

# Pediatric Dosage Calculations Practice Problems

## Problem 3:

- Weight: 48 lbs.
- Physician's order: 100 mg PO daily
- Safe dose range: 1500-3500 mcg/kg/day
- Solve? **Is this a safe dose ordered** by the physician for this child?

First, convert child's weight into kg: 1 kg = 2.2 lbs.

$$48 / 2.2 = 21.8181 = 21.8 \text{ (round to the nearest tenth)}$$

Then calculate the **minimum dose**:

$$\text{Child's weight in kg} \times \text{Minimum dose ordered} = x$$

$$21.8 \times 1500 \text{ mcg/day} = 32,700 \text{ mcg/day} \text{ (*need to convert mcg to mg because dose ordered in mg)}$$

According to the metric table: 1000 mcg = 1 mg

$$32,700 / 1000 = 32.7 \text{ mg/dose}$$

**Minimum: 32.7 mg/dose**

Next calculate the **maximum dose**:

$$\text{Child's weight in kg} \times \text{Maximum dose ordered} = x$$

$$21.8 \times 3500 \text{ mcg/day} = 76,300 \text{ mcg/day} \text{ (*need to convert mcg to mg because dose ordered in mg)}$$

According to the metric table: 1000 mcg = 1 mg

$$76,300 / 1000 = 76.3 \text{ mg/dose}$$

**Maximum: 76.3 mg/dose**

**ANSWER:** No, the ordered dose of 100 mg/day is NOT a safe dose because it exceeds the safe dose range of 32.7-76.3 mg/day.

## Pediatric Dosage Calculations Practice Problems: Sharpen Your Skills

Accurate pediatric dosage calculations are critical for the safety and well-being of young patients. One wrong calculation can have devastating consequences. This blog post provides you with a comprehensive set of pediatric dosage calculations practice problems, designed to help you hone your skills and build confidence in this crucial area. Whether you're a nursing student, a medical professional brushing up on your skills, or a parent wanting to understand medication administration better, this guide will equip you with the tools and practice you need. We'll cover various calculation methods, provide detailed solutions, and offer tips to improve your accuracy. Let's dive in!

# Understanding the Fundamentals of Pediatric Dosage Calculations

Before tackling practice problems, let's quickly review some fundamental concepts. Pediatric dosage calculations differ significantly from adult calculations because children's bodies metabolize medications differently based on age, weight, and overall health. Several methods exist for calculating pediatric dosages, including:

## 1. Body Weight-Based Calculations:

This common method uses the child's weight (usually in kilograms) to determine the appropriate dose. The formula often looks like this:  $\text{Dose} = (\text{Weight in kg}) \times (\text{Dosage per kg})$

## 2. Body Surface Area (BSA)-Based Calculations:

BSA calculations account for both weight and height, providing a more accurate reflection of a child's metabolic rate. This method often requires a nomogram or online calculator.

## 3. Age-Based Calculations:

While less precise, age-based calculations can be used as a rough estimate, especially in emergency situations. However, relying solely on age is generally discouraged due to significant variations in children's growth and development.

## Pediatric Dosage Calculations Practice Problems

Now, let's move on to the practice problems. Remember to show your work for each problem to identify any areas needing improvement.

Problem 1: A 20kg child requires Amoxicillin at a dose of 40mg/kg/day divided into two doses. Calculate the single dose of Amoxicillin the child should receive.

Solution 1: Total daily dose =  $20\text{kg} \times 40\text{mg/kg} = 800\text{mg}$ . Single dose =  $800\text{mg} / 2 \text{ doses} = 400\text{mg}$

Problem 2: A physician orders 2mg/kg of Acetaminophen for a 15kg infant. The available medication is 150mg/5ml. How many milliliters (ml) should be administered?

Solution 2: Total dose =  $15\text{kg} \times 2\text{mg/kg} = 30\text{mg}$ . Using a ratio:  $(30\text{mg}/x \text{ ml}) = (150\text{mg}/5\text{ml})$ . Solving for x gives  $x = 1\text{ml}$ .

