ASHP CLINICAL SKILLS COMPETITION
PHARMACIST'S PATIENT DATA BASE FORM

Demographic and Administrative Information			
Name: JM		Patient ID: 1945921	
Address: 1510 Adams Street		Room & Bed: 2110-A	
Nutley, NJ		Physician: Schwartz	
Date of Birth: 4/24/1958 (52 yrs)		Pharmacy: N/A	
Height: 6'1" (185 cm) Weight: 205 lbs (93.2 kg)		Race: African-American	
Gender: Male		Religion: Unknown	
CC (on admission to Burn unit): "I have blisters everywhere, including in my mouth"			
History of Present Illness		**Vitals & Other Tests**	
JM was evaluated by his primary physician on 12/01/10 for fever, suprapubic tenderness, and dysuria and received a course of Trimethoprim/Sulfamethoxazole. After the third dose, on 12/2/10, the patient noticed a blister on his left neck with more blisters developing last night. The patient continued to have vague symptoms including fever, tremor, vomiting, and loss of appetite when he was seen at 10am in the Emergency Department at an outside hospital yesterday (on 12/03/10). He was transferred that day to University Hospital for specialized treatment at the Burn Center. He was noted to be responsive and anxious. His wounds showed large thin-walled blisters in his oral mucosa, tongue, neck, his entire back, right flank, buttocks, and areas of the right thigh with areas of skin epidermal looseness. The patient was admitted on 12/03/10 to the Burn Center with a diagnosis of Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis involving 25% total body surface area.		12/03/10 (at admission) BP 150/92 mm/Hg Pulse 84 bpm Temp 100.3° F Resp 24 breaths/min Pain 8/10	12/04/10 (7am rounds) BP 152/90 mm/Hg Pulse 80 bpm Temp 100.1° F Resp 18 breaths/min Pain 4/10
Past Medical History		**Labs**	
Significant for hypertension for the last 5 years		12/03/10 (at admission) Na 138 mEq/L K 4.4 mEq/L Cl 100 mEq/L CO_2 25 mEq/L BUN 15 mg/dL SCr 0.83 mg/dL Glucose 115 mg/dL Calcium 8.6 mg/dL Albumin 4.0 g/dL Mg 2.1 mEq/L Phos 2.2 mg/dL WBC 10.3 K/mm^3 RBC 4.9 mil/mcL Hgb 15.1 g/dL Hct 45.3 Plt 196 K/mm^3	12/04/10 (7am rounds) Na 129 mEq/L K 3.8 mEq/L Cl 101 mEq/L CO_2 25 mEq/L BUN 14 mg/dL SCr 0.87 mg/dL Glucose 110 mg/dL Calcium 8.7 mg/dL Albumin 3.7 g/dL Mg 2.1 mEq/L Phos 2.4 mg/dL WBC 7.2 K/mm^3 RBC 4.7 mil/mcL Hgb 15.0 g/dL Hct 45.0 Plt 179 K/mm^3 12hr Urine output 1.8L UOsm = 500 mOsm/L UNa = 10 mEq/L
Family History			
Father: 71, alive, hypertension Mother: 69, alive, hypertension, osteoarthritis Sister: 38, alive, nothing significant Brother: 44, alive, nothing significant			

Social History		
Tobacco: Nonsmoker ETOH: None Illicit Drugs – None Caffeine: 1 cup of coffee/day Occupation: Restaurant owner Status: Married Children: 2 (2 males 26 yrs, 28 yrs) Physical Activity: No regular exercise Diet: No specifics		**Urine Culture** Pending **Urinalysis** Specific gravity=1.013 Protein=30 mg/dL Glucose=Negative WBC= >4000 cells/µL RBC=60 cells/µL Bacteria=2920 CFU/µL pH=6.0 Nitrite=Negative Leucocyte esterase=Large Hyaline casts

Physical Exam (12/04/2010 @ 7am rounds)

General: No acute distress but appears uncomfortable
Skin: Swelling around the eyes, tongue, left posterior neck, central back, right flank, right chest, genitals, outer right thigh
Musc/Ext: Normal except for skin findings
HEENT: PERRLA, EOMI, blistering to oral mucosa, mouth, and throat
Chest/Resp: CTA bilaterally
CV: RRR, S1S2, no murmurs, rubs, gallops
Abd: Soft, nontender, bowel sounds heard
GU: Suprapubic pain
Neuro: A&O x 3, pain score 4/10

