Medication Administration Self Assessment

Post Basic LPN Review

ANBLPN | AIAANB

Association of New Brunswick Licensed Practical Nurses

L'Association des Infirmier(ère)s Auxiliaires Autorisé(e)s du Nouveau-Brunswick

Mission

The Association of New Brunswick Licensed Practical Nurses ensures the public of their commitment to safe, competent, and compassionate, ethical care by regulating and enhancing the profession of practical nursing.

Acknowledgements

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Our Vision

Licensed Practical Nurses are an integral member of collaborative health care, respected for their skills and expertise, compassion, and unwavering ethical standards.

Our Mission

The Association of New Brunswick Licensed Practical Nurses ensures the public of their commitment to safe, competent, and compassionate ethical care by regulating and enhancing the profession of practical nursing.

Values

- ✓ Respect
  Creating and nurturing a culture of equity inclusiveness and diversity within our organization, with membership and with our external stakeholders

- ✓ Integrity
  Being honest, fair, consistent, reliable and objective in our actions, decisions and relationships

- ✓ Collaboration
  Engaging licensed practical nurses and other stakeholders in a cooperative spirit to build and maintain strong professional and public relationships that support the safety and best interests of the public

- ✓ Quality
  Promoting excellence through integration of emerging public policy and the consistent application of professional nursing regulation

- ✓ Professionalism
  Practical nursing care while developing and maintaining a therapeutic nurse-client relationship. Continuous skills development, ethics and oversight by a professional regulatory body provide direction for practical nurses to uphold the highest standard of care as defined by their scope of practice. The practical nurse maintains integrity and is accountable to the public, the client, their profession, colleagues and one's self.

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Individual copies of this document may be downloaded from the Association's website at
www.anblpn.ca

Table of Contents

Administration of Medications
A Self-Assessment Guide for Licensed Practical nurses

The purpose of this document is to provide you with an overview of medication administration information to assist you to perform a self-assessment of your medication administration competence (knowledge, skill and judgment).

Medication Administration is a basic entry level competency for the Licensed Practical Nurse (LPN). Safe medication administration requires knowledge of pharmacology, patient assessment, standards and institution policies, skills in various forms of administration and judgment around safe medication practices. The practice of medication administration requires the LPN to assess the appropriateness of the medication for the client, prepare and administer the medication correctly, assess the effectiveness of the medication, anticipate, identify and manage adverse reactions in partnership with the Registered Nurse and/or physician, document the process according to institution policy and teach the client about the medication as it relates to overall health. (CRNNS, 2011) It also requires ongoing self assessment of competency and participation in continuing education activities.

How to Use this Guide

Review each of the sections. There are three self-assessment tools corresponding to the content. Complete the questions and compare your answers to the answer keys. Reflect on your responses. Reflection involves the exploration of experiences in order to create a new understanding or appreciation of knowledge (Mann, Gordon and MacLeod, 2007). Examine your responses and think about how you arrived to each one. Think about them in terms of how easy or difficult it was to get to your answer. Think about your past practices in medication administration and your current and/or future practice environment and how that impacted your responses. Ask yourself the following questions as you reflect on your answers.

- **What parts of tools were easy? Difficult? Why?**
- **Do I have the necessary knowledge, skill and judgment to perform these skills?**
  (Remember: Medication administration is about understanding and applying principles of safe medication administration, which includes knowing when and how to use a reference. There is no expectation that any one practical nurse know every detail about every medication on the market today).
- **What are my strengths? What or where are my gaps in knowledge?**

Use the self-assessments as part of this process, as part of meeting the overall requirements of the Continuing Competency Program (CCP). The findings of the self-assessment can be used to build your learning plan as part of CCP.

SECTION 1: General Medication Administration Guidelines

1. Medication orders must be appropriate, legible, current and complete. Orders are to be transcribed or processed accurately. Transcription procedures vary according to organization. Refer to the policy as necessary.

2. Medications must be appropriate for the client and make sense to the client's context. Assess the appropriateness of the medication for the client. Understand the purpose, dose range, side effects, possible risks, contraindications, appropriate administration times, interactions with other medications. Consult appropriate and organizationally approved resources (Micromedex, eCPS) or references as necessary.

