Eastern West Virginia Community and Technical College
COURSE ASSESSMENT REPORT

Course Title and Number: NU 132	**Academic Term and Year of Assessment Activity (Ex: Fall, 2014)** Fall, 2014
Report Submitted By: Eleanor Berg	**Number of Students Assessed: 18**
Date Report Submitted: 12/18/2014	**Number of Sections Included: 1**
Course Delivery Format (list all modalities used in sections assessed. Ex: web based, VDL, traditional section, hybrid course, etc.): Traditional 15 week instruction	

Course Role in the Curriculum

Provide a description of the role the course serves in the curriculum (i.e. general education requirement, program technical core, restricted elective, etc.). Note all as appropriate.

The course is designed to enhance the nursing student's ability to read, interpret, and solve dosage calculation problems. Critical thinking skills are applied to medication situations to emphasize the importance of accuracy and the avoidance of medication errors.

Topics will include: a thorough review of ratio and proportion and dimensional analysis, fractions, decimals and percent; conversion of measures within the same system of measurement and between different systems of measurement; and calculating safe drug dosages and intravenous fluid administration.

The course is part of the fulfillment of the general education for Math.
The course prepares students for successfully passing math competencies in other nursing courses.

Assessment Methods

Provide a description of the assessment process used. Include description of instrument and performance standards in description. Note all methods.

A quiz was given weekly for a total of 184 point and the final exam was worth 50 points. The students had to receive at least a 90% on the final and if below the benchmark, were given a second exam of comparable difficulty. The final exam was also utilized as a competency math exam in NU 134 which was the reason a student was required to score a 90% or above. 16 of the students scored a 90% or above on the first attempt. After remediation, the other two students were administered the second exam three days later. The program student learning outcomes and the course learning objects were matched with exams and quizzes.

Assessment Results

Provide a summary of results including tables/charts. Incorporate information from previous assessments as appropriate. Append additional pages if necessary. If appending, include notation in box to "See attached".

The course has not been assessed before because this is the first semester in which it was offered in the

new nursing curriculum. Of the 106 student learning objects and course learning objects, 78% were tested on quizzes or the final. 12% were given on a "never forget the rest of your life" handout and was discussed in lecture. One was demonstrated in the classroom with different colored Kool-Aid and water to determine concentration and compatibility of medications. Therefore, 90% of the course learning outcomes were measured in the course. 100% of the students completed the course with an 80% or higher. The lowest grade was a 93.5%. 89% passed the competency which was the final exam with a 90% or higher and the remaining 11% passed on the second attempt.

Course Level Assessment Summary of Outcomes, Indicators and Results
Course Title and Number: NU 132 Drug and Dosage Calculations
Number of students in assessment sample = 18
Number of Sections in Assessment = 1
Add additional rows to table if necessary

Learning Outcomes (Insert learning outcomes assessed during this cycle)	**Indicator (Insert indicators used for each outcome: exam question, scoring rubric, etc. Be specific)**	**Percent of Correct Responses**	**Percent of Incorrect Responses**	**Performance Standard Met (75%)* (yes or no)**
Outcome 1: Professional Identify: Recognize with assistance of the use of the nursing process of the holistic model in the assessment, analysis, planning, implementation and evaluation of nursing care for clients.	List the seven rights of medication administration. Right patient. Right mediation. Right route. Right dose. Right time. Right to refuse. Right documentation.	94%	6%	yes
Outcome 2: Human Flourishing: Recognize patient centered care that is respectful of and receptive to individual patient preferences, needs and values.	Miss Dehydration is a 9 month old who has been vomiting and has had diarrhea for four days. She is as a direct admission to the Pediatric Unit. She weighs 22 lbs and the mother states that she weighed 24 lbs only 1 week ago during a well visit. To rehydrate, the physician orders an IV of Normal Saline. He wants you to give 100 mL/kg. How many mL does he want you to give? 1000mL	100%	0%	yes

