

NRS 220
Alterations in Health III
College Lab Manual

NRS 220 student are expected to:

1. Review related class notes, reading assignments and specific lab objectives prior to each college lab. .
2. Participate in discussion topics listed for each lab.
3. Bring required equipment to each lab.
4. Properly perform return demonstration on selected skills.
5. Attend all scheduled college lab sessions.
6. Arrive at the scheduled time for lab (repeated late arrivals will require intervention by NRS 220 Course Coordinator).

References:

Adams, M.L., Holland, L.N. & Urban, C.Q. (2011) *Pharmacology for Nurses A Pathophysiologic Approach*. (3rd ed.) Upper Saddle River: Pearson (ISBN-978-0-13-508981-1)

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. New York: Pearson Learning Solutions. (ISBN 13:978-0-558-35687-3)

North Carolina Concept-Based Learning Editorial Board. (2011). *Nursing A Concept-Based Approach to Learning, Volumes One & Two*. Upper Saddle River: Pearson.

Pickar, G.D., Abernethy, A.P. (2008) *Dosage Calculations*. (8th ed.) Clifton Park: Thompson Delmar Learning

Silvestri, Linda A. (2010). *Comprehensive Review for NCLEX-RN Examination*. (5th ed.). Philadelphia: W.B. Saunders Co. (ISBN: 9781437708257 – Paperback).

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www.evolve.elsevier.com/iggy

Week 1

Alterations in Metabolism Part 1

Discussion will focus on patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement and safety & informatics of patients who are experiencing alterations in metabolism.

Students will demonstrate competency in assigned skills, discuss case scenarios and review math and NCLEX questions.

Review readings from week 1

Review the following nursing skills regarding medication administration:

Nursing Skills for a Concept-Based Approach to Learning. New York: Pearson Learning Solutions. Skills 12.26-12.32, 12.43, 12.45, 12.49-12.53, 12.56, 12.57, 12.60, 12.66

Review of the various insulin medications as well as demonstration of correct preparation and administration. ([Skill 12.46](#) Preparing Insulin Injections; [Skill 12.47](#) Teaching Client to Use Insulin Delivery System—Insulin Pen; [Skill 12.48](#) Teaching Use Of Insulin Pump)

Identify the measures needed in order to provide adequate nutrition for a patient with alterations in metabolism (TPN, IV lipids, tube feedings)

-describe how the hydration status may be maintained for a patient ([Skill 3.12](#) Infusing IV Fluids through a Central Line; [Skill 12.58](#) Managing Central Lines; [Skill 12.59](#) Changing a Central Line Dressing))

-discuss the various ways nutrition can be provided to a patient when they are unable to eat ([Skill 5.11](#) Providing Total Parental Nutrition; [Skill 5.12](#) Infusing IV Lipids)

PICC Line Dressing Change

Please review videos at home

<http://www.youtube.com/watch?v=jKGfz1v6hJ4> – Caring for PICC Line – (20 mins)

<http://www.youtube.com/watch?v=NjoISDHQeyc> Central Line Dressing Change (7 mins)

Student demonstrates the appropriate method of changing a PICC line dressing.

Case scenarios

1. A 55 year old male with a family history of diabetes is referred to the clinic for a diabetes workup. He reports having to urinate 2-3 times a night, frequent fatigue, and weight gain of 7 lbs. over last month. His A1C level is 7.6%, fasting plasma glucose is 130mg/dl, and BP 144/90mmHg. He also has dyslipidemia and early signs of renal dysfunction confirming the diagnosis of type 2 diabetes.

-What is your assessment of the laboratory results?

-What patient education would you include when developing a plan of care?

-What medications might be included in the treatment plan?

2. You are assigned to 60 year old male patient who weighs 280lbs. He is one day post op for gastric bypass surgery. What would you expect his diet, pain and nutrition orders to be like? He complains to you that he is having extreme pain in his abdomen. After reviewing his chart you notice that his WBC count is 18.0 and his temperature at 0800 is 101.0 degrees Fahrenheit. What do you do?

How many ml of these medications will you give?

A. How will you prepare (draw up) the NPH insulin and the Regular Insulins?

An excellent visual demonstration for mixing insulins is available on the Becton Dickinson Company (syringe manufacturer) website: <http://www.bddiabetes.com/us/demos/injecting.asp>. (This demo has both audio and visual components so you will need a computer with speakers.)

How many units of Regular insulin will you give?

How many total units will be given?