3. Medications must be prepared according to medication administration guidelines.

    a. Ensure the **environment is suitable** for medication administration

        i. Adequate lighting
        ii. Minimal interruptions
        iii. Supports the use of aseptic technique
        iv. Uncluttered

    b. Check the **medication label three times**

        i. When the medication is removed from storage
        ii. Immediately prior to removing from the container/packaging
        iii. When returning to the storage area

    c. Make sure dosage **calculations are accurate**

        i. Engage co-workers in an independent double check of math calculations when necessary
        ii. Crush or split only if indicated
        iii. Do not administer a medication from an unlabeled or illegible container
        iv. Do not administer a medication prepared by someone else
            - This does not apply to medications prepared by a pharmacy employee

    d. Ensure safe medication **storage and disposal**

        i. Medication is stored per manufacturer
        ii. Unused portions are disposed of according to organizational policies

4. Pre-pouring medications for later use is unacceptable.

5. Do not leave a medication at a client's bedside to be taken later.

However in some home care and special care home settings, the practical nurse may 'set-up' daily/weekly medications for a client. This practice requires an organizational policy/practice guideline to be in place to support it.

6. Clients must be identified using the facility policy for client identification.

7. Documentation of medication administrations takes place **immediately after** the medication has been given, *never,* before.

8. Assess and document the client's response to the medication.

REFLECTIVE PRACTICE

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them and increase my knowledge?
4. How will having this knowledge improve my daily practice?

Notes:

SECTION 2: "The Rights" of Medication Administration

The LPN is accountable for client safety in the medications administration process. The "Rights" of medication administration is a safety framework that practical nurses utilize to maximize accuracy and safety in medication administration.

The Right Medication:

Many medications have similar names, packaging, spellings, and concentrations. It is vital to ensure that the spelling is correct. Review the label of the medication at least three times before it is administered.

The Right Time:

Institution policy generally sets standard medication administration times. Sometimes, standard times do not match the administration schedule the client has been following at home and where possible; home medication schedules should be followed.

Knowledge of pharmacology is important in scheduling times. For example: Is the drug best given with food or on an empty stomach? How important is regular schedules to maintain therapeutic blood levels? Is it required for a diagnostic procedure? What time was the last dose given?

Medication should be administered within 2 hours of the prescribed time, unless specifically contraindicated.

The Right Dose:

Most medications have a dose range (which is set by the manufacturer). The dosage of a specific medication may vary in relation to the medical needs of the client, age and disease process. Make sure the dose is safe for the client's age and medical condition.

Dosage calculations need to be accurate and engage co-workers in an independent second or third check of calculations if necessary. Ensure the medication is in the right form, the correct measuring device is used and ensure only crushed/split as indicated by manufacturer. Remember to consult pharmacy if alternate dosage forms are required.

PRACTICE IN ACTION: *Independent Double Check*

A double-check of calculations by another care provider who ***does not*** *have knowledge of prior calculations.*

Mary performs drug calculations to determine a required dose of antibiotic medication. She asks Robert to perform the same calculation. They compare answers for accuracy.

The Right Client:

Best practices in client safety include checking 2 client identifiers prior to medication administration. Clients must be identified using the facility policy for client identification.

Do not solely rely on clients to correctly identify themselves, as levels of mental alertness may vary.

The Right Route:

The medication order must specify the route by which the medication is to be administered. Never substitute one route for another unless that option is written explicitly into the order.

For instance, ***Dimenhydrinate 25 mg PO or IM q4h PRN***. Document which route was chosen.

The Right Education:

The client has the right to be educated about the medication(s) in which she/he is prescribed. Practical nurses are accountable to make sure clients and/or family members have access to the right education and have questions answered. Document education and response in the client record.

The Right to Refuse:

The client has the right to refuse a medication. The practical nurse is responsible to determine the reason for the refusal; to communicate this to the prescriber and document in the client's record.

The Right Response/Evaluation:

A client assessment is required before and after a medication is administered.

For example, when administering an analgesic; a pain assessment should be completed prior to administration and within an hour post administration. This provides critical pieces of data to guide nursing decisions.

The LPN is responsible to engage the appropriate care provider (RN or MD) as soon as possible;

1. **When the appropriate results are not achieved**;
2. **The client has an unexpected response to a medication.**

The Right Reason:

Confirm the rationale for the ordered medication. Why is he/she taking this medication?