Outcome 3: Nursing Judgment: Recognize with assistance the use of the nursing process and the holistic model in the assessment, analysis, planning, implementation and evaluation of nursing care for clients.	What is the reason that a nurse should know when a dose of insulin will peak? To determine when the patient is at the highest risk for hypoglycemia, may require extra calories or when to schedule the insulin in relationship to the patient's dietary habits.	100%	0%	yes
Outcome 4: Spirit of Inquiry: Recognize the importance of continued learning to maintain clinical excellence in the profession of nursing.	What type of needle do you use to withdraw medication from an ampule? A filter needle	100%	0%	yes

* Please note if using a different minimum performance standard.

Conclusions **Provide a brief summary of conclusions derived based on analysis of data. Append additional pages if necessary. If appending, include notation in box to "See attached".**
The program outcomes were met and 90% of the course learning outcomes were met.

Previous Assessment Reports and Results **Date of Previous Assessment:** **List of Outcomes Not Met:** **Summary of Actions Taken to Address Unmet Learning Outcomes: Append additional pages if necessary. If appending, include notation in box to "See attached".**
N/A, the course has not be offered before.

Action Plan and Date for Reassessment **Identify action plan for improvement or maintaining current performance levels including outcomes identified for re-assessment, curriculum revision, LOT proposal, new or revised course activities to reinforce learning outcomes, etc. Append additional pages if necessary. If appending, include notation in box to "See attached".**
All outcomes were met and no revision required at this time. The course is the first of two courses in Drug and Dosage Calculations. A HESI exam which is a national assessment exam will be administered at the completion of the second course. If the results are below national standards, the course will need to be re-assessed.

Assessment Committee Recommendation/Approval (To be posted by Assessment Committee Chair)
Approved as presented **Date: February 26, 2015**

LOT Recommendation/Approval (To be posted by Assessment Committee Chair)
Approved as presented **Date: April 20, 2015**

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Nursing Judgment: **Make judgments in practice, substantiated with evidence, that integrate nursing science in the provision of safe, quality care and that promote the health of patients within a family and community context.** (Patient-centeredness, holism, ethics)

1. Discuss the principles of medication administration safety
2. Identify the elements of accurate documentation of medication administration
3. Identify and prevent common medication errors
4. Demonstrate competencies in applying mathematical principles for safe medication administration

Professional Identity: Implement one's role as a nurse in ways that reflect integrity, responsibility, ethical practices, and an evolving identity as a nurse committed to evidence-based practice, caring, advocacy, and safe, quality care for diverse patients within a family and community context. (Ethics, Caring, Integrity, Patient-centeredness, excellence)

5. Recognize the professional responsibility in the interpretation, calculation and administration of medications

Student Learning Outcomes: The following list of student learning performance objectives will be addressed in the course.

1. Translate Arabic numbers to Roman numerals and vice versa
2. Perform arithmetic operations with whole numbers, fractions, and decimals
3. Convert between fractions, decimals, and percent.
4. Set up and solve problems utilizing the ratio and proportion and/or dimensional analysis methodology.
5. Convert from one system of measure to another using:
    a. metric system
    b. apothecary system

c. household system

6. Calculate drug dosages for oral and injectable medications.
7. Calculate intravenous infusion rates of volume per unit of time.

Program Core Values

Human Flourishing: Advocate for patients and families in ways that promote their self-determination, integrity, and ongoing growth as human beings.
(Diversity, holism, patient-centeredness, caring)

1. Recognize **patient centered** care that is respectful of and receptive to individual patient preferences, needs, and values.
2. Recognize knowledge from other scientific and humanistic disciplines as it relates to the profession of nursing and the **care** of **diverse** individuals throughout the lifespan
3. Understand key nursing concepts introduced related to the **care** of **diverse** individuals throughout the lifespan with a focus on health, wellness, and simple deviations

