

**Lake Cumberland Regional Hospital
Medication Administration Exam Information
&
Study Packet for Nursing Candidates**

Thank you for your interest in employment at Lake Cumberland Regional Hospital. We look forward to having you as a member of the health care team. As part of the application process, all registered nurses and licensed practical nurses must successfully complete a written Medication Knowledge Assessment **prior to employment**. The exam will be scheduled by the Staff Development Office and upon successful completion you will be referred to Human Resource for additional processing; please be prepared to spend 3 to 4 hours at the facility.

Exam Details/ Frequently asked questions & answers:

Why is it required?

The exam emphasizes essential, basic knowledge used in daily nursing practice and is used in determining basic proficiency in medication administration.

What type of test is given?

The exam is from Center for Nursing Education and Testing (C-NET) which is comprised of 50 multiple choice questions and 10 calculations. The multiple choice questions consist of 35 questions over knowledge of drugs and their effects and 15 questions covering rules for safe medication administration. This is a paper and pencil exam and 1 hour is given for completion.

What is a passing score?

There are two scores associated with this exam: 80% required for the multiple choice section and 100% on the calculations.

What if a passing score is not achieved?

If a passing score is not obtained with the initial exam candidates will be allowed 5 business days for studying and an opportunity to retake a similar exam. If a passing score is not achieved with the second exam, the offer of employment will be rescinded.

What materials should be reviewed?

Attached you will find a study guide to help prepare for the exam. This is a general medication exam taken by all nurses regardless of specialty area or years of practice. Sample questions and calculation formulas are provided as well as drug classifications.

What do I need to bring with me?

You may use a calculator but may not bring a cell phone to the testing area.

Where do I go to take the test?

Location and directions will be provided when your test is scheduled.

The Human Resource and Staff Development team members look forward to assisting you throughout your endeavors with Lake Cumberland Regional Hospital.

Medications

Be prepared for any or all of the medications listed below to be incorporated into questions on the medication test.

Be prepared to recognize general drug classes along with indications for use and any nursing considerations, patient safety issues or patient education opportunities.

When looking at the medications, think about

Side effects and antidotes (hypotension, bleeding; what reverses actions of some medications etc).

proper use of the medication (why you are giving it and route you can give the medication- special consideration for the route, other diseases, conditions, or other medications that make the medication contraindicated, assessments that should occur in relation to the medication).

Absorption and elimination (IV is faster than IM, are other elements required to absorb the medication, will certain factors prevent the medication from being excreted and what are the effects of that).

Time frames for the medication (should it be in the morning or night, with or without food, when would you hold the medication, certain foods to avoid, can you only give it within a certain time frame, will they take it long term or short term, speed with which it can be given).

Insulin (what are peak action times, when to give in relation to eating, treating hypoglycemia, why we give it).

Antibiotics- Vancomycin

Anticholesterol/Antihyperlipidemics/Statins-Zocor

Anti-Coagulant/ Anti-platelet/ Fibrinolytics- Coumadin, Heparin, Lovenox, Plavix, alteplase

Antihypertensives- Zestril

Antiparkinsonian – Sinemet

Antiretroviral therapy or HAART

Antispasmodics- (Uses in general)

Benzodiazepines-Ativan, Xanax

Bisphosphonates- Fosamax

Diuretic- Aldactone

Hemostatics- Protamine Sulfate

Oral Diabetic medication- Glucophage

Pain management-Opioids-Morphine, Fentanyl (Duragesic), Dilaudid

Phosphodiesterase inhibitors- Viagra

Proton Pump Inhibitor- Nexium

Stool Softener/ laxatives- Colace, Lactulose

Vitamins- Vitamin B1

Misc- Neupogen, Megace, BCG vaccine, Flu vaccine, Advair, Ventolin, Steroids (long term therapy issues), St. John's wort (effects on other medications)

Medication Safety

Be aware of the following factors related to medication administration

Tolerance issues (this is different than addiction)

Noncompliance with treatment regimen (effects)

Addressing questions about medication orders

What is half-life of medication?

SCIP Protocols

Resources for medication questions

Medication Diversion

Calculations

	Equals	Equals
1 Kilogram (Kg)	1000 grams (g)	2.2 pounds (lbs)
1 gram	1000 milligrams (mg)	1,000,000 micrograms (mcg)
1 ml	1cc	15 drops (gtt)
1 hour	60 min	
1 min	60 seconds	

For calculations you will use formulas. The formula is designed to show the information we know and let us discover the amount for the missing information. Many of the formulas set up the information in what looks like a ratio or fraction. When we do this we can then multiply to discover our answers.