For example; If a medication is specifically ordered for nausea, Gravol, it should not be given to help a patient sleep. It should be given for the intent that it was ordered by a physician.

It is not the place of the Licensed Practical Nurse to prescribe medication.

The Right Documentation:

Timely documentation prevents medication errors. Best practice is to document immediately *after* the administration of a medication, not before.

Document your assessment of the client, the nature or type of health teaching, any unexpected outcomes and any consultations that occurred as a result of the client's outcomes.

PRACTICE IN ACTION

Documenting medication before it is administered is a high risk practice. It can create confusion between care providers and lead to unwanted/unexpected client outcomes.

Practical nurse Lisa "signs-off" each one of Mr. Smith's 0900 medications as she removes them from the package and placed them in the medication cup. As she gets ready to enter Mr. Smith's room, Mrs. MacDonald rushes into the hallway and frantically tells Lisa, "My husband is not breathing very well". Upon entering the room, Lisa finds Mr. MacDonald cyanotic and non-responsive and is unable to palpate a radial pulse. She sets the medication cup on the over-bed tray, pulls the emergency cord and initiates CPR.

Robert, an LPN colleague, assumes the care of Lisa's other clients during the crisis situation. He begins by reviewing the MAR records and notes that Mr. Smith's medications are "signed-off". Interpreting this to mean that the medications have been administered, he moves on the group of clients in the next room. Mr. Smith does not receive any 0900 medications.

REFLECTIVE PRACTICE

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them and increase my knowledge?
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SECTION 3: Pharmacology References and Nursing Assessment

The practical nurse is accountable to be familiar with the medication she/he is administering. Access to a reliable medication reference is vital to safe medication administration. Nursing assessments should be based on pharmacology references and medication administration guidelines.

Indications: The reason the medication is prescribed.
Nursing Assessment: Does this make sense for the client's condition?

Contraindications: Reasons a medication should NOT be prescribed to a client. For instance, some medications should be avoided by clients with reduced renal function.
Nursing Assessment: Does the client have any co-morbidities or other conditions that may impact the prescribed medication.

Recommended Dose: The dosage of medication, or range, recommended by the manufacturer.
Nursing Assessment: Does the prescribed dose fall in the recommended range? Does the client have any co-morbidities that would necessitate a reduction in a dose?

Interactions: The action of the medication is affected by another medication or food.
Nursing Assessment: Is the client taking other medications that may impact the prescribed medication? Should this medication be taken with or without food?

Onset: The time when the medication first starts to have an effect. This is important to know to measure effectiveness or an onset of an adverse reaction.
Nursing Assessment: Will this be impacted by the client's ADLs or the treatment plan?

Duration: The amount of time the medication has an effect. This is important to understand duration and its impact on a dosing schedule.
Nursing Assessment: Will this be impacted by the client's ADLs or the treatment plan?

Peak Time: The time when the medication will have the peak effect for the client. This may be the time that side effects may be observed, or that the client will have the most relief from symptoms. It is important to know peak time so you can assess for effects at that time.
Nursing Assessment: Will this be impacted by the client's ADLs or the treatment plan?

Half Life: Is specifically when 50% of the drug has been excreted from the body. It is important to know this to schedule dosing intervals as well as to know when the drug will be eliminated from the client's body if there are adverse effects.
Nursing Assessment: Does the client have any co-morbidities that will impact (make the half-life longer or shorter) the excretion of the medication?

Side Effects: Know what common side effects the medication has so the client can be assessed for them, or so they can be anticipated and managed with appropriate treatment.
Nursing Assessment: Does the client have a condition where a side effect may be masked? Or delayed? Or appear to be related to another cause?

Excretion: Understand how the medication is eliminated from the body (usually by the liver or the kidneys) and if the client has any condition which may alter the elimination from the body.
Nursing Assessment: Does the client have any co-morbidities that will impact (make the half-life longer or shorter) the excretion of the medication?