Describe how you would prepare the medications in one syringe

NCLEX questions

Week 2

Alterations in Metabolism Part 2

Discussion will focus on patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement and safety & informatics patients who are experiencing alterations in metabolism.

Demonstrate competency in assigned skills, discuss case scenarios and review math and NCLEX questions.

Review readings from week 2

Students will perform a return demonstration of PICC line dressing change.

Case Scenarios

1. The adult children of the patient with moderate hypothyroidism, who started treatment three weeks ago with levothyroxine sodium (synthroid), come to her apartment and find her sitting on the couch in her winter coat. When they ask her why she is wearing the coat, she looks at them and says, "Who are you?" They call the emergency squad, and the patient is brought to the ED.

- What vital sign should you assess first? Provide a rationale for your selection.
- Should this patient receive oxygen? Why or why not?
- What IV solution should you be prepared to administer as fluid therapy and why?

The patient with severe hypothyroidism is about to be discharged to home.

- What are the teaching priorities for this patient?
- Should you include her adult children in the teaching? Why or why not?

2. The patient is a 66-year-old man with chronic respiratory fibrosis who has been treated with antibiotics penicillin (Ampicillin) followed by azithromycin (Zithromax) for a bacterial pneumonia for the past 3 weeks. He was admitted from the ED because his SpO₂ was 85%. In addition to an antibiotic, he also takes losartan (Cozaar) 50 mg daily, prednisone 10 mg daily, and sertraline (Zoloft). When he gets to the unit, he is slow to answer questions although his answers are correct, and he cannot remember the name of the physician who saw him in the ED. When his blood work comes back, you notice that his serum sodium is 109 mEq/L and his hematocrit is 32%. He is supposed to provide a clean-catch urine specimen but has not urinated since his admission, 3 hours ago.

- What is the probable source or sources of his mental slowness?
- What risk factors does he have for SIADH?
- What other assessment data should you obtain immediately? Provide a rationale for your selection.
- His admitting prescription reads that he should receive 500 mL of D5% in Ringer's

Lactate IV over the next 2 hours. What should you do about this prescription?

Complete the chart below indicating if the laboratory findings would be increased or decreased.

Clinical Finding	Adrenal Insufficiency(Addison)	Adrenal Hyperfunction (Cushing's)
Serum sodium level		
Serum potassium level		
Serum glucose level		
Cortisol level		
Blood pressure		

Discussion Questions

1. Briefly discuss Addisonian crisis.
2. How would you treat Addisonian crisis?

Math

1. The order reads clindamycin hydrochloride (cleocin) 300 mg IV every 6 hours. On hand you have cleocin 0.6 g per 4 mL. What will you draw up for 1 dose?
2. The physician orders 1000mL of D5/W IV at 125 mL per hour. The IV tubing is calibrated for a drop factor of 10 gtt/mL. Calculate the IV flow rate in gtt/ min.
3. Order: Hydromorphone hydrochloride (Dilaudid) 4 mg IV Q 4 hr. prn for pain.
Supply: Dilaudid 10 mg/mL
4. Order reads 250 mL D5/W to run over the next 2 hours by infusion pump. What will you set the infusion pump at?
5. Order: tolbutamide (orinase)250 mg po twice a day
Supply: 0.5g tablets

NCLEX Questions
Sim Chart

Week 3

Alterations in Inflammation

Discussion will focus on patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement and safety & informatics patients who are experiencing alterations in metabolism.

Demonstrate competency in assigned skills, discuss case scenarios and review math and NCLEX questions.

Review readings from week 3

Care of the patient receiving a blood product

Case scenario

1. You are the primary nurse assigned to a 65-year-old patient who is going for a colonoscopy. It is 7:30am and he is “on call” to go for his colonoscopy. When you access his MAR you notice that he is due for metoprolol tartrate (Lopressor) 25mg PO and esomeprazole magnesium (Nexium) 30mg PO at 8am. When you walk into your patient’s room he says to you, “I am so hungry and I did not sleep at all. What time am I going for my test and when can I eat? I also need my blood pressure medications.” What do you do?
2. A 56 year old male has been admitted with the diagnosis of a peptic ulcer. Upon admission his hemoglobin is 8.6 g/dL and hematocrit is 30%. He is typed and cross matched for 2 units of blood at this time. You are the nurse administering the blood product. (Transfusion Skill)

Student will be able to safely administer blood transfusion as dictated by hospital policy and procedure.