Problem 3: A 12-year-old weighing 35kg needs Digoxin at a dose of 0.01mg/kg daily. The available Digoxin solution contains 0.25mg/ml. Calculate the volume to be administered daily.

Solution 3: Total daily dose =  $35\text{kg} \times 0.01\text{mg/kg} = 0.35\text{mg}$ . Using a ratio:  $(0.35\text{mg}/x \text{ ml}) = (0.25\text{mg}/\text{ml})$ . Solving for x gives  $x = 1.4\text{ml}$ .

Problem 4: A 6-month-old infant with a BSA of  $0.4\text{m}^2$  requires a medication with a dose of  $5\text{mg}/\text{m}^2$ . What is the total dose?

Solution 4: Total dose =  $0.4\text{m}^2 \times 5\text{mg}/\text{m}^2 = 2\text{mg}$

Problem 5: A child weighs 25kg and needs Cephalexin at a dose of 25mg/kg/day divided into two doses. The medication comes in 250mg tablets. How many tablets should be administered per dose?

Solution 5: Total daily dose =  $25\text{kg} \times 25\text{mg/kg} = 625\text{mg}$ . Single dose =  $625\text{mg}/2 = 312.5\text{mg}$ . Number of tablets per dose =  $312.5\text{mg} / 250\text{mg}/\text{tablet} = 1.25$  tablets. Since you can't give a fraction of a tablet, you would likely need to consult a pharmacist or physician about appropriate dosing.

## Improving Your Pediatric Dosage Calculation Accuracy

Accuracy is paramount. Here are a few tips to minimize errors:

Double-check your calculations: Always perform calculations twice, using different methods if possible.

Use clear and organized steps: This helps to avoid mistakes and makes it easier to identify errors if they occur.

Understand the units: Pay close attention to units (mg, kg, ml) to ensure you're using the correct values in your calculations.

Utilize online calculators: Many reliable online calculators are available to verify your calculations.

Consult references: If you're unsure about any aspect of a calculation, always refer to trusted sources and consult with a pharmacist or physician.

# Conclusion

Mastering pediatric dosage calculations is a critical skill for anyone working with children's medication. Consistent practice using diverse problems is key to building proficiency and ensuring patient safety. Use these practice problems as a starting point and continue practicing with other examples to enhance your skillset. Remember, accuracy saves lives.

## FAQs

Q1: What happens if I make a mistake in pediatric dosage calculations?

A1: Mistakes in pediatric dosage calculations can lead to serious adverse effects, ranging from mild side effects to potentially life-threatening consequences. Always double-check your work and seek clarification when needed.

Q2: Are there any online resources to help with pediatric dosage calculations?

A2: Yes, several reputable websites and apps offer pediatric dosage calculators and educational resources. Always verify the credibility of the source before relying on it.

Q3: How often should I practice pediatric dosage calculations?

A3: Regular practice is crucial to maintain proficiency. Aim for consistent practice sessions, even if it's just for a short period, to keep your skills sharp.

Q4: What is the best way to learn pediatric dosage calculation methods?

A4: A combination of theoretical learning (textbooks, lectures) and practical application (solving practice problems) is highly effective.

Q5: Can I use a calculator for pediatric dosage calculations?

A5: While calculators can help with the arithmetic, it's crucial to understand the underlying principles and formulas. Relying solely on a calculator without understanding the concepts can be dangerous. Always double-check your answers.

**pediatric dosage calculations practice problems: Practice Calculations for the Nursing Student** Diane L. Rhodes, 2019-09 This book is designed to introduce nursing students to dosage calculations at the fundamentals, IV math, and pediatric levels. It includes 150 practice problems in each of the three areas. In each case, not only is the answer to the problem given, but also the setup of the problem needed to reach that answer. In that way, if you get a problem wrong, you can see where in the setup you went wrong. Correct dosage calculation is vital in nursing practice, for the safety of our patients. This book was written to help increase competency and confidence, and to

prepare students for the dosage calculation exams required during nursing school. It provides the tools to perform accurate dosage calculations both while in nursing school, and out into nursing practice after graduation.