REFLECTIVE PRACTICE

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them and increase my knowledge?
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Notes:

SECTION 4: Pharmacology Self- Assessment

Review the case study and answer the questions. Compare your answers to the answer key. Reflect on the ease and completeness of your answers. **The greater the difficulty and/or incompleteness of your answer, the more it is likely that you should engage in pharmacology education.** Individual practical nurses are accountable to work with their employers to make certain they have access to the necessary work-place education and support before engaging in a skill.

As you self-assess your knowledge, skill and judgement (competency), remember that there is no expectation to you memorize every detail about every medication on the market today. There is however, an expectation, that you are competent to apply the general medication administration principles within a framework (The Rights of Medication Administration) using appropriate references as necessary.

Case Scenario

Mr. Wells is a client at the facility in which you work. He has multiple chronic health problems that require numerous medications to keep his condition stable. His known health problems include: Type II diabetes mellitus, heart failure and chronic obstructive pulmonary disease.

Medications include the following:

- Bowel protocol as follows:

  Day 2 no BM:
  - docusate 100 mg po bid with meals
  - fruitlax 30mL bid with meals except for diabetic and renal patients
  - If no BM within 24 hrs; move to Level II

  Day 3 no BM:
  - docusate 100mg po bid with meals
  - sennosides 12mg 1-2 tabs or cascara 5-10mL at hs
  - If no BM for further 24-48 hrs; move to Level III

  Day 4 no BM
  - docusate 200mg po bid with meals
  - sennosides 12mg 2-3 tabs or cascara 10-20mL at hs
  - bisacodyl 10mg supp and glycerin (adult) supp in am
  - If supp ineffective, give sodium phosphate (Fleet) enema and
  - If still ineffective – administer oil retention enema
  - If no BM contact MD.

- digoxin 0.125mg po daily
- nitroglycerine patch 0.4mg/hr for 12 hours/day
- albuterol MDI, 2 puffs tid

- fluticasone MDI, 2 puffs bid
- glyburide 10mg po bid
- prednisone 40mg po daily
- alendronate 70mg po weekly
- calcium carbonate 500mg po bid
- vitamin D 1000iu po daily
- asa 81mg po daily
- acetaminophen 325mg with codeine 30mg ii tabs @ hs & q6h prn for pain

PART 1

Answer the following questions about Mr. Wells' medication list.

1. Why is Mr. Wells prescribed digoxin 0.125mg po daily?

2. What are the nursing responsibilities related to digoxin administration?

3. Digoxin is stocked in 0.25 mg tablets. How many tablets are to be administered to Mr. Wells?

4. What is a nitroglycerine patch?
    a. Why Mr. Wells prescribed this?
    b. Why is a nitroglycerine patch removed after 12 hours?

5. What nursing actions support optimal results from a nitroglycerine patch?

6. Mr. Wells has an order for albuterol MDI, 2 puffs tid and fluticasone MDI, 2 puffs bid. What is a MDI?

7. Why are these two inhalers prescribed?

8. Occasionally, the inhalers are to be administered at the same time. What nursing actions support optimal results from both inhalers?

9. Why is Mr. Wells prescribed prednisone 40mg po daily?

10. Identify common side effects of prednisone.

PART 2
Mr. Wells' physician has ordered a diagnostic test, which requires him to fast.

Answer the following questions about Mr. Wells' medication list.

1. What is/are the appropriate medication specific nursing action(s) during the fasting period?

2. What are the risks to stopping prednisone abruptly?

3. Why is Mr. Wells prescribed alendronate 70mg po weekly ?

4. Why does Mr. Wells require a bowel protocol?

5. His last bowel movement was 36 hours ago. Identify the medications and the time they are to be administered to Mr. Wells.

6. What is the brand name for acetaminophen 325mg with codeine 30mg?

7. Mr. Wells receives glyburide10mg po bid . How does this medication work?

8. Glyburide is available in 5mg tablets.
    a. How many tablets are required each dose?
    b. In a 24 hour period?

9. Is Mr. Wells more likely to experience hypoglycemia or hyperglycemia while fasting?

PART 3
Mr. Wells' blood glucose level is progressively rising. His physician orders insulin 70/30, 10 units subcutaneous every morning.

Answer the following questions about Mr. Wells' medication list.

1. What factors are responsible for the elevation in his blood glucose levels?

2. What does 70/30 mean?
    a. What are the onset, peak, and duration times for the insulin?
    b. What nursing interventions reduce the risk of hypoglycemia of the client receiving both oral hypoglycemic medication and insulin?

