Mercer County Community College
Division of Math, Science & Health Professions

Nursing Program

NRS 110
College Lab Manual

Fall 2012

Welcome to College Lab - The college lab is an environment to learn the skills essential to nursing practice. It is a place to learn a nursing procedure and safely practice the skills in a controlled setting. The college lab will include demonstration, videos, interactive learning, and clinical simulation of critical skills essential to the fundamentals of nursing practice. Students should practice the skill until a competency level is achieved. All students will be required to perform a return demonstration per the guidelines provided of the critical skills outlined in this manual.

Students must achieve a satisfactory grade on all required critical skills to pass the college lab portion of NRS 110. It is essential that students attend all college lab sessions to stay current with skills and topics. The college lab's goal is to prepare you for safe patient care in the health care facility.

Have a great semester!

The NRS 110 College Lab Team

Mercer County Community College
Division of Math, Science and Health Professions
Nursing Program
NRS 110 College Lab Manual Fall 2012

NRS 110 students are expected to:

1. Review related class notes, reading assignments and specific lab objectives prior to each college lab.
2. Attend all scheduled college lab sessions.
3. Arrive at the scheduled time for lab (repeated late arrivals will require intervention by NRS 110 Course Coordinator).
4. Bring college lab manual to each lab.
5. Bring required equipment to each lab.
6. Participate in discussion topics listed for each lab.
7. Properly perform return demonstration on selected skills.
8. Obtain instructor sign-off on all critical skills.

College Lab Weekly Content

Week 1: Introduction to College Lab, Review of Physical Assessment, Hand Hygiene.

Week 2: Caring Interventions Lab: Bed Bath, Bed Making, Oral Care, Skin Care.

Week 3: Safety Lab: Body Mechanics, Safe Movement of Patients, Use of Restraints

Week 4: Comfort Lab: Application of Heat and Cold, Postmortem Care

Week 5: Mobility Lab: ROM exercises, Assisting with Ambulation, Mobility devices

Week 6: Medication Administration Lab Part 1(Oral & Topical)

Week 7: Medication Administration Lab Part 2 (IM & SC)/ Dosage Calculation Lab

Week 8: Dosage Calculation Exam

Week 9: Elimination Lab: Assisting with a Bedpan/Urinal, Urine and Stool Collection, Administering an Enema, Urinary Catheter Care

Week 10: Nutrition Lab: Feeding patients, Use and care of feeding tubes (PEG/NG tubes)

Week 11: Fluid Lab: Intake and Output, Infusing Large Volume IV Fluids, Discontinuing IV Fluids.

Week 12: Oxygenation Lab: Oxygen delivery systems, collecting a sputum specimen, Breathing exercises.

Week 13: Infection Control Lab: Standard Precautions, Isolation Procedures, Donning and Removing Clean Gloves

Week 14: Catch-up and review

Week 15: Final sign-off of skills

Procedure for College Lab Critical Skill Sign-off

Students will be required to complete the assigned college lab reading assignment prior to class, view the skill demonstration, review the skill procedure checklist (which can be accessed from the www.mynursingkit.com student resources under "Skills Checklists"), practice the skill to achieve competency, and perform a return demonstration of the skill observed by the lab instructor. The student will have two (2) attempts to successfully complete the skill. If unsuccessful after the first attempt, the student will need to practice and perform a second return demonstration of the skill observed by the lab instructor. If after the second attempt, the student remains unsuccessful, remediation with the NRS 110 lab instructor is required. The student will have an opportunity for a third attempt. If after the third attempt, the student remains unsuccessful, the student will need to meet with the NRS 110 course coordinator for determination of further progress in the course. Students must obtain instructor sign-off on all NRS 110 critical skills by the end of the semester to successfully pass the college lab component of the course. Skill specific checklists will be utilized for all critical skills. Please review the appropriate skills checklist before performing the skill as evaluation of skill competency will be based on these checklists.