**pediatric dosage calculations practice problems: Dosage Calculations Made Incredibly Easy!** Springhouse, 2002 This entertaining guide is now more fun, more up-to-date, and even easier to use -- an indispensable resource for nurses who want to take the stress out of dosage calculations. New to this edition are a chapter on dimensional analysis; numerous lighthearted learning aids called Cheat Sheets; and Practice Makes Perfect -- case study questions and answers that let nurses assess their progress. Contents include math basics; measurement systems; drug orders and administration records; calculating oral, topical, and rectal drug dosages; calculating parenteral injections and I.V. infusions; and calculating pediatric, obstetric, and critical care dosages.

**pediatric dosage calculations practice problems: Dosage Calculations for Nursing Students** Chase Hassen, Bradley J Wojcik, 2019-05-11 Welcome to the second edition of our dosage calculations book! Are you a nursing student, or nurse, who wants to learn a few simple methods of solving dosage calculations without a bunch of formulas? Would you like to raise your hand in your dosage calculation class, after the instructor explains a complicated formula, and ask to approach the white board to show the class a much simpler method? Do you want to go on your clinicals knowing that you have a solid foundation in dosage calculations? Do you want to walk into your Nursing Calculations Class on the first day knowing that you can ace all the tests before the course begins? If you answered yes to any of these questions, this book is for you! The book is divided into seven units containing thirty-five chapters. Unit 1: Essential Skills: You can't learn to drive a car if you don't understand the function of the steering wheel. The same applies to the following subjects when learning dosage calculations. The Metric System Apothecary/Avoirdupois/Household Systems Ratios Dimensional Analysis (DA) and Ratio Proportion (RP) Rounding Numbers Military Time Unit 2: Auxiliary Subjects: Roman Numerals Scientific Notation Unit 3: Unit Conversions Unit 3 covers converting between and within the various systems of measurement using dimensional analysis and ratio proportion. Unit conversions Within the Metric System Unit Conversions Within the Household System Unit Conversions Between Metric, Household and Apothecary Systems Unit Conversions Involving Pounds and Ounces Unit Conversions Involving Hours and Minutes Unit 4: Dosage Calculations Unit 4 builds on the knowledge gained in the previous units and covers dosage calculations, starting with the terminology and set up of problems, then progressing from easy, one-step, problems through multi-step problems. Dosage Calculations-The Basics Dosage Calculations Levels 1-3 Body Surface Area Dosing Calculations Pediatric Dosage Calculations Pediatric Maintenance Fluid Replacement Calculations Unit 5: IV Flow Rate Calculations Unit 5 starts with the basic terminology and set up of IV flow rate problems, then moves on to: Simple and Advanced Problems IV Flow Rate Adjustment Calculations Heparin Infusion and Adjustment Calculations Unit 6: Percent and Ratio Strength Calculations Percent, Percent Strength Percent Change Ratio Strength Unit 7: Miscellaneous Subjects Reconstitution Calculations Concentrations and Dilutions Milliequivalent Calculations Dosage Calculations Puzzles Self-Assessment Exam The book contains over 600 high quality practice problems with answers. We look forward to your feedback! Chase Hassen and Brad Wojcik

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primary textbook in a typical dosage calculations course for any health care professional Reviews of the prior edition: ...a well-structured approach to the topic... (Drug Development and Industrial Pharmacy) and ...a perfectly organized manual that serves as a expert guide... (Electric Review)

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**pediatric dosage calculations practice problems: Davis's Drug Guide for Nurses** Judith Hopfer Deglin, April Hazard Vallerand, 2005 New edition of the number one nursing drug guide in the educational market.

**pediatric dosage calculations practice problems: Pharmaceutical Calculations** Mitchell J. Stoklosa, Howard C. Ansel, 1986

**pediatric dosage calculations practice problems: Calculation of Drug Dosages** Sheila J. Ogden, 2003 This popular dosage calculation work-text helps students master the critical skills necessary to competently and confidently calculate drug dosages. Innovative and practical, it includes information on the ratio and proportion, formula and dimensional analysis methods of drug calculation, and numerous practice problems to accompany these methods. Ideal for students who need an extensive math review in addition to drug calculations content, this new edition features a more logical organization, a new chapter addressing medication administration to critically ill patients, and more practice problems on calculations for pediatric patients.