3. What nursing interventions, are instituted if Mr. Wells is conscious and his blood glucose level is 3.2 mmol/L?

PART 4
Mr. Wells has increasing edema in his lower limbs. The physician orders furosemide 20mg po daily. He has been receiving the medication for two weeks and there is little improvement. The order is changed to furosemide 40mg po daily.

1. What assessment findings would indicate a therapeutic effect of the furosemide?

2. Mr. Wells complains of weakness, nausea and visual disturbances. What drug-drug processes may be responsible for this?

3. **Assessment finding:** A white plaque coating (which was not removed with brushing) on tongue and mouth.

    a. What is this?
    b. What may have caused it?
    c. What nursing actions may prevent/reduce it?

4. Mr. Wells receives ASA 81 mg od. What is the rationale for this order?

REFLECTIVE PRACTICE

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them and increase my knowledge?
4. How will having this knowledge improve my daily practice?

Notes:

SECTION 5: Dosage Calculation Self-Assessment

Accurate drug and dosage calculation is vital to safe medication administration. Complete the following exercises. Compare your answers to the answer key. Reflect on the ease and completeness of your answers. **The greater the difficulty and/or the incompleteness of your answer, the more it is likely that you should engage in pharmacology education.** Individual practical nurses are accountable to work with their employers to make certain they have access to the necessary work-place education and support before engaging in a skill.

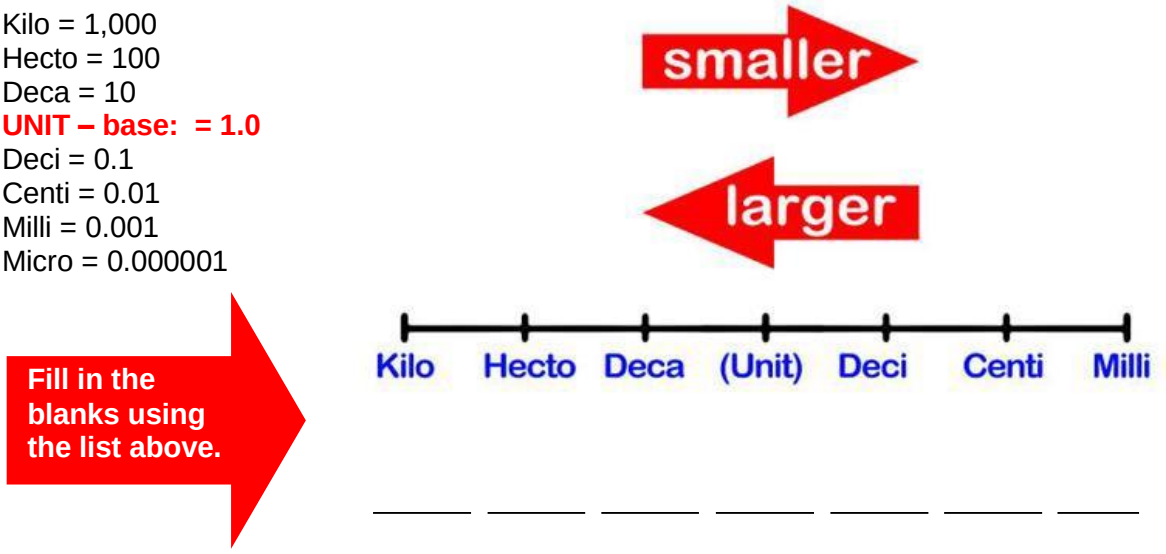
A solid working knowledge of the metric system is required to enable accurate drug calculations. Below is a review of how to convert within the metric system. Remember you cannot calculate a drug dose if you are working with different volumes and masses. The volume and mass must be the same. For example ~ mls to mls for volume and mgs to mgs for mass.

Metric Conversion Refresher:

In the metric system everything is by unit; distance is measured by meters, volume is measured by liters and mass (weight) is measured by grams. The two UNITS commonly used in medication administration are liters and grams.

The chart below demonstrates that the base unit is in the center and is always (1). Each prefix on the line below has a number value.

