Archer Pharmacology – Dosage Calculation and Medication Administration Practice Test (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- **Practice answering questions under realistic conditions,**
- **Improve accuracy and speed,**
- **Review explanations to strengthen weak areas, and**
- **Approach the exam with greater confidence.**

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here’s how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don’t just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There’s no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. **A child weighing 13 kg has an order for vancomycin 50 mg/kg/day divided into three doses. The vial contains 500 mg in 100 mL of 0.9% saline. How many milliliters should be administered per dose?**

   A. 14 mL

   B. 43 mL

   C. 86 mL

   D. 215 mL

2. **In weight-based medication dose calculations, which step is typically done first?**

   A. Determine total daily dose

   B. Determine dose per administration

   C. Convert units if needed

   D. Round the final dose

3. **A nurse supervising a student administering ciprofloxacin eye drops. Which action indicates correct technique?**

   A. Instructs the client to squeeze their eyes immediately after administering the drops

   B. Drops the prescribed number of drops into the cornea

   C. Drops the prescribed number of drops into the conjunctival sac

   D. Asks the client to position themselves in a left lateral position with the knees bent

4. **A physician orders 250 mL of solution to infuse over 75 minutes. What is the required infusion rate in mL/hour?**

   A. 167 mL/hour

   B. 200 mL/hour

   C. 187 mL/hour

   D. 250 mL/hour

5. Which of the following is a component of the six rights of medication administration?

A. Right route

B. Right dose

C. Right time

D. Right documentation

6. The nurse would document the total intake for a 12-hour shift as 1,817 mL given the following: three eight-ounce cups of water, 0.9% sodium chloride at 70 mL/hr, 500 mg azithromycin in 250 mL 0.9% sodium chloride, and 5 mg morphine sulfate diluted to 7 mL. What is the total intake in mL?

A. 1817 mL

B. 1815 mL

C. 1810 mL

D. 1800 mL

7. Calculate the Mosteller body surface area for a patient who is 150 cm tall and weighs 60 kg (to two decimals).

A. 1.20 m^2

B. 1.58 m^2

C. 1.75 m^2

D. 2.01 m^2

8. For intradermal injections, what is the typical insertion angle and bevel orientation?

A. 15 degrees with bevel up

B. 5-15 degrees with bevel down

C. 45 degrees with bevel up

D. 90 degrees with bevel up

9. The nurse is preparing to administer penicillin V potassium to a child with pneumonia. The child weighs 18.5 kg. The prescription is 50 mg/kg/day PO divided doses every six hours. How many milligrams should the child receive with each dose? Round to the nearest whole number.

A. 200 mg

B. 231 mg

C. 235 mg

D. 240 mg

10. Which action reduces trauma during an intramuscular injection in a child?

A. Draw a magic circle around the area.

B. Have another nurse hold down the child.

C. Apply EMLA cream to the area immediately before the injection.

D. Administer the medication right after the child's nap.

Answers

1. B
2. A
3. C
4. B
5. B
6. A
7. B
8. B
9. B
10. A

Explanations

1. A child weighing 13 kg has an order for vancomycin 50 mg/kg/day divided into three doses. The vial contains 500 mg in 100 mL of 0.9% saline. How many milliliters should be administered per dose?

A. 14 mL

B. 43 mL

C. 86 mL

D. 215 mL

Calculating the dose from weight and converting to a volume using the vial's concentration. First, total daily dose: 13 kg × 50 mg/kg/day = 650 mg per day. Since it's given in three divided doses, each dose is 650 ÷ 3 ≈ 216.7 mg. The vial concentration is 500 mg in 100 mL, which is 5 mg/mL. To deliver 216.7 mg, the required volume is 216.7 mg ÷ 5 mg/mL ≈ 43.3 mL per dose. Rounding to the nearest whole mL gives about 43 mL per dose. Thus, the per-dose administration is approximately 43 mL. The other volumes would deliver far more or far less medication (for example, 14 mL = ~70 mg per dose; 86 mL = ~430 mg per dose), which doesn't match the calculated per-dose requirement.