**pediatric dosage calculations practice problems: Nursing Dosage Calculation Workbook: 24 Categories of Problems from Basic to Advanced!** Chase Hassen, Bradley J. Wojcik, 2019-03-10 Are you a nursing student, or nurse, who has the basics of dosage calculations down and wants to take your abilities to the next level? If so, this book is for you! Although his book is intended to be used as an advanced workbook supplement to Wojcik, B & Hassen, C (2018) Dosage calculations for nursing students: Master dosage calculations in 24 hours the safe & easy way without formulas! ISBN 9781725638839, it will benefit anyone who has a basic knowledge of dosage calculations. The book's 777 problems cover 24 categories from basic unit conversions to complex critical care calculations. The answers to the problems are explained primarily using dimensional analysis. This book is organized into the following six units: Unit 1: Basic Math Problems and Military Time Rounding Numbers Roman Numerals Scientific Notation Military Time Unit 2: Conversions Unit Conversions Within the Metric System Unit Conversions Within the Household System Unit Conversions Between the Metric, Household and Apothecary Systems Unit 3: Dosage Calculations Dosage Calculations Level 1 Dosage Calculations Level 2 Dosage Calculations Level 3 Body Surface Area Dosing Calculations Pediatric Dosing Calculations Pediatric Maintenance Fluid Replacement Calculations Unit 4: IV Flow Rate Calculations IV Flow Rate Calculations Level 1 IV Flow Rate Calculations Level 2 IV Flow Rate Adjustment Calculations Heparin Infusion and Adjustment Calculations Unit 5: Percent and Ratio Strength Calculations Percent Percent Strength Percent Change Ratio Strength Unit 6: Miscellaneous Subjects Reconstitution Calculations Conversions Between mg and mEq Dosage Calculation Puzzles Self-Assessment Exam List of Abbreviations and Symbols Scroll Up To Get Yours Today!

**pediatric dosage calculations practice problems: Drug Calculations for Nurses: A Step-by-Step Approach 3rd Edition** Robert Lapham, Heather Agar, 2009-07-31 This best-selling pocket-sized book helps you perform drug calculations with confidence and competence. The completely updated third edition includes community practice and primary care settings, and a whole new section on pharmacology and medicines to put drug calculations into context. Starting with the basic mathematical skills required for calculations, including tips on using calculators and estimating answers, *Drug Calculations for Nurses* progresses to give you an understanding of basic pharmacokinetics and therapeutics. It also covers how drugs work in specific groups such as children and the elderly. The book takes you through step-by-step drug calculations with units and drug strengths clearly explained. Pre-test and a revision questions allow you to test and be confident in the skills you have acquired.

**pediatric dosage calculations practice problems: Dosage Calculations** Gloria D. Pickar, Amy Pickar Abernethy, 2011 Master dosage calculations with the ratio-proportion version of the best-selling book from Gloria D. Pickar! *Dosage Calculations: A Ratio-Proportion Approach* builds upon core strengths that made *Dosage Calculations* a market leader. This trusted book includes a comprehensive math review, full-color drug labels, and critical thinking assessments. Basic and advanced calculations are thoroughly covered, including intravenous and those specific to the pediatric patient.

**pediatric dosage calculations practice problems: Calculation of Drug Dosages** Sheila J. Ogden, Sheila J. Ogden, MSN, RN, Linda Fluharty, RNC, MSN, 2022-03