Required Textbooks/Resources:

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)

2. Pickar, G.D., Abernethy, A.P. (2008) *Dosage Calculations*. (9th ed.) Clifton Park: Thompson Delmar Learning

3. NRS 110 College Lab Manual. Download from nursing website at www.mccc.edu/nursing

4. Skills Checklists found at www.mynursingkit.com

NRS 110 Lab Skills Evaluation **Student:_____**

	DATE/INSTRUCTOR SIGNATURE	
CRITICAL SKILLS	**1ST ATTEMPT**	**2ND ATTEMPT**
Hand washing		
Bed Bath		
Body mechanics, Lifting, Moving, Transfer of patients		
Use of Restraints		
Postmortem Care		
ROM exercises		
Medication Administration (Oral/Topical)		
Medication Administration (IM/SC)		
Dosage Calculation exam (Score of 90% or better)		
Specimen collection (stool & urine)		
Enema Administration		
Enteral feedings (NG or PEG)		
Care of nasogastric tube		
Intake & Output Calculation		
Application of oxygen devices, pulse oximeter, lung expansion techniques		

LAB #1

TITLE: INTRODUCTION TO COLLEGE LAB

Review of Physical Assessment, Hand Hygiene

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Demonstrate a head to toe basic physical assessment.
2. Demonstrate the ability to apply principles of medical asepsis to hand washing.
3. Perform proper procedure for hand washing.
4. Understand procedure for critical skill sign off.

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 4 Infection: Hand Hygiene (Medical Asepsis): pgs 157-160.

Review North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning* Chapter 11 Assessments: pgs 446-465, 471-489, 494-510, 516-544.

CRITICAL SKILLS:

1. Skill 4.1 Hand Hygiene (Medical Asepsis)

PLEASE BRING STETHOSCOPE AND BP CUFF TO LAB

LAB # 2

TITLE: CARING INTERVENTIONS LAB

LAB OBJECTIVES:

At the completion of this lab, the student will be able to demonstrate correct techniques for:

1. Assisting a client with hygiene needs related to bathing:
    a. Back care
    b. Perineal care
2. Assisting a client with hygiene needs related to:
    a. Oral care
    b. Shaving
    c. Hair Care

3. Changing an Unoccupied and Occupied Bed

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 12 Caring Interventions: pages 562-598, 601-604

CRITICAL SKILLS:

1. Skill 12.4 Bathing an Adult or Pediatric Client

ADDITIONAL SKILLS:

1. Skill 12.1 Changing an Unoccupied Bed
2. Skill 12.2 Changing an Occupied Bed
3. Skill 12.3 Providing morning care
4. Skill 12.5 Providing Evening Care
5. Skill 12.6 Back Massage
6. Skill 12.7 Teeth Brushing and Flossing
7. Skill 12.8 Special Oral Care
8. Skill 12.9 Shaving
9. Skill 12.10 Hair Care
10. Skill 12.22 Perineal care

LAB #3

TITLE: SAFETY LAB

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Demonstrate proper body mechanics.
2. Identify risks to client safety.
3. Demonstrate the ability to apply restraints.
4 Demonstrate the ability to position a client in bed.
5. Demonstrate techniques for transferring a client to a chair.

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 13 Safety: pgs 675-684, 687-690. Chapter 6 Mobility: pgs 219-225, 226-239.

CRITICAL SKILLS:

1. Skill 6.1 Body Mechanics
2. Skill 13.5 Applying Restraints
3. Skill 6.10 Transferring between bed and chair

LAB #4

TITLE: COMFORT LAB

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Demonstrate application of dry heat measures (heating pad)
2. Demonstrate application of cold measures (ice pack)
3. Discuss use of a cooling blanket
4. Demonstrate postmortem care

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 1 Comfort: pgs 2-7, 10-16, 20-31.

CRITICAL SKILLS :

1. Skill 1.13 Postmortem Care

ADDITIONAL SKILLS:

1. Skill 1.5 Applying Dry Heat Measures
2. Skill 1.10 Applying Cold Measures

NRS 110 Dosage Calculation

The purpose of this portion of the lab is to prepare students for the dosage calculation portion of the course. This is a self-taught module. The chapters are assigned from the textbook, *Dosage Calculations* 9th Edition by Pickar. The students are to review the content in the assigned chapters and solve assigned practice problems. If the student has difficulty with solving problems, please review chapter content and seek out an instructor for additional assistance. The dosage calculation exam will be given week 8 of the semester. This exam will be given in college lab. Simple calculators will be allowed. **The use of a cell phone as a calculator is NOT allowed.** The exam will be timed. The expectation for this exam is 90% or better. If the student does not achieve the 90 % on the first attempt, a remediation session must be attended by the student and a new test will be taken. The Dosage Calculation exam is graded as pass/fail with a grade of 90% or better designating the pass grade. **Please bring the Pickar book to college lab for the next 4 weeks.**

Textbook: Dosage Calculations 9th Edition by Pickar.