Kilo = 1,000
Hecto = 100
Deca = 10
UNIT – base: = 1.0
Deci = 0.1
Centi = 0.01
Milli = 0.001
Micro = 0.000001



NOTE: Microgram (mcg) is three decimal places past Milli.

Additional information on decimal conversion can be reviewed by watching the following video; follow link below:

https://www.youtube.com/watch?v=5tHpDzXP-lg

Practice Session for Metric Conversion:

1. 1.76 gm =_____mg
2. 8.4 gm =_____kg
3. 86.0 kg =_____gm
4. 1367 mg =_____kg
5. 0.27L =_____mL
6. 36 ml =_____L
7. 764.1 mcg =_____gm
8. 0.79 gm =_____mg

Drug Calculation Refresher:

DD = Dose desired
DH = Dose on hand
V = Vehicle

DD: Medication dose that is in the physician`s order – it is the dose the patient is to receive.
DH: This is what is in stock as provided by pharmacy. This is what you have on hand to dispense from.
V: What form the medication is coming in; for example – one capsule, one ml, one tablet etc…

Drug Calculation Formula:

Dose Desired
---------- X Vehicle
Dose on Hand

DD
---- x V
DH

Example:

A client is ordered 15mg of prochlorperazine. You have on hand 25mg of prochlorperazine in 2mL solution. What volume of solution would you give?

DD
---- x V
DH

15 mg
-------- x 2mL
25 mg

15 ÷ 25 = 0.60 x 2 = 1.2mL

The LPN would administer 1.2mL of solution to the client.

Example:

A client is ordered 975mg of acetaminophen every 6 hours for pain as needed. You have in hand a bottle containing 325mg tablets. How many tablets would you give?

DD
---- x V
DH

975mg
-------- x 1 tab
325mg

975 ÷ 325 = 3.0

3.0 x 1 = 3

The LPN would administer 3 tablets to the client.

Example:

A client is ordered 1g of keflex every 8 hours scheduled. Your supply of keflex is 250mg/5ml. What is the dose you will prepare?

FIRST CONVERT; 1g needs to be converted to mg: 1g = 1,000mg
TIP: It will always be easier to convert to your dose on hand!

DD
---- x V
DH

1,000mg
---------- x 5mL
250mg

1,000 ÷ 250 = 4mg

4 x 5 = 20

The LPN would administer 20 mL to the client.

Practice Session for Drug Calculations:

1. Solve the following problems:

   a) Order: 250mg po
   Label: 500mg tablet
   How many tablets?

   b) Order: 0.125mg PO
   Label: 0.25mg
   How many tabs?

   c) Order: 6mg IM
   Label: 10mg/mL
   How many mL?

   d) Order: Heparin 2,500 units
   Label: Heparin 10,000 units/mL
   How many mL?

   e) Order: KCl 40 mEq
   Label: KCl 10 mEq/5mL
   How many mL?

2. Order: furosemide 80mg PO. Drug available is furosemide 10mg /mL suspension. How many mL / dose of furosemide will you administer?

3. Order: clozapine 250mg PO. Clozapine 100mg is available in tablet form. How many tablets / dose of clozapine will be administered?

4. The physician ordered meperidine 50mg IM q4h and dimenhydrinate 25mg IM q4h. Meperidine comes in 50mg / mL ampoules and the dimenhydrinate comes in 50mg /ml ampoules. Calculate the total volume of mL for the IM injection.

5. 640mg of liquid acetaminophen has been ordered by the physician. It is available in 160mg/5mL of solution. Calculate the number of mL required / dose.

6. The physician ordered amoxicillin 500mg PO q8h PRN. Amoxicillin is available in liquid as 125mg/ 5mL. Calculate the volume of the dose.

7. A client is ordered 35mg of codeine phosphate by subcutaneous injection. 50mg in 1ml of liquid for subcut injection is available. How many mL will you administer?

8. A client is ordered 20mg of haloperidol by intramuscular injection. 50mg in 1mL of liquid for IM injection is available. How many mL will you administer?

9. A client is ordered 75mg of pethidine HCL by subcut injection. 50mg in 1mL of liquid for subcut injection is available. How many mL will you administer?

10. . A client is ordered 5mg of flupenthixol decanoate by IM injection. 40mg in 2mL of liquid for IM injection is available. How many mL will you administer?