Student will perform the following:

- Review hospital/facility policy and procedure
- Check chart for physician order and patient’s H&H values.
- Check patient identification with blood product as per protocol ([Skill 12.56](#) Administering Blood Transfusions; [Skill 12.57](#) Administering Blood Components)
- prepare appropriate tubing and solution
- educate patient regarding transfusion
- infusion blood product
- document vital signs
- monitor patient for adverse reaction
- discontinue infusion
- document patient’s response

-Utilize SBAR for hand off communication
** review IVPB set up also **

Discussion Questions

1. Contrast laparoscopic cholecystectomy with one done via laparotomy.
2. Discuss the management of a T-tube in a patient who has had gallbladder surgery.

Math

1. A doctor orders 200 mg of ceftriaxone sodium (Rocephin) to be taken by a 15.4 lb infant every 8 hours. The medication label shows that 75-150 mg/kg per day is the appropriate dosage range. On Hand: 400 mg/2mL Vial.

Is this doctor's order within the desired range? Yes _____ No _____
Calculate the dose.

2. Heparin 8,000 units subcutaneous every 8 hours.

Supply: A vial of heparin sodium injection 10,000 units/mL

3. The patient is to receive 1800 ml of D5/W over 24 hours. You have to manually regulate the drip rate. The tubing you have is 15gtts./ml. How many drops/ min will you give?

4. The pt. has an order for levetiracetam (keppra) oral solution 3 g daily. The pt. has a bottle of keppra oral solution 100 mg/mL. How many mL will you administer to the pt.?

5. The Physician orders IV morphine sulfate 2-5 mg / hr. for pain management. The pharmacy sends an IV of 250 mg of morphine sulfate in 500 mL D5W. What rate will you set on the IV pump to give 3 mg/ hr.?

NCLEX
Sim Chart

Breast & Testicular Exams (started)

Student will demonstrate breast and testicular examinations using correct assessment skills and document findings.

Week 4

Alterations in Cellular Regulation

Discussion will focus on patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement and safety & informatics patients who are experiencing alterations in metabolism.

Demonstrate competency in assigned skills, discuss case scenarios and review math and NCLEX questions.

Review readings from week 4 and 5

Review the following nursing skills:

Nursing Skills for a Concept-Based Approach to Learning.

Skills 7.25- 7.27, 14.2- 14.7

Breast & Testicular Exams (completed)

Student will demonstrate breast and testicular examinations using correct assessment skills and document findings.

Case Scenario

1. You are caring for a 55-year-old female Hispanic patient who has been admitted for pneumonia. When you are taking her history and physical she tells you that her mother died

of breast cancer when she was 60-years old. Your patient does not perform breast self examinations. What do you do?

Care of the patient with a chest tube:

Student will describe critical clinical skills needed to care for patients with a chest tube.

- Check physician order for chest tube
- Review assisting with a chest tube insertion([Skill 7.25](#) Assisting with Chest Tube Insertion; [Skill 14.6](#) Assisting with Chest Tube Insertion)
- Assess chest tube insertion site and document assessment findings
- verbalize and describe understanding of water seal used in a chest tube
- Review maintaining chest tube drainage([Skill 7.26](#) Maintaining Chest Tube Drainage)
- Describe what patient education would need to be incorporated in a plan of care for a patient with a chest tube
- Describe care of the patient in removal of a chest tube([Skill 7.27](#) Chest Tube Removal; [Skill 14.7](#) Assisting with Chest Tube Removal)

2. A 40-year-old male is admitted with cirrhosis and esophageal varicies. He admits to drinking a pint of vodka a day and a few beers. He is jaundiced and has abdominal ascites.

-Describe the plan of care you would expect to provide to your patient/ what are your priority concerns? Utilize the SBAR sheet when you are giving end of shift report.

3 An 8-year-old African American boy is admitted for sickle cell crisis. He is crying and tells you he is in pain. What interventions would you expect for this patient?

Math

1. Morphine sulfate (Roxinal) oral solution 30 mg p.o. every 4 hours prn for pain.
Supply on hand: Roxinal oral solution 20 mg per 5 mL

2. Patient is on a heparin drip with 10,000 U heparin to infuse at 900 U/hr.
What will you set the flow rate on the pump at?

3. Epoetin Alfa (Epogen) 75 units per kg subcutaneously to an adult weighing 140 lbs.
The label reads Epogen 2,000 U /mL. Calculate the dose

4. The physician orders granisetron (granisol) 2,000 mcg IVP 30 mins. Prior to chemotherapy.
Pharmacy sends a multi dose vial containing 4mg/4mL. How many mLs will you give?

NCLEX
Activity

Week 5
Simulation Exercise
Handout to be given prior to week 5 college lab

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