Review basic math concepts in Chapters 1 and 2 (mathematics review). Take the self evaluation on page 54 to assess your math ability. Most of the math involved with dosage calculation centers on these basic math concepts. If you feel comfortable with these concepts and problems you should have no problem with dosage calculations.
If you are having difficulty with solving the problems in Chapter 1 & 2 you may benefit from visiting the campus Learning Center and seek out some assistance with basic math.

Next review concepts specific to nursing math and dosage calculation. The following Pickar chapters should be reviewed for understanding of content.

Chapter 3: Systems of Measurement
Chapter 4: Conversions: Metric, Apothecary and Household
Chapter 6: Equipment Used in Dosage Measurement
Chapter 7: Interpreting Drug Orders
Chapter 8: Understanding Drug Labels
Chapter 9: Preventing Medication Errors

Solve a few problems in each of the above chapters to see if you have an understanding of the content. It is not necessary to solve all the problems. Again, if you are having difficulty understanding a particular content area, review the chapter and seek out additional assistance.

To further prepare for the dosage calculation exam, the student should be able to solve the problems found in the following Pickar chapters. The answer key for all practice problems are located in the back of the Pickar book There is also a User Tutorial CD-ROM that is included with the textbook. It is beneficial to first review the chapter content then solve a few of the assigned problems. Check your answers for accuracy then move on to the next chapter. The actual dosage calculation exam will include problems similar to what is assigned in this worksheet. Note: Practice with a few problems from each of the assigned review sets and practice problems.

Chapter 10 Oral Dosage of Drugs
Please complete problems in review sets 23, 24 and practice problems – Chapter 10, pgs. 194-195

Chapter 11 Parenteral Dosage of Drugs
Please complete problems in review set 25, 26 and practice problems – Chapter 10, pg. 231

Chapter 12 Reconstitution of Solutions
Please complete problems in review set 27 and practice problems – Chapter 12, pg. 277

Chapter 15 Intravenous Solutions, Equipment and Calculations
Please complete problems in review set 34, 35, 37, 38

Chapter 13 Pediatric and Adult Dosages Based on Body Weight
Please complete problems in review set 32 and practice problems – Chapter 14, pgs. 328-339

Chapter 14 Alternative Dosage Calculation Methods: Ratio-proportion and dimensional analysis presents an alternate way of calculating drug dosages using the ratio-proportion method.

DOSAGE CALCULATION LAB (may be done in any lab weeks 4 thru 7 as time permits)

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Perform nursing math to accurately calculate medication dosages
2. Accurately perform metric conversions
3. Calculate one and two step oral and parenteral medication metric conversion problems.

REQUIRED READING:

Pickar, G.D., Abernethy, A.P. (2008) *Dosage Calculations*. (9th ed.) Clifton Park: Thompson Delmar Learning

Website: www.testandcalc.com

CRITICAL SKILLS

Successfully complete the required Drug & Dosage Calculation Test with a score of 90%. Students who do not achieve 90% on this exam must retest until they achieve the required 90%. The dosage calculation exam will be given during lab week 8.

BODY WEIGHT CONVERSIONS

Change 150 lbs. to Kilograms. Divide 150 by 2.2 = 68 Kg.
Change 60 Kgs. to Pounds. Multiply 60 x 2.2 = 132 lbs.

USE OF RATIO AND PROPORTION

1 gram : 150 mg:: 0.8 grams : *x* mg

Mean
Extremes

1*x* = 0.8 x 150
1*x* = 120
x = 120 mg.