11. . A client is ordered 5mg of haloperidol orally. 2mg in 1mL of syrup is available. How many mL will you administer?

12. . A client is ordered 13mg of morphine sulphate by IM injection. 5mg in 1mL of liquid for IM injection is available. How many mL will you administer?

13. . A client is ordered 22mg of gentamicin sulphate by IM injection. 20mg in 2mL of liquid for IM injection is available. How many mL will you administer?

14. . A client is ordered 50mg of sodium valproate orally. 200mg in 5mL of syrup is available. How many mL will you administer?

15. Haloperidol 4mg IM is ordered. Haloperidol is available as 5mg in 1mL of liquid for IM injection. How many mL will you administer?

IV Med Drip Rate Calculation Gravity - Refresher

Total Volume to Infuse: the size of the medication bag you have mixed the drug in – it could be 50mL, 100mL, or 250mL
The Drop Factor: this is designated on the IV tube packaging (usually 10 drops/min)
Time: the number of minutes designated by order/policy to adminster the medication – it could be 15 min, 30 min, 1 hour

$$\frac{\text{Total Volume} \times \text{Drop Factor}}{\text{Time}} = \text{drops/minute}$$

$$\frac{TV \times DF}{T} = DM$$

Example: 150mL D5W/hr, drop factor 10 gtt/mL $\frac{150\text{mL} \times 10 \text{ drops/mL}}{60 \text{ min}} = 25$ drops/minute

Practice Session for IV Med Drip Rate Calculation

$$\frac{TV \times DF}{T} = DM$$

16. The client is to receive Lasix 60mg IV Piggyback. The physician has ordered the medication to infuse over 15 min in a 50 ml bag. Your tubing package indicates a drip factor of 10 drops/min. How fast should you run your medication infusion?

17. A client is to receive Zithromax 500mg IV Piggyback over one hour in a 100mL mini bag of solution. Your tubing package indicates a drip factor of 10 drops/min. How fast should you run your medication infusion?

IV Med Calculation Hourly Rate Infusion Pumps - Refresher

When calculating for an hourly rate for infusion pumps, the formula below should be utilized:

Formula:

$$\frac{\text{Amount of Solution (mL)}}{\text{Time in Hours}} = x \text{ mL/hr}$$

Example:

A client is to receive 500mL of D5W solution over 3 hours. At what hourly rate should the infusion pump be set for?

500 ml
--------- = 167 mL/hr
3

18. A client is to receive 300mL of NaCl solution over a period of 90 minutes. At what hourly rate should the infusion pump be set for?

19. The client is to receive 0.5L of D5W½NS with 20mEq of potassium chloride over 10 hours. At what rate should he receive the IV fluid?

REFLECTIVE PRACTICE

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them and increase my knowledge?
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Notes:

SECTION 6: Transcription of Orders Self-Assessment

All prescribed orders must be complete and clearly written. If the order is unclear or just "doesn't seem right", it is to be clarified with the writer of the order. Complete orders include:

1. Client name (and/or other required organizational identifiers);
2. Name of the medication;
3. Dose;
4. Frequency of administration;
5. Route of administration;
6. May include additional instructions or assessment parameters;
7. Does not contain any error prone or high risk abbreviations:

All orders must also be accompanied with:

1. The date and time the order was written or taken
2. A clearly visible notation about client allergies
3. A legible signature of the prescriber. In the situation of telephone orders the physician may expected to co-sign telephone orders (refer to agency policy).
4. Telephone orders include the receiving practical nurse's legible signature and professional designation.

Taking and transcribing physician's orders is an important element of safe medication administration. Complete the following exercises. Compare your answers to the answer key. Reflect on the ease and completeness of your answers. **The greater the difficulty and/or the incompleteness of your answer, the more it is likely that you should engage in additional pharmacology education.** Individual practical nurses are accountable to work with their employers to make certain that they have access to the necessary work-place education and support before engaging in a skill. Responses may vary slightly in relation to variation in agency policies and protocols

Identify deficits in the following orders. There may be more than one deficit per order.

