

LOCAL CASE

**ASHP CLINICAL SKILLS COMPETITION 2015
PHARMACIST'S PATIENT DATA BASE FORM****Demographic and Administrative Information:**

Date: October 5th, 2015
Name: Nathan Timko
Date of Birth: 6/5/07
Height: 50 inches
Weight: 57 lbs.
Race: African American
Religion: 'none'

Patient ID: 81476522
Room/Bed No.: INFCH 4145B
Pharmacy: Walgreens
Physician: Trahan

Prescription Coverage:

Insurance: BCBS
Copay: \$15.00 for generic/ \$30.00 for brand
Annual Household Income: \$55,000

Chief Complaint: "My leg hurts and I feel short of breath."

History of Present Illness:

NT presents to the Emergency Department complaining of pain in left leg and difficulty breathing. NT's pain began 2 days ago and has gotten progressively worse, despite the use of oxycodone and ibuprofen. His pain is currently rated as 9 out of 10 and has been fluctuating between 6 and 9. The pain is primarily between his left hip and left knee, but radiates both below the knee and above the hip at various points throughout the day. NT is also presenting with shortness of breath and a complaint of mild chest pain which began this morning in conjunction with his increasing leg pain.

Past Medical History:

Sickle-Cell Anemia – HbSS
Multiple pain episodes each year requiring hospitalization (previous admissions: 02/3/2015 and 07/26/15)
Functional asplenia

Allergies/Intolerances:

Morphine (rash, hives)

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Outpatient Drug Therapy:

<u>Drug Name/Dose/Strength/Route</u>	<u>Prescribed Schedule</u>	<u>Duration Start-Stop Dates</u>
Ibuprofen 250 mg PO (100mg/5mL)	four times daily PRN	08/01/2015 - Present
Acetaminophen 240 mg PO (160mg/5mL)	six times daily PRN	08/01/2015 - Present
Oxycodone IR 10 mg PO (1mg/mL)	four times daily PRN	08/01/2015 - Present
Penicillin VK 250 mg PO (125mg/5mL)	BID	11/14/2009 - Present

Medication History:

NT's parents do not report any issues with medication compliance. He takes his penicillin twice daily and only missed doses two years ago when they went camping for the weekend and forgot his medication. NT takes ibuprofen, acetaminophen, and oxycodone as needed for pain related to his sickle cell disease. His parents state that most of the time these medications are adequate, but a few times a year, NT has a painful episode that requires further treatment. Over the past 24 hours, NT has been taking oxycodone and ibuprofen every 6 hours. NT has difficulty with swallowing pills and the family prefers liquid medications whenever possible.

Surgical History: None

Family History:

Mother: age 42; history of asthma and type 2 diabetes
 Father: age 44; history of SCA-Hb-SS; functionally asplenic

Immunization History:

Received pneumococcal vaccine (PCV13) on 8/10/07, 10/10/07, 12/10/07, and 6/10/08
 Received pneumococcal vaccine (PPSV23) on 09/14/2009
 Received meningococcal vaccine (MenACWY-D) on 08/14/2008
 DTaP, Hep B, Hib, MMR, Varicella up to date
 Influenza vaccine last year

Social History:

Currently lives at home with mom, dad, and two sisters
 Attends public elementary school; currently in 2nd grade

Physical Exam:

General: distressed African American male
 Integumentary: warm and dry lower and upper extremities; no finding of rash, lesions, eczema, nodules, or neoplasms; exam unremarkable
 HEENT: no visual changes or dysphagia
 Cardiovascular: tachycardia

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Endocrine: unremarkable

Gastrointestinal: abdomen is soft and non-tender with audible bowel sounds; patient has approximately 1 bowel movement every day; has not had a bowel movement yet today

Genitourinary: no irritation or obstructive symptoms; exam unremarkable

Neurological: A&O X 3; no complaints of headaches, paresthesia, ataxia, or weakness; exam unremarkable

Musculoskeletal: patient complains of mild chest pain; patient reports severe left leg pain that radiates above the hip and below the knee

Renal: Ins and Outs not available

Pulmonary: Pulse oximetry: 88% on room air

Vital Signs Today:

Temp: 39.3 degrees Celsius

BP # 1: 123/77 mm Hg

BP # 2: 119/72 mm Hg

HR: 105 beats/minute

RR: 25 breaths/minute

Metabolic Panel	
Na (mEq/L)	138
K (mEq/L)	3.9
Cl (mEq/L)	102
Phosphorus (mg/dL)	3.9
Ca ²⁺ (mg/dL)	9.2
Mg ²⁺ (mEq/L)	2.0
Glucose (mg/dL)	111
Cr (mg/dL)	0.5
BUN (mg/dL)	20
CO2 (mg/dL)	20
Albumin (mg/dL)	4.1
AST (IU/L)	28
ALT (IU/L)	43
ALP (IU/L)	75

CBC	
WBC (million/mm ³)	15500
Neutrophils (%)	50
Lymphocytes (%)	55
Eosinophils (%)	1
Bands (%)	0
Hgb (g/dL)	7.1
HCT (%)	22
Plt (K/mm ³)	231
Other	
Reticulocytes (%)	18
CRP (mg/dL)	1.2

Blood Cultures: In process

Urine Culture: In process

Imaging Studies:

Chest X-Ray:

- Patchy area noted on RLL
- Likely atelectasis but infiltrate cannot be ruled out

Patient Narrative:

NT is admitted to the general pediatric unit and is diagnosed with sickle cell crisis.