IV FLOW RATE

Calculate mL/hr	Calculate drops per minute
Total volume = mL/hr	Total volume x Drop factor = gtt/min
Total time = (hours)	Total time (minutes)

$\frac{1000\ mL}{6}$ = 166.6 mL/.hr or 167

$\frac{1000\ mL \times 15}{480\ min} = \frac{15{,}000}{480}$

= 31.25 gtt/min or 31 gtt/min

CALCULATE ML/HR FOR VOLUMETRIC INFUSION PUMP

$$\frac{Amount of Solution}{Minutes to Give} = \frac{mL/hr}{60\,\text{min}}$$

$$\frac{50mL}{30\,\text{min}} = \frac{xmL}{60\,\text{min}}$$

$30x = 3000$

$x = 100mL/h$

LAB # 5

TITLE: MOBILITY LAB

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Demonstrate passive range of motion (ROM) exercises.
2. Demonstrate assisting the client with ambulation.
3. Assisting the client with mobility devices (cane, walker)
4. Demonstrate use of a hydraulic lift device
5. Demonstrate proper application of anti-embolic devices

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 6 Mobility: pgs 240-247, 249-252, 257-258. Chapter 8 Perfusion: pgs 337-342.

CRITICAL SKILLS:

1. Skill 6.13 Passive ROM Exercises

ADDITIONAL SKILLS:

1. Skill 6.15 Assisting the Patient to Ambulate
2. Skill 6.16 Assisting the Patient to Use a Cane
3. Skill 6.18 Assisting the Patient to Use a Walker

LABS 6 & 7

TITLE: MEDICATION ADMINISTRATION LAB (ORAL.TOPICAL, INTRAMUSCULAR & SUBCUTANEOUS)

LAB OBJECTIVES:

At the completion of these labs, the student will be able to:

1. Demonstrate safe administration of oral and topical medications.
2. Document medication administration on the medication administration record (MAR)
3. Calculate oral and parenteral drug problems
4. Recognize and perform appropriate metric conversions
5. Select proper equipment for intramuscular and subcutaneous medication administration
6. Demonstrate correct landmarking for parenteral injections
7. Demonstrate correct needle selection for parenteral injections.
8. Demonstrate safe administration of parenteral (IM, SC) medications.
9. Calculate large volume intravenous drip rates.
10. Identify parts of a syringe and indicate those that must remain sterile.
11. Demonstrate correct procedure for preparing injections from a vial, pre-filled syringe, and ampule.

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 12 Caring Interventions: pgs 609-654.

CRITICAL SKILLS:

1. Skill 12.32 Administering Oral Medications
2. Skill 12.34 Administering Sublingual Medications
3. Skill 12.35 Administering Ophthalmic Medications
4. Skill 12. 36 Administering Otic Medication
5. Skill 12.37 Administering Nasal Medications
6. Skill 12.45 Administering Subcutaneous Medications
7. Skill 12.50 Administering Intramuscular Injections

LAB # 8

TITLE: DOSAGE CALCULATION EXAM

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. ***Successfully complete the required Drug & Dosage Calculation Test with a score of 90% or better.*** Students who do not achieve 90% on this exam must retest until they achieve the required 90%. **PLEASE BE SURE TO BRING YOUR OWN CALCULATOR WITH YOU FOR THIS EXAM.** ***Calculators are to be simple, without the ability to store formulas in their memories, ie. Graphing calculators are not simple calculators. No cell phones will be allowed for use as a calculator.*** Students are required to show all math calculations on the test paper, otherwise credit will not be given for the answer, even if correct.

LAB # 9

TITLE: ELIMINATION LAB

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Discuss the importance of urinary and bowel elimination as a basic human need.
2. Demonstrate application of an external urinary device.
3. Demonstrate specimen collection methods for urine and stool.
4. Discuss enema administration..
5. Demonstrate incontinence care.
6. Demonstrate care of urinary and suprapubic catheters

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 2 Elimination: pgs 33-45, 53-55, 58-59, 69-73, 78-94.

CRITICAL SKILLS :

1. Skill 2.5 Urine Specimen Collection
2. Skill 2.21. Stool Specimen Collection
3. Skill 2.27 Administering an Enema

ADDITIONAL SKILLS:

1. Skill 2.1 Assisting with a Bedpan
2. Skill 2.2 Assisting with a Urinal
3. Skill 2.3 Assisting Patient to the Commode
4. Skill 2.4 Applying an External Urinary Device
5. Skill 2.11 Performing Catheter Care and Removal
6. Skill 2.14 Performing Suprapubic Catheter Care

LAB # 10

TITLE: NUTRITION LAB

LAB OBJECTIVES:

At the completion of this lab, the student will able to:

1. Identify various types of tubes used for enteral feedings.
2. Describe the safe care of a patient requiring an enteral tube feeding.
3. Identify the type of patient that would require tube feedings.
4. Demonstrate irrigation and checking residual of a feeding tube.
5. Demonstrate checking placement of a feeding tube.
6. Demonstrate safely feeding a patient.