2. In weight-based medication dose calculations, which step is typically done first?

A. Determine total daily dose

B. Determine dose per administration

C. Convert units if needed

D. Round the final dose

The first step in weight-based dosing is to calculate the total amount of drug needed for the day. Multiply the patient's weight in kilograms by the prescribed mg/kg per day to obtain the total daily dose. This establishes the daily target amount and anchors all subsequent calculations. Once you have the total daily dose, you can determine the dose per administration by dividing by how many times the drug is given per day, and you can perform any necessary unit conversions and final rounding after that.

3. A nurse supervising a student administering ciprofloxacin eye drops. Which action indicates correct technique?

A. Instructs the client to squeeze their eyes immediately after administering the drops

B. Drops the prescribed number of drops into the cornea

C. Drops the prescribed number of drops into the conjunctival sac

D. Asks the client to position themselves in a left lateral position with the knees bent

The key idea is delivering ophthalmic drops into the conjunctival sac to ensure the medicine coats the ocular surface and stays where it's meant to work. The conjunctival sac is the space created when the lower eyelid is gently pulled down; placing the drops there allows them to spread across the eye surface as the patient blinks and minimizes immediate overflow. Administering the prescribed number of drops into that pocket ensures the patient receives the intended dose without excess spilling onto the cornea or surrounding tissues. Squeezing the eyes immediately after instillation can push the drops out or cause excessive tearing, which reduces the amount that stays on the eye and can increase drainage or systemic absorption. Dropping directly onto the cornea isn't correct because the cornea is a focal surface; the drug needs to be distributed through the conjunctival sac for proper contact with the tear film and overall ocular tissue exposure. Positioning the patient in a specific lateral posture isn't required for proper dosing and doesn't impact whether the correct amount was given into the correct space. After placing the drops, the patient can benefit from gently closing the eyes and, if advised, applying light pressure to the inner corner of the eyelids to slow drainage, helping retain the medication on the eye.

4. A physician orders 250 mL of solution to infuse over 75 minutes. What is the required infusion rate in mL/hour?

A. 167 mL/hour

B. 200 mL/hour

C. 187 mL/hour

D. 250 mL/hour

Infusion rate is found by dividing the total volume by the infusion time, with time converted to hours. Convert 75 minutes to hours: 75 ÷ 60 = 1.25 hours. Then 250 mL ÷ 1.25 h = 200 mL/hour. So the required infusion rate is 200 mL/hour. Rates like 167 mL/hour would deliver the total volume in about 89–90 minutes, not 75; 250 mL/hour would finish in 60 minutes; 187 mL/hour would take about 80 minutes.

5. Which of the following is a component of the six rights of medication administration?

A. Right route

B. Right dose

C. Right time

D. Right documentation

The main idea here is that safe medication administration rests on the six rights: the right patient, the right medication, the right dose, the right route, the right time, and the right documentation. Each listed item is one of those rights. The right dose means ensuring you give exactly the amount prescribed, neither too much nor too little. The right route guarantees the medicine is given by the intended pathway (for example, oral, IV, IM), which affects how the drug is absorbed and acts. The right time ensures dosing aligns with the schedule to keep therapeutic levels, and the right documentation means recording that the dose, route, time, and patient were correctly handled so others understand what happened and when. Recognizing that all of these aspects are part of the six rights helps prevent errors and supports safe, effective care.

6. The nurse would document the total intake for a 12-hour shift as 1,817 mL given the following: three eight-ounce cups of water, 0.9% sodium chloride at 70 mL/hr, 500 mg azithromycin in 250 mL 0.9% sodium chloride, and 5 mg morphine sulfate diluted to 7 mL. What is the total intake in mL?