Plan:
The patient arrived in the burn unit on 12/03 and was immediately assessed for the degree of skin involvement. The patient was sedated and given pain medication, brought to surgery for debridement of nonviable tissue, and started on crystalloid fluids at a rate of 4 mL/kg/%TBSA (Parkland Formula) for the first 24 hours. Other treatments are listed in the medication list below. Today (12/04), on morning rounds the patient is reassessed during his daily bath. He reports his pain to be 4 out of 10 prior to going for his bath. His wounds are unwrapped, washed, and examined. Fluids and medication management are currently being discussed. The patient has a nasogastric tube and a foley catheter.

ASHP CLINICAL SKILLS COMPETITION

PHARMACIST'S PATIENT DATA BASE FORM (Cont.)

Allergies/Intolerance's	**Prescription Coverage**
Penicillin/Beta-lactam allergy- hives	Insurance: Blue Cross Blue Shield
	Copay: $25 Generic/ $50 Brand
	Cost per month: $25
	Annual Income: $80,000

Current Inpatient Drug Therapy

Drug Name/Dose/Strength/Route	Prescribed Schedule	Duration Start–Stop Dates	Compliance/Dosing Issue
1. Morphine 10 mg IV	Daily PRN bath/ debridement	12/3/10	
2. Oxycodone/APAP 5/325 1 tablet PO	Q6hr PRN moderate pain (4-6)	12/3/10	
3. Oxycodone/APAP 5/325 2 tablets PO	Q6hr PRN severe pain (7-10)	12/3/10	
4. Morphine 2 mg IV	Q6hr	12/3/10	
5. Enoxaparin 40 mg subcutaneous	Daily	12/3/10	
6. IVIG 45 gm IV	Daily	12/3/10	
7. Methylprednisolone 100 mg IV	Q8hr	12/3/10	
8. Diphenhydramine 50 mg tablet PO	Q4hr 30 min prior to morphine	12/3/10	
9. Docusate 100 mg capsule PO	Q8hr	12/3/10	
10. Lactated Ringers IV	400 mL/hr	12/3/10	
11. Lacri-lube OU	3-4 times/day	12/3/10	
12. Silver sulfadiazine 1% cream topical	Daily after bath with wound dressing	12/3/10	
13. Famotidine 20 mg IV	BID	12/3/10	
14. Hydrochlorothiaze 25mg tablet PO	Daily	12/3/10	
15. Trimethoprim/Sulfamethoxazole DS tablet PO	BID	12/3/10	
Medication History			
HOME MEDS			
Hydrochlorothiazide 25 mg tablet PO	Daily	2005 to present	
Trimethoprim/Sulfamethoxazole DS tablet PO	BID	12/1/10 to present	

Enteral Formulary

			Information provided is per unit size									
Product	**Cal/ml**	**Unit Size**	**Calories**	**CHO (g)**	**PRO (g)**	**FAT (g)**	**Na (mg)**	**K (mg)**	**OSM**	**Non-Pro Cal:N ratio**	**Water (g)**	**Comments**
Tube Feeding Products - Ready To Hang:												
Osmolite 1.0	1	1 Liter	1060	143.9	44.3	34.7	930	1570	300	125 to 1	842	Standard tube feeding. Low Residue.
Jevity 1.2	1.2	1 Liter	1200	169.4	55.5	39.3	1350	1850	450	110 to 1	807	Standard tube feeding with fiber. **18 gm fiber per liter.**
Glucerna 1.0	1	1 Liter	1000	95.6	41.8	54.4	930	1570	355	125 to 1	853	For abnormal glucose tolerance. **14.4 gm fiber per liter.**
Perative	1.3	1 Liter	1300	180.3	66.7	37.3	1040	1735	460	97 to 1	790	Nutrient dense semi-elemental feeding for metabolically stressed patients.
Pulmocare	1.5	1 Liter	1500	105.7	62.6	93.3	1310	1960	475	125 to 1	785	High fat, low CHO to minimize CO_2 production.