   Quiz: Question
   4:20, 5:1-16, 7:1-9, 8:9, 8:15-20, 9:7-12, 11:1

Nursing Judgment: **Make judgments in practice, substantiated with evidence, that integrate nursing science in the provision of safe, quality care and that promote the health of patients within a family and community context.** (Patient-centeredness, holism)

4. Recognize with assistance the use of the nursing process and the **holistic** model in the assessment, analysis, planning, implementation, and evaluation of nursing **care** for clients.
5. Identify principles of therapeutic **communication**

   Quiz: Question
   4:12, 4:14, 4:16, 4:18, 4:19, 7:12, 7:1-12, 8:1-2, 8:4, 9:2-6, 10:1-13, 12:3-10, 12:18

Professional Identity: Implement one's role as a nurse in ways that reflect integrity, responsibility, ethical practices, and an evolving identity as a nurse committed to evidence-based practice, caring, advocacy, and safe, quality care for diverse patients within a family and community context. (Ethics, Caring, Integrity, Patient-centeredness, excellence)

6. Identify foundational principles of **professional** nursing practice to provide **safe**, **ethical**, culturally competent **care** to individuals across the lifespan
7. Identify technology and information systems used to provide safe, effective **care** maintaining confidentiality

   Quiz: Question
   Homework-*

1:1-10, 3: 10-11, 5:1-16, 8:1-16, 10:14-21

Spirit of Inquiry: Examine the evidence that underlies clinical nursing practice to challenge the status quo, question underlying assumptions, and offer new insights to improve the quality of care for patients, families, and communities. (Excellence)

8. Explain the use of evidence based research for best practices
9. Recognize the importance of continued learning to maintain clinical excellence in the profession of nursing

Quiz: Question
43:15, 7:11-12, 8:5, 8:7, 8:12, 8:13, 9:1, 11:2-7, 11:9-11, 12:2

Student Learning Performance Objectives: The following list of student learning performance objectives will be addressed in the course.

8. Translate Arabic numbers to Roman numerals and vice versa.

- Recognize the symbols used to represent numbers in the Roman numeral system. 1:1-10
- Convert Roman numerals to Arabic numbers 1:1-6
- Convert Arabic numbers to Roman numerals. 1:7-9

2. **Perform arithmetic operations with whole numbers, fractions, and decimals.**

- Compare the size of fractions. *
- Add fractions. 2:3
- Subtract fractions. 2:5
- Divide fractions. *
- Multiply fractions. *
- Reduce fractions to lowest terms. 2:2
- Read decimals. 2:6
- Write decimals.2:6
- Compare the size of decimals. *
- Covert fractions to decimals. *
- Convert decimals to fractions. *
- Add decimals. *
- Subtract decimals. *
- Multiply decimals. *
- Divide decimals. *
- Round decimals to the nearest tenth. 2:8
- Round decimals to the nearest hundredth *
- Define percent. *
- Convert percents to fractions. 3:1
- Convert percents to decimals. 3:2

- Convert percents to ratios. 2:6
- Convert decimals to percents. 2:4
- Convert fractions to percents. 2:5
- Converts fractions to ratios. 2:6
- Define Percent.
- Determine the percent of numbers 2:4

3. Convert between fractions, decimals, and percent.

- Convert percents to fractions. 2:1
- Convert percents to decimals. 2:2
- Convert percents to ratios. 2:6
- Convert decimals to percents. 2:4
- Convert fractions to percents. 2:5
- Converts fractions to ratios. 2:6

4. Set up and solve problems utilizing the ratio and proportion and/or dimensional analysis methodology.
   - Define ratio and proportion. 3:11
   - Define means and extremes. 3:15
   - Calculate problems for a missing term (*x*) using ratio and proportion. 3:9
   - State a ratio and proportion to solve a given dosage calculation problem. 3:14
   - Solve simple calculation problems using the ratio and proportion method. 3:10

   - Define dimensional analysis. 3:12
   - Implement unit cancellation in dimensional analysis. 3:13
   - Perform conversions using dimensional analysis. 3:2
   - Use dimensional analysis to calculate dosages 3:14