1. Furosemide 20 mg po once daily odd days.

2. Tobramycin 2 gtts tid for left eye drainage.

3. Digoxin .25 mg once daily.

4. Nitro-Dur 0.4 mg/hr once daily.

5. Nitro Spray 0.4 mg for angina prn

6. Iron supps daily

7. Ativan 2.0 mg po for anxiety

8. Prednisone ½ tab daily

9. AZT 100 mg po once daily

REFLECTIVE PRACTICE

Ask yourself the following questions:

1. Do I understand the content?
2. What, if any, other activities will support my learning?
3. If other activities or resources are necessary, what is my plan to access them and increase my knowledge?
4. How will having this knowledge improve my daily practice?

Notes:

SECTION 7: Frequently Asked Questions

I successfully completed a medication administration course 3 years ago. Since then, I have had limited experience in administering medications. I have changed employers and my new employer requires LPNs to administer medication. Do I have to re-take the course?

All practical nurses must have the necessary knowledge, skill and judgment (competency) to safely and effectively administer medications. To answer this question you must engage in a reflection of your current competency and perform a self-assessment of your skills. If you self-assess that you possess the necessary knowledge and judgment, but lack the skill (because of inexperience), you should work with your employer to ensure that you have a sufficient orientation to the process of medication administration in your workplace. If you feel that your knowledge deficit is more significant, you should work closely with your employer to make sure you get the necessary education and information to be able to competently administer medications.

Can I administer medications to unpredictable clients?

LPNs provide care for unpredictable clients in collaboration with another care provider, which is generally an RN. Collaboration is the process of two or more care providers discussing the needs of the client and determining both the best action and the practical nurse best positioned to provide it. Even when a medication is familiar to the LPN, the LPN must engage the RN* in a discussion about the needs of the *unpredictable* client. The rationale for this is that a familiar medication may have an unexpected impact on an unpredictable client or a client experiencing changes in health status.

For example: Mary is an LPN caring for Robin, a 73 year old, who is 4 days post-operative from a total hip replacement. Shortly after lunch, Robin becomes short of breath, cyanotic and complains of chest “heaviness”. Mary, recognizing these changes, consults the RN Heather to also assess Robin. Together they decide that Heather will coordinate the overall care for Robin, which includes preparing her transfer to the ICU. Mary will continue to provide the necessary supportive care for Robin until she leaves the unit.

Robin has been assessed by the ICU physician and orders have been written. The new orders include Morphine Sulphate 2-4 mg sc q4h PRN to manage her pain. Robin states she has pain, ranks her pain score at 8/10 and requests pain medication. Mary is competent to administer Morphine Sulphate, but she knows that Robin’s condition is changing. Mary knows she can no longer reasonably predict how Robin will respond to the medication, so she consults Heather prior to administering the Morphine. Mary and Heather discuss the medication and decide on a dose within the prescribed range. Mary administers the medication and consults with Heather when Robin’s pain has been relieved.

I was excited to begin administering medications on my unit; however my unit orientation was disappointing. I have been an LPN for 23 years, and medication administration is new to me. My manager was surprised when I asked for 2 additional orientation shifts (for a grand total of 5). I'm frustrated because I know I can do this work but I'm struggling to build a practice routine with only 5 shifts to re-learn what I've been doing the same way for 23 years. I am worried I may make a mistake.

It is not unusual for an experienced practical nurse to feel like a novice whenever there is a substantial change in practice environment such as moving to a new unit or the addition of new skills. If you feel ill-prepared to engage in the practice of administering medications on your unit after your orientation you are responsible to discuss this with your manager and negotiate additional orientation or learning time. If your employer is unwilling to comply with your request, document your concerns in a letter stating why you feel you need additional employer support to integrate these new skills into your practice. You should also continue to access or engage in the unit based practice supports as you make your transition.

I know I can take/transcribe a verbal order (without a co-signature) for any medication in which I have the competency to administer, but can I take/transcribe a telephone order for a medication I cannot administer?

LPNs may take telephone orders for medications they cannot administer ***if*** they are competent to administer the medication in a different form. This includes most routine medications, antibiotics, or pain medications. The rationale is that the LPN has the necessary underlying knowledge to accurately record or question the medication order as necessary.

This said, in everyday circumstances, LPNs should not take telephone orders for intravenous chemotherapy or PCA/Epidural pain medication. The rationale for this is related to the broader complexity of the management of these medications in the IV/Epidural form.

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