oxycodone) plus 5mg every hour as needed for pain or discomfort (based on Dilaudid 4mg PO is equivalent to 5mg IV morphine). D5/.45NS + KCl 10mEq, patient does appear to be volume depleted, equals 1800ml per day, recommend 3000ml per day. Volume and potassium repletion are necessary as evidence by tachycardia, low blood pressure, weakness and serum potassium level = 3.1 mEq/L. Increase potassium to 40mEq/L, with repeat electrolytes levels. Acetaminophen 650mg po/pr Q4H prn Temp >100 is appropriate dosage (maximum of 4g/24hrs)

ASHP CLINICAL SKILLS COMPETITION
DRUG THERAPY ASSESSMENT WORKSHEET (DTAW)
ANSWER KEY (CONTINUED)

Not evaluated for Competition

Therapeutic Duplication	No problems exist.
Drug Allergy or Intolerance	Reassess patient's previous response, nausea, to morphine. Check if other concurrent medications may have been the cause as well as morphine dosage form. Also document reaction to codeine.
Adverse Drug Events	Dexamethasone may mask the signs and symptoms of an infection. Gabapentin, clonazepam, and oxycodone combination and decreased alertness with fever. Narcotic analgesics and constipation.
Interactions	Ampicillin and Gentamicin are synergistic against some gram negative organisms. Decrease alertness may be caused by oxycontin, dilaudid, neurontin and/or klonopin.
Social or Recreational Drug Use	No problems exist.
Failure to Receive Therapy	Not an issue with this patient. Bowel regimen would be warranted if morphine PCA to be used to prevent constipation. no matter which regimen
Financial Impact	The patient's health plan and medication coverage are not stated in this case, should check outpatient prescription coverage prior to discharge.
Patient Knowledge of Drug Therapy	Patient should be counseled on pain management and given a written pain management plan and pain log. Baclofen should not be abruptly discontinued to avoid possibility of seizures. Do not abruptly stop dexamethasone due to HPA axis suppression. Pain medication may cause drowsiness, do not drive or operate machinery. Importance of completing antibiotic treatment. Compliance with Gabapentin/Clonazepam for seizure control.

ASHP CLINICAL SKILLS COMPETITION

DRUG THERAPY PROBLEM LIST ANSWER KEY

Shaded area is evaluated for Competition

Patient _____ Pharmacist _____

Location/Room _____ Date _____

Date	Problem	Action/Intervention
6/30/99	Febrile illness, r/o bacterial	1. Agree with initiation of gentamicin and ampicillin/sulbactam therapy. 2. Order urine culture prior to first dose of antibiotic. 3. Re-assess gentamicin regimen with gentamicin levels, monitor: daily fluids ins/outs, serum creatinine, BUN, WBC, temperature, and site of infection. 4. Re-assess antibiotic choice with culture & sensitivity results. If methicillin-resistant staph aureus consider vancomycin, if fungal infection consider fluconazole. 5. Suggest pulling central line. Has c cancer; need TPN (terminal)
6/30/99	Pain management	1. Discontinue oxycontin, assess morphine intolerance. 2. If morphine intolerance related to oral dosage form, begin morphine PCA at 120mg/24hrs with 5mg every hour as needed for pain or discomfort. 3. If patient cannot tolerate morphine, begin hydromorphone PCA 4. Begin laxative to avoid constipation 5. Monitor pain log and adjust dosage accordingly 6. Monitor for potential side effects: constipation, nausea/vomiting, sedation/mental clouding, and respiratory depression.
6/30/99	Metastatic Cervical Cancer, palliative care	1. Palliative care, review alternative therapy available, i.e., relaxation exercises.
	Anemia	1. Assess classification of anemia, (already ordered CBC), order total iron-binding capacity and ~~68~~ Coombs test. Ferritin ↓ retic 2. Cause of anemia classification will determine treatment options. → Epoetin ? Fe+
6/30/99	Hypokalemia (serum potassium level 3.1mEq/L)	1. Change potassium regimen to 40mEq/L 2. Change IV rate to 3000ml/24 hrs 3. Monitor electrolyte levels and adjust according.
6/30/99	Need for adequate nutrition	1. Assess patient's nutritional status by monitoring daily oral intake, calorie counts, serum electrolytes, and clinical hydration status. Intake ?
6/30/99	History of seizures	1. Assess patient's history of seizures to determine if seizures were the results of chemotherapy treatment, metastasis and/or other.