A. 1817 mL

B. 1815 mL

C. 1810 mL

D. 1800 mL

Total intake is the sum of every fluid volume administered, all converted to milliliters. First convert the water: three eight-ounce cups equal 24 ounces. Using 1 ounce as 30 mL, 24 oz × 30 mL/oz = 720 mL. Add the IV saline: 70 mL per hour for 12 hours equals 70 × 12 = 840 mL. Add the antibiotic solution: the volume given is 250 mL. Add the morphine solution: the diluted volume is 7 mL. Now sum: 720 + 840 + 250 + 7 = 1,817 mL. So the total intake documented is 1,817 mL. The drug concentrations affect dosing, but for intake total you add the volumes of all fluids administered.

7. Calculate the Mosteller body surface area for a patient who is 150 cm tall and weighs 60 kg (to two decimals).

A. 1.20 m^2

B. 1.58 m^2

C. 1.75 m^2

D. 2.01 m^2

Mosteller BSA uses the formula BSA = sqrt((height in cm × weight in kg) / 3600). With a height of 150 cm and a weight of 60 kg: multiply 150 by 60 to get 9000, divide by 3600 to get 2.5, and take the square root of 2.5, which is about 1.581. Rounding to two decimals gives 1.58 m^2. So this value is the correct body surface area. Other numbers wouldn't fit because they would come from using a different formula or rounding method.

8. For intradermal injections, what is the typical insertion angle and bevel orientation?

A. 15 degrees with bevel up

B. 5-15 degrees with bevel down

C. 45 degrees with bevel up

D. 90 degrees with bevel up

Intradermal injections are placed right under the epidermis into the superficial dermis, so you want a very shallow entry to keep the needle in that thin layer. A 5 to 15 degree angle keeps the tip just beneath the surface instead of diving into subcutaneous tissue or muscle, which helps you form the small wheal that indicates the solution is in the dermis. Bevel orientation matters because the way the needle tip enters the skin can influence how the liquid spreads in the dermal layer. With the bevel directed downward into the tissue, the injection tends to stay in the superficial dermis and produce that characteristic wheal. If the needle were angled more steeply or the bevel were oriented the other way, the solution is more likely to penetrate deeper or spread unevenly, reducing the accuracy of the intradermal placement.

9. The nurse is preparing to administer penicillin V potassium to a child with pneumonia. The child weighs 18.5 kg. The prescription is 50 mg/kg/day PO divided doses every six hours. How many milligrams should the child receive with each dose? Round to the nearest whole number.

A. 200 mg

B. 231 mg

C. 235 mg

D. 240 mg

The main idea is to convert the prescribed mg/kg per day into an amount given per dose, using the dosing interval. First determine the total daily dose: multiply the child's weight by the mg prescribed per kg per day. 18.5 kg × 50 mg/kg/day = 925 mg per day. Since the antibiotic is given every six hours, that's four doses per day (24 hours ÷ 6 hours = 4). Divide the total daily dose by the number of doses: 925 mg ÷ 4 = 231.25 mg per dose. Round to the nearest whole number, yielding 231 mg per dose.

10. Which action reduces trauma during an intramuscular injection in a child?

A. Draw a magic circle around the area.

B. Have another nurse hold down the child.

C. Apply EMLA cream to the area immediately before the injection.

D. Administer the medication right after the child's nap.

Focusing on ways to lessen a child's fear and distress during injections helps them tolerate procedures better and can lower the pain they perceive. The magic circle technique works by giving the child a sense of safety and control. By asking the child to imagine or draw a circle around the injection area, the nurse creates a boundary that makes the needle feel distant and contained. This simple mental boundary shifts attention away from the needle, reduces anticipatory anxiety, and lowers autonomic arousal, which in turn can lessen the perceived pain of the injection. Other options don't address the immediate experience of pain and fear as effectively. A topical anesthetic like EMLA requires time to work and won't take effect if applied just before the shot. Holding a child down increases distress and trauma, not relief. Waiting until after a nap doesn't address the child's immediate fear and pain response during the injection.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://archerpharmdosagecalcmedadmin.examzify.com

We wish you the very best on your exam journey. You've got this!