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 5 Metabolism: pgs 190-191, 195-196, 198-212. Chapter 12 Caring Interventions: pgs 607-609.

CRITICAL SKILLS:

1. Skill 5.4 Flushing/Maintaining Nasogastric (NG) Tubes
2. Skill 5.8 Administering a Tube Feeding
3. Skill 5.0 Administering a Gastroscopy or Jejunostomy feeding

ADDITIONAL SKILLS:

1. Skill 5.1 Serving a Food Tray
2. Skill 5.2 Assisting an Adult to Eat
3. Skill 5.13 Obtaining a Capillary Blood Specimen and Measuring Blood Glucose
4. Skill 12.25 Assisting the Dysphagic Patient to Eat

LAB # 11

TITLE: FLUID LAB

LAB OBJECTIVES:

At the completion of this lab, the student will able to:

1. Demonstrate intake and output monitoring
2. Demonstrate the ability to change a patient's gown who has an IV.
3. Demonstrate the ability to discontinue an IV.

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 3 Fluids and Electrolytes: pgs 116-125, 134-137, 144-152.

CRITICAL SKILLS:

1. Skill 3.1 Monitoring Intake and Output (I&O)

ADDITIONAL SKILLS:

1. Skill 3.10 Changing Gown for Patient with IV
2. Skill 3.11 Discontinuing Infusion Devices

LAB # 12

TITLE: OXYGENATION LAB

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Discuss the importance of respiratory preventive and maintenance measures such as coughing and deep breathing and incentive spirometry.
2. Discuss selected oxygen delivery devices.
3. Demonstrate correct application of nasal cannula and face masks.
4. Discuss positioning and techniques for administering chest physiotherapy.
5. Demonstrate proper technique for oral and oropharyngeal suctioning.
6. Discuss the correct use of the pulse oximeter.

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 7 Oxygenation: pgs 275-290, 295-298.

CRITICAL SKILLS:

1. Skill 7.4 Oxygen Saturation
2. Skill 7.6 Administering Oxygen by Cannula, Face Mask, Face Tent
3. Skill 7.19 Oral and Oropharyngeal Suctioning

ADDITIONAL SKILLS:

1. Skill 7.1 Deep Breathing and Coughing
2. Skill 7.2 Collecting a Sputum Specimen
3. Skill 7.3 Obtaining Nose and Throat Specimens
4. Skill 7.5 Using an Incentive Spirometer
5. Skill 7.10 Preparing Patient for Chest Physiotherapy (CPT)
6. Skill 7.11 Performing Chest Percussion
7. Skill 7.12 Performing Chest Vibration
8. Skill 7. 20 Oropharyngeal, Nasopharyngeal and Nasotracheal Suctioning

LAB #13

TITLE: INFECTION CONTROL LAB

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Demonstrate correct method of gloving, gowning, and mask use for isolation.
2. Discuss the various types of isolation precautions utilized in health care
3 Demonstrate the ability to apply principles of medical asepsis by donning clean gloves.

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 4 Infection: pgs 161-170.

CRITICAL SKILLS:

1. Skill 4.4 Donning and Removing Isolation Attire

ADDITIONAL SKILLS:

1. Skill 4.3 Donning and Removing Clean Gloves
2. Skill 4.7 Removing Items from Isolation Room
3. Skill 4.8 Utilizing Double-Bagging for Isolation
4. Skill 4.9 Removing Specimen from Isolation Room
5. Skill 4.10 Transporting Isolation Patient Outside Room
6. Skill 4.11 Removing Soiled Large Equipment from Isolation Room

LAB #14

TITLE: THERMOREGULATION AND INTRACRANIAL REGULATION LAB

LAB OBJECTIVES:

At the completion of this lab, the student will be able to:

1. Discuss various methods to promote temperature control in the patient experiencing alterations in thermoregulation.

REQUIRED READING:

North Carolina Custom Edition, (2011). *Nursing Skills for a Concept-Based Approach to Learning*. Chapter 1: pgs 17-18, 21-24.

Catch-up and review of skills

LAB # 15

Final skill sign-offs as needed.

Developed: 8/09
Revised: 1/10, 6/10, 8/11, 7/12