ASHP CLINICAL SKILLS COMPETITION

PHARMACIST'S CARE PLAN ANSWER KEY

Shaded area is evaluated for Competition

Health Care Need	Pharmacotherapeutic Goals	Recommendations for Therapy	Monitoring Parameter(s)	Desired Endpoint(s)	Monitoring Frequency
Adequate treatment of infection	Eradicate infection	1. Begin gentamicin & ampicillin/ sulbactam therapy. 2. Replace catheter if appropriate. 3. Adhere to sterile technique.	Gentamicin levels C&S report Blood Cultures Fluid ins/outs Serum Creatinine BUN WBC Temperature Site of infection	Gentamicin troughs less than 2mcg/ml and peaks between 6 to 8 mcg/ml. WBC and temperature normal Infection site healed	Gentamicin levels every 5 to 7 days. C&S as reported. Daily fluid ins/outs, WBC, temperature, and site of infection. QOD SCR and BUN
Optimize pain management	Maintain pain score below 4 out a 10 point scale	1. Discontinue oxycontin~~im~~ and assess morphine intolerance. 2. If intolerance related to oral dosage form, begin PCA morphine 120mg/24hrs plus 5 mg Q1H PRN pain or discomfort. 3. If patient cannot tolerate morphine, begin PCA hydromorphone.	Pain score PRN pain medication Constipation Nausea/vomiting Sedation/mental clouding Respiratory depression	Pain score less than 4 Minimal PRN pain med No constipation, nausea, vomiting, sedation, mental clouding and/or respiratory depression	Daily during hospitalization. At each follow-up visit.
Determine classification and cause of anemia, and appropriate treatment	Reduce or eliminate patient symptoms. Eliminate the cause of the anemia. Reverse anemia.	1. Dependent upon classification of anemia and cause of rectal bleeding.	Blood in stools CBC Total iron binding capacity Combs test	Absence of blood in stools. Normal CBC and Total iron binding capacity.	Weekly until near normal then monthly until normal.
Treatment for hypokalemia	Return potassium level to normal	1. Increase potassium to 40 mEq/L at 2000ml/24hrs. fluid mtbl ?	Serum electrolytes EKG changes Ask patient about muscle weakness	Serum potassium level between 3.5 and 5.0 mEq/L Magnesium level 1.5 to 2 mEq/L Normal EKG Assess muscle weakness	Electrolytes QD until corrected.

ASHP CLINICAL SKILLS COMPETITION

PHARMACIST'S CARE PLAN ANSWER KEY

Shaded area is evaluated for Competition

Health Care Need	Pharmacotherapeutic Goals	Recommendations for Therapy	Monitoring Parameter(s)	Desired Endpoint(s)	Monitoring Frequency
Provide adequate nutrition to meet daily metabolic needs	Maintain body weight and nutritious diet long-term Prevent complications of malnutrition	1. Consider enteral supplementation 2. Consider oral vitamin supplement 3. Adhere to sterile technique.	Daily oral intake, calorie count, body weight, serum electrolytes and clinical hydration status.	Adequate calorie (30-35cal/kg) and protein (1.5-2.5g/kg) intake, normalize lab values	Every 1 to 2 weeks initially, then less frequent. At each follow-up visit
Control of seizures	Maintain control or reduce the frequency of seizures. Assess the need to continue treatment.	1. Depending on cause of seizures, consider discontinuation if seizure induced by chemotherapy.	Monitor frequency and severity of seizures	The patient is seizure free.	Daily during hospitalization At each follow-up visit