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
Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis	1	Prevent progression of symptoms Improve survival Resolution of symptoms Wound care	Discontinue Trimethoprim/Sulfamethoxazole, Hydrochlorothiazide and silver sulfadiazine	Monitor skin and condition of current lesions
			Increase IVIG dose to 93 gm/day (1gm/kg/day) and continue for a total of 3 days Note to judges: can round to vial size or round for IBW	Monitor for areas of epidermal and mucosal detachment, tachycardia (HR>100 bpm), CBC daily for anemia (RBC<4.5 mil, HCT<40%), CHEM7 daily for acute renal failure (serum creatinine >1.2 gm/dL)
			Continue Methylprednisolone 100 mg IV q8h (Can give up to 1.5gm/24 hrs)	Monitor CHEM7 daily for hyperglycemia (glucose>110 mg/dL), and CBC daily for leykocytosis (WBC> 11 $x10^9$ cells/L), and dyspnea/wheezing
			Debridement of nonviable tissue	Monitor for areas of epidermal detachment
			Discontinue silver sulfadiazine and start Gentamicin ointment 0.1% or 0.3% applied with every dressing change (or any topical antimicrobial other then a sulfonamide-based ointment like silver sulfadiazine or mafenide)	Monitor that debrided areas are covered with the topical ointment and are properly wrapped Monitor for s/s of infection including elevated WBC (>10.5 $x10^9$ cells/L), fever (temp>101 F), neutrophils>76%

			Continue Lacrilube (or other ocular lubricant) apply 3-4 times a day	Monitor that eyes are moist
			Continue diphenhydramine 50 mg orally q4h (max daily dose is 400mg) or other antihistamine to prevent pruritis with skin regrowth and morphine use (also included in pain management section). Change to oral solution	Monitor for excess sedation/ drowsiness, improved comfort level
Hypovolemic hypotonic hyponatremia	2	Correct electrolyte (hyponatremia) and fluid imbalance	Switch IV fluids from Lactated Ringers solution (130 mEq Na content) to 0.9% Sodium Chloride (154 mEq Na content) at a rate of 300-400 mL/hr	Monitor 24-hr urine collection and maintain urine output at 0.5-1 mL/kg/hr Monitor chemistry (CHEM7) daily for serum sodium and maintain between 136-145 mEq/L
			1. Calculate Na deficit (to 140 mEq) = 0.6*93kg*(140-129) = 279 mEq 2. Calculate amount of NS to use = 279mEq/154 mEq/L = 1.81 L NS 3. Calculate maximum rate (2 mEq/L/hr) = (140 mEq/L-129mEq/L)/2 mEq/L/hr = 11 mEq/L/2 hr = 5.5 hr → 1810 mL/ 5.5 hr = 329 mL/hr → a rate of 300-400 mL/hr should be sufficient to raise serum Na and maintain fluid balance based on maintenance fluid rate + thermal injury adjustment [*Bonus*: Can subtract 112 mL/hr from NS fluid rate based on enteral formula intake below but may not be necessary – monitor fluid balance]	
Pain	2	Pain management Complete absence of pain but this is rarely achieved so adequate control of pain with minimal side effects	Evaluate the time since the last dose and the patient's daily baseline or normal threshold for pain Convert solid dosage forms to liquid or IV	If pain is greater then normal, see recommendations below. Patient has lesions in his mouth so IV or liquid dosage forms down the NGT are preferred. Evaluate for ability to swallow solid dosage forms q2days
			Increase morphine 2mg frequency from q6h to q4h or increase oxycodone/APAP for breakthrough pain from q6h to q4h	Monitor for improvements in pain score. Monitor for pain scores <4 Monitor for respiratory depression (RR<12 bpm), constipation (see bowel regimen below), vomiting
			Continue IV morphine 10mg PRN for daily debridement	