**pediatric dosage calculations practice problems: Calculate with Confidence** Deborah Gray Morris, 2010 *Calculate with Confidence* provides a clear consistent format with a step-by-step approach to the calculation and administration of drug dosages. It covers the ratio and proportion, formula, and dimensional analysis methods. This popular text focuses on enhancing the learning experience of students at all curricular levels by making content clinically applicable. Concepts relating to critical thinking, logical thinking, and nursing process are presented throughout. New practice problems have been added throughout this edition and rationales for the answers continue to be provided giving the students a better understanding of principles related to drug dosages. This fifth edition addresses the increasing responsibility of nurses in medication and administration; emphasizes the priority for client care, and presents material that reflects the current scope of the nursing practice. A clear and consistent, step-by-step approach to calculations and administration makes it easy to understand. Ratio and Proportion, Formula, and Dimensional Analysis content provides you with well-rounded coverage. Pretest and post-test help identify strengths and weaknesses in competency of basic math before and assess your comprehension after Unit One: Math Review. Points to Remember boxes highlighted in each chapter help you remember important concepts. Critical thinking information that should be applied in the clinical setting to help avoid drug calculation and administration errors is boxed throughout the text. Full-color illustrations, photographs, and drug labels familiarize you with what you'll encounter in the clinical setting. Current recommendations from The Joint Commission and Institute for Safe Medication Practices are followed throughout. Caution boxes identify issues that may lead to medication errors and strengthen actions that must be taken to avoid calculation errors. Tips for Clinical Practice calls attention to information critical to math calculation and patient safety as well as issues related to practice. Rule boxes familiarize students with information needed to accurately solve drug calculation problems.

**pediatric dosage calculations practice problems: Pharmacy Calculations: An Introduction for Pharmacy Technicians** Joy Bellis Sakai, Leanora Kasun, 2012-07-01 *Pharmacy Calculations: An Introduction for Pharmacy Technicians* is designed for pharmacy technician students enrolled in a training program, technicians preparing for the certification exam, and for on-site training. As the role for pharmacy technicians continues to evolve and expand, one thing remains constant. The safety of patients is the highest priority for anyone working in pharmacy, whether in hospital, retail, or institutional practices. A thorough understanding of pharmacy math ensures accuracy in

computations and safety and quality in practice. This book offers a complete review of the basic mathematics concepts and skills, which provide a foundation for more advanced understanding of pharmacy-related topics. The guide provides students with the pharmacy basics necessary for correctly interpreting prescriptions and drug orders, and for performing dosing calculations that technicians face every day. The chapters are broken down into four units and are organized to complement most pharmacy technician training curricula and to support the ASHP model curriculum: · Review of Mathematics · Systems of Measurement · Preparing for Problem Solving in Pharmacy · Dosing Calculations and Other Pharmacy Problems Key features throughout the book include: · Chapter objectives · Key terms and definitions · Examples of problem scenarios or calculations questions and solutions · “Tech Note!” —provides a highlight of key points within the chapters · “Numbers at Work” —illustrates why key concepts are important to know and skills are critical to master · Practice problems · A test bank · Appendices that include the parts of a prescription, a glossary of terms, conversions, and abbreviations tables. For additional resources related to this book, visit [www.ashp.org/techcalculations](http://www.ashp.org/techcalculations).

**pediatric dosage calculations practice problems:** *Pediatric Nursing* Margot R De Sevo, 2014-09-12 This volume in the Content Review Plus Practice Series polishes your knowledge of pediatric nursing while sharpening your critical thinking and test-taking skills. Each chapter offers a concise, yet comprehensive review of the topic, followed by NCLEX-style questions in both multiple-choice and alternate-item formats. Rationales for both correct and incorrect answers, as well as test-taking tips, explain how to apply critical thinking to the question types—great preparation for classroom exams and the NCLEX-RN® Exam.

**pediatric dosage calculations practice problems: Pocket Book of Hospital Care for Children** World Health Organization, 2013 The Pocket Book is for use by doctors nurses and other health workers who are responsible for the care of young children at the first level referral hospitals. This second edition is based on evidence from several WHO updated and published clinical guidelines. It is for use in both inpatient and outpatient care in small hospitals with basic laboratory facilities and essential medicines. In some settings these guidelines can be used in any facilities where sick children are admitted for inpatient care. The Pocket Book is one of a series of documents and tools that support the Integrated Managem.