For example

We have an order for 250mg of drug A. Drug A comes in 25mg tablets. How many tablets do we need to give?

Equation:

$$\frac{25\text{mg}}{1 \text{ tablet}} = \frac{250\text{mg}}{X \text{ tabs}}$$

To solve this question we have placed the information into an equation. Now we will cross multiple- take the bottom number of Each portion and multiple the other side by the number. After that you Will divide each side by the number accompanying the missing value (X)

Cross multiply:

$$(25\text{mg}) \times (X \text{ tabs}) \text{ \& } (1 \text{ tab}) \times (250\text{mg}) \text{ result } 25X=250$$

Divide:

$$\frac{25X}{25} = \frac{250}{25} \text{ or } 25X \div 25 = 250 \div 25$$

25 divided by 25 =1; 250 divided by 25= 10
So you will need 10 tablets to give a dose of 250mg

Here is another example using liquid

You have an order for a liquid medication to be given 300mg every 12 hours. The medication comes in 50mg/5ml. How many ml do you give at each dose?

Equation: $\frac{50\text{mg}}{5\text{ml}} = \frac{300\text{mg}}{X\text{ml}}$

Cross Multiply: $50\text{mg} \times X\text{ml} = 300\text{mg} \times 5\text{ml}$ **result** $50X = 1500$

Divide: $50X \div 50 = X$; $1500 \div 50 = 30$ so $X = 30$ therefore you need 30 ml to equal 300mg at each dose.

Another way to look at liquid dosages is take the amount of the drug (mg) and divide by the amount of liquid (finding the concentration)

$$50 \div 5 = 10 \text{ this tells you that there are 10mg for every 1 ml}$$

We know we want 300mg so we can divide what we want by what we have
 $300 \div 10 = 30$ so you need 30ml to get 300mg

Converting pounds to kg

$$1 \text{ kg} = 2.2 \text{ lbs}$$

$$\text{Pt weight} = 50 \text{ lbs}$$

$$50 \div 2.2 = 22.7 \text{ kg (23kg)}$$

Converting kg to pounds

$$\text{Pt weight} = 23 \text{ kg}$$

$$23 \times 2.2 = 50 \text{ lbs}$$

Drip rates to find gtt per min

<u>Volume(ml)</u>	X	<u>Drip factor (gtts/ml)</u>
Time in minutes		1ml

$$\text{Volume} \times \text{drip factor}; \text{Time in minutes} \times 1$$

Example: you need to give 400ml of IV fluid in 6 hours. The IV set delivers 60drops per ml. How many drops per minute should you give?

Equation:

$$\frac{400 \text{ml}}{360 \text{mins}} \times \frac{60 \text{gtt}}{1 \text{ml}}$$

Multiple straight

$$\frac{400 \times 60}{360 \times 1} = \frac{24000}{360}$$

Across:

Divide: $24000 \div 360 = 66.6 \text{ gtt per min}$

Another type of question: you have a drip rate of 30 drops per min. The set delivers 15 drops per ml. How many ml of fluid will the patient receive in 4 hours?

1. Change hours to minutes---4 hours =? minutes $4 \times 60 = 240$

There are 60 minutes in 1 hour and we want to know how many are in 4 hours

2. Multiple the number of minutes by the drip rate –

$$240 \text{ min} \times 30 \text{gtt/min} = 7200 \text{ total gtt in 4 hours.}$$

3. Now factor in the tubing and divide- $7200 \text{gtts} \div 15 \text{gtts/min} = 480 \text{ml in 4 hours}$

First change your time to minutes. Set your numbers up in the equation shown to the left. Then you will multiply across (top numbers by top numbers and bottom numbers by bottom numbers as shown below. Then you divide the top number by the bottom number in your equation.

Another approach to this problem would be to determine the number of gtts delivered in 1 hour, divide the number of gtts in 1 hour by the number of drops per ml to find how many ml per hour and then multiply that by the number of hours desired.

1. Find number of gtt per hour- $30 \times 60 = 1800\text{gtt/hr}$

(There are 30 gtts in 1 min and 60 min in 1 hour)

2. Divide gtt/hr by gtts/ml $1800 \div 15 = 120\text{ml/hr}$

3. Multiply ml/hr by number of hours $120\text{ml} \times 4 \text{ hours} = 480\text{ml given in 4 hours}$