			Switch PO oxycodone/APAP tablets PRN to the Roxicet® solution 5mg+325mg/5mL via NGT	
			Consider "magic mouth wash" (1:1:1 mixture of viscous lidocaine, magnesium-aluminum hydroxide, diphenydramine) 5 mL swish and spit q4h	Monitor for improvement in oral mucosal lesions. Consider a swallowing evaluation to determine if patient can take solid dosage forms.
			Continue diphenhydramine 50 mg orally q4h (max daily dose is 400mg) to prevent pruritis with skin regrowth and morphine use Change to oral solution	
			Consider converting morphine 2 mg q6h (8 mg/day)to hydromorphone (1.2 mg/day) IV 0.2 mg q4h to reduce pruritis due to histamine release This is an example conversion, if want to consider changing to hydromorphone. This may not be necessary as the patient is currently premedicated with Diphenhydramine.	Monitor for excess sedation/ drowsiness, improved comfort level
			Bowel regimen: Continue docusate but switch to the liquid form (10mg/mL) and add a stimulant like senna syrup 8.8mg/5mL	Monitor for constipation (bowel movements <1 every 3 days)
Nutrition	2	Prevent malnutrition due to hypermetabolism Promote skin healing and regrowth Prevent fluid and electrolyte imbalances	Start Perative enteral formula via NGT at a rate of 112 mL/hr *Any enteral formula is acceptable as long as the rate is appropriate based on daily caloric needs*	Monitor for diarrhea/ constipation, vomiting, gastric residuals >150 mL, aspiration of formula, weight gain, CHEM7 daily for imbalances (Na 136-145 mEq/L, K 3.5-5.0 mEq/L, glucose 65-109 mg/dL, albumin 3.0-5.5 gm/dL), 24-hr urine collection and maintain urine output at 0.5-1 mL/kg/hr

			1. Identify daily caloric requirements using the Harris-Benedict formula for basal energy expenditure * 2.0 for thermal injury =66.5 + (13.8*weight in kg) + (5* height in cm) – (6.76 * age) = (66.5+1286.16+925-531.52)= 1746.14*2.0 = 3492 kcal per day 2. Select an enteral formulation that will meet the daily caloric requirements (ie. Perative 1300 kcal/L → 3492 kcal per day/1300 kcal per L =2.686 L per day) 3. Identify an administration rate = 2686 mL/24 hr = 112 mL/hr *The Harris-Benedict formula can use an adjustment factor of 1.5 instead of 2.0. This would result in a caloric requirement of 2619 kcal/day which can be accomplished with using Perative at 83 mL/hr.*	
Stress Ulcer Prophylaxis	2	Prevent the development of stress ulcers	Continue famotidine 20 mg IV BID	Monitor daily for s/s GIB including RBC and HCT decline, black tarry stool, blood in gastric residuals, hematemesis. Monitor for thrombocytopenia
VTE prophylaxis	2	Prevent DVT/PE	Continue enoxaparin 40mg daily subcutaneous	Monitor daily for difficulty breathing, leg pain, bleeding
Uncontrolled hypertension	2	Reduce blood pressure Reduce complications associated with hypertension	Restart diuretic but switch to liquid or IV dosage form. 1. Ethacrynic acid 50-200 mg IV daily 2. Consider adding second agent like IV metoprolol or IV enalaprilat (Oral medications may be crushed and administered via NG Tube, e.g. switching patient to CCB (amlodipine) or ACE-Inhibitor (Enalapril).	• Monitor for BP <140/90, monitor CHEM7 daily for Na (136-145) and K (3.5-5). • Recommend potassium-rich foods like bananas, orange juice, etc at discharge due to diuretic use • Monitor for edema with CCB • Monitor renal function (BUN/SCr) and K+ for ACE-I
Urinary Tract Infection	2	Incomplete course of antibiotics, prevent dysuria and suprapubic pain	Start levofloxacin 250 mg IV daily or ciprofloxacin 400 mg IV BID for 7-14 days. Can switch levofloxacin to oral 1:1 when patient can tolerate solid dosage forms or ciprofloxacin 500mg BID	Monitor for dysuria and urinary frequency after 3 days Monitor for s/s of infection including elevated WBC (>10.5 x10^9 cells/L), fever (temp>101 F), neutrophils>76%
Discharge planning	3	Prevent future reactions	1. Counseling about sulfonamide-based medications (antibiotics more then non-antibiotics but include sulfonamides, hypoglycemics, sumatriptan, loop diuretics) 2. Recommend a Medi-Alert bracelet warning about sulfonamide allergy 3. Recommend continued wound care and follow-up appointments with wound	

			care specialist 4. Consider switching HTN medication to a long term oral agent because the previous medication (HCTZ) is a sulfonamide