ASHP Clinical Skills Competition - Pharmacist's Care Plan - 2015 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/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
Acute Chest Syndrome (ACS)	1	Treat underlying bacterial cause of ACS Prevent severe respiratory decompensation Improve oxygenation	Initiate 3 rd generation cephalosporin capable of covering <i>Streptococcus pneumonia</i> and gram (-) enteric organisms + macrolide for atypical coverage Initiate ceftriaxone 50 mg/kg (1300 mg) IV/IM daily for 7 to 10 days + azithromycin 10 mg/kg (260 mg) PO daily for one day, followed by 5 mg/kg (130 mg) PO daily for 4 days; ceftriaxone can be converted to PO 2 nd or 3 rd generation cephalosporin once patient is afebrile x 48 hours BONUS POINT: 6.5 mL of 200mg/5mL azithromycin suspension or 13 mL of 100mg/5mL azithromycin suspension Initiate oxygen per nasal cannula; adjust based on patient's respiratory vital signs (RR, O ₂ saturation)	Antibiotics: Allergic reactions GI upset (diarrhea, abdominal cramping) Fever WBC CRP HR RR Oxygen: Normalization of respiratory rate Increase in O ₂ saturation
Sickle Cell Vaso-occlusive Pain Crisis; acute pain	2	Augment current pain management regimen to	Discontinue home oxycodone, ibuprofen, and acetaminophen	Opioids: Pain scores/subjective description of pain

syndrome		optimize therapy for pain crisis requiring hospitalization Prevent opioid-induced adverse drug events	Initiate scheduled IV opioid Initiate PRN IV opioid Initiate IV or PO scheduled or PRN NSAID <u>Opioids</u> <i>Preferred regimen:</i> Hydromorphone (dose) IV Q4H Hydromorphone (dose) IV Q2H PRN BONUS POINT: initiation of Patient-Controlled Analgesia; should include scheduled dose expressed in mg/hr basal rate and bolus dosing expressed in mg Q6-30 minutes MINUS POINT: use of meperidine (contraindicated) or morphine (patient reported allergy) <u>NSAIDs</u> <i>Preferred regimen:</i> Ketorolac 0.5 mg/kg/dose (13 mg) IV Q6H (PRN optional) <i>Secondary regimen:</i> Ibuprofen 5-10 mg/kg/dose (130-260 mg) PO Q6H (PRN optional) BONUS POINT: use of scheduled NSAID vs. PRN NSAID therapy Initiate histamine antagonist: Diphenhydramine 12.5 – 25 mg PO Q6H to reduce itching associated with opioid-mediated histamine release	HR BP RR CNS depression NSAID: Pain scores: Subjective descriptions of pain per patient HR BP SCr/BUN every 48 – 72 hours Urine output daily Abdominal pain Black, tarry stools 5 day/20 dose limit on ketorolac Diphenhydramine: Itching Drowsiness Bowel regimen: Titrate to normal bowel function per patient Diarrhea
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			BONUS POINT: 5 mL (12.5 mg) or 10 mL (25 mg) of diphenhydramine solution per dose Initiate bowel regimen with stool softener and stimulant laxative to reduce/avoid opioid-induced constipation: Docusate sodium 50 – 150 mg PO daily plus either senna 8.6 mg PO 1 – 2 times daily or bisacodyl 5 mg PO daily MINUS POINT: only recommending a stool softener or stimulant laxative; must recommend combination	
Inappropriate Medication Therapy; penicillin prophylaxis for splenic sequestration	2	Discontinue inappropriate antibiotic prophylaxis for splenic sequestration of red blood cells	Discontinue penicillin VK 250 mg PO BID; patient is 8 years old, 3 years beyond the appropriate age for PCN prophylaxis without additional indications for use (no surgical splenectomy or invasive pneumococcal infection in medical history)	
Immunization Updates	3	Prevent infectious complications	Pneumococcal (PPSV23) x 1 dose Meningococcal (MenACWY) x 1 dose Annual Influenza vaccine	Signs and symptoms of anaphylaxis and Gullain- Barre' syndrome
Chronic Management of Sick Cell Anemia; initiation of hydroxyurea	3	Prevent frequency and intensity of vaso-occlusive pain crisis Prevent frequency and intensity of ACS Prevent hemolytic	Obtain RBC MCV and HbF baseline laboratory values Initiate hydroxyurea 20 mg/kg PO daily (500 mg capsule) BONUS POINT: May titrate up 5 mg/kg/day every 8 weeks to a maximum dose of 35 mg/kg/day	CBC with WBC differential every 4 weeks until maximum tolerate dose achieved for 8 – 12 weeks Goal ANC: $\geq 2,000 \text{ mm}^3$ Goal platelets: $\geq 80,000$ platelets/mcL Goal reticulocytes: $\geq 80,000$ platelets/mcL if Hgb < 9 g/dL After maximum dose achieved:

		anemia requiring RBC transfusion Increase HbF Improved well-being Acceptable myelotoxicity		CBC with WBC differential every 2 – 3 months RBC MVC and HbF every 3 months x 2; then every 6 months Bilirubin, AST/ALT, SCr every 3 – 6 months Toxicity: 100% increase in ALT; 50% increase in SCr from baseline History and physical exam every 4 weeks until maximum tolerated dose achieved for 8 – 12 weeks, then every 8 weeks
Chronic management of sickle cell anemia; initiation of folic acid	3	Prevent hemolytic anemia requiring RBC transfusion	Initiate folic acid 1 mg PO daily	Hgb/Hct Reticulocytes