5. Convert from one system of measure to another using:

a. Metric system
b. Apothecary system
c. Household system

- Express metric measures correctly using rules of the metric system. 4:1
- State common equivalents in the metric system. 4:2
- Convert measures within the metric system. 4:2
- Differentiate apothecary and household systems of measurement. 4:9
- Identify reasons for non-use of apothecary measures and symbols.
- State the common household equivalents. 4:10
- State specific rules that relate to the household system.
- Identify measures in the household system. 4:11
- Define other measures used in medication administration: a. milliequivalent (mEq) b. international unit c. unit
- State the common apothecary equivalents. 4:9
- State the specific rules that relate to the apothecary system.
- Identify symbols and measures in the apothecary system.

- State the metric and household approximate equivalents. Never Forget Handout*
- Convert a unit of measure to its equivalent within the same system. 4:1
- Convert a unit from one system of measurement to its equivalent in another system of measurement. 4:8
- Convert between Celsius and Fahrenheit temperature.
- Convert between units of length: inches, centimeters, and millimeters.
- Convert between units of weight: pounds and kilograms, pounds and ounces to kilograms. 3:11
- Convert between traditional and military (international) time. 5:5

6. Calculate drug dosages for oral and injectable medications.

- Calculate the number of tablets or capsules to administer. 2:10
- Calculate the volume to administer for medications in solution. 6:1
- Identify the forms of oral medication. 6:2
- Identify the terms on the medication label to be used in calculation of dosages. 7:1
- Calculate dosages for oral and liquid medications using ratio and proportion, the formula method, or dimensional analysis. Classroom demonstration
- Apply principles learned concerning tablet and liquid preparations to obtain a rational answer. 9:7
- Identify the various types of syringes used for parenteral administration. 9:10-11
- Read parenteral solution labels and identify dosage strengths. 10:14
- Read and measure dosages on a syringe.10:5, 10:13
- Calculate dosages of parenteral medications already in solution. 9:12
- Identify the appropriate syringe to administer the dosage based on the dosage calculation. 11:2
- Prepare a solution for a powdered medication according to directions on the vial or other resource. 9:2
- Identify essential information to be placed on the vial of a medication after it is reconstituted. 9:14-21
- Determine the best concentration strength for medications ordered when there are several directions for mixing.
- Identify the varying directions for reconstitution and select the correct directions to prepare the dosage ordered. 9:2-12
- Calculate dosages from reconstituted medications. 9:6
- Identify important information on insulin labels. 12:6
- Identify various methods for insulin administration. 12:10
- Read calibrations on 30-, 50-, and 100-unit syringes. 12:4
- Measure insulin in single dosages. 11:5
- Measure combined insulin dosages. 11:5

- Calculate doses for U-500 insulin using a 1 mL syringe.
- Calculate doses for U-500 to measure using U-100 insulin syringe.

7. Calculate intravenous infusion rates of volume per unit of time.

- Define the following terms associated with IV therapy peripheral line, central line, primary line, secondary line, saline/heparin locks, IV piggyback (IVPB), and IV push.
- Differentiate among various devices used to administer IV solutions (e.g., patient-controlled analgesia [PCA] pumps, syringe pumps, volumetric pumps).
- Identify best practices that prevent IV administration errors and ensure client safety. 11:8-11
- Identify how technology related to IV therapy can enhance client safety. 11:9
- Calculate milliliters per hour (mL/hr). 11:9
- Identify the two types of administration tubing. 11:9-11
- Identify from intravenous (IV) tubing packages the drop factor in drops per milliliter (gtt/mL). 11:9
- Calculate IV flow rate in drops per minute (gtt/min) using a formula method and dimensional analysis. 11:10
- Calculate IV flow rate in gtt/min using a shortcut method (mL/hr and constant drop factor). 11:11
- Calculate the flow rate for medications ordered IV over a specified time period. 11:9
- Calculate infusion times and completion times.