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**pediatric dosage calculations practice problems: *Nursing Calculations E-Book*** John D. Gatford, Nicole M. Phillips, 2011-03-18 This best-selling book enables nursing students to calculate drug doses accurately and quickly. It begins with a diagnostic test to pinpoint any weaknesses in basic arithmetic and is followed by specific exercises to remedy them. Examples are drawn from everyday clinical practice with graded exercises and answers. The content covers administering injections, tablets and mixtures intravenous infusions administering safe dosages to children. *Nursing Calculations* is an essential aid to safe clinical practice for student nurses and those returning to the profession. A diagnostic test at the start allows readers to review their knowledge of maths and identify their weak points Numerous exercises give plenty of practice in making drug calculations Answers to questions aid self-study Revision and summary exercises ensure that the reader fully understands the calculations The nursing context and use of actual drug labels allows the application of theory to everyday practice All medications reviewed and updated in accordance with current practice Revised layout to avoid crowded pages Additional exercises, labels and paediatric examples Additional set of syringe diagrams A new table of abbreviations and their meanings and explanation of the 24-hour clock Addition of handwritten prescriptions to the medication label exercises to improve links to real-life practice

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**pediatric dosage calculations practice problems: *Dosage Calculations*** Anthony Giangrasso, Dolores Shrimpton, 2013-09-19 This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. *DRUG DOSAGE CALCULATIONS: A MULTI-METHOD APPROACH* introduces all three of today's leading methods of dosage calculation: Dimensional Analysis, Ratio & Proportion, and Formula. It walks step-by-step through solving dosage problems utilizing all three methods, often comparing multiple approaches to solving the same problem side-by-side. Instructors can choose their preferred method, and students can become expert with all three, ultimately choosing the approach they find most efficient. Unit I offers a diagnostic arithmetic test, reviews basic math skills, presents essentials of medication administration, and offers an easy, common sense introduction to dimensional analysis. Next, the text introduces essential metric and household medication systems and conversions. Then, building on these foundations, the text offers in-depth coverage of calculating oral, parenteral, intravenous, and enteral dosages, including flow rates, titrating IV medications, pediatric dosages, and daily fluid maintenance.

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instructional format, this book improves and updates an authoritative textbook to keep pace with compounding trends and calculations – addressing real-world calculations pharmacists perform and allowing students to learn at their own pace through examples. Connects well with the current emphasis on self-paced and active learning in pharmacy schools Adds a new chapter dedicated to practical calculations used in contemporary compounding, new appendices, and solutions and answers for all problems Maintains value for teaching pharmacy students the principles while also serving as a reference for review by students in preparation for licensure exams Rearranges chapters and rewrites topics of the previous edition, making its content ideal to be used as the primary textbook in a typical dosage calculations course for any health care professional Reviews of the prior edition: ...a well-structured approach to the topic... (Drug Development and Industrial Pharmacy) and ...a perfectly organized manual that serves as a expert guide... (Electric Review)

**pediatric dosage calculations practice problems: Canadian Maternity and Pediatric Nursing** Jessica Webster, Caroline Sanders, Susan Ricci, Theresa Kyle, Susan Carmen, 2019-08-14 Canadian Maternity and Pediatric Nursing prepares your students for safe and effective maternity and pediatric nursing practice. The content provides the student with essential information to care for women and their families, to assist them to make the right choices safely, intelligently, and with confidence.

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**pediatric dosage calculations practice problems: *Clinical Calculations*** Joyce LeFever Kee, Sally M. Marshall, 2016-01-25 Accurate drug calculations start here! Clinical Calculations With Applications to General and Specialty Areas, 8th Edition covers all four major drug calculation methods ratio & proportion, formula, fractional equation, and dimensional analysis. It also includes practice problems not only for general care but also for specialty areas such as pediatrics and critical care. A new chapter covers insulin administration, and concise, illustrated information includes the latest medications, drug administration techniques, and devices. Written by a team of experts led by Joyce Kee, Clinical Calculations makes it easy to understand drug calculation and emphasizes patient safety above all else. Coverage of all four major drug calculation methods ratio & proportion, formula, fractional equation, and dimensional analysis allows you to apply the method that works best for you. Updated information on drug administration techniques and devices helps you master the latest techniques of drug administration, including oral, intravenous, intra-muscular, subcutaneous, and other routes. Updated drug information ensures you are familiar with the most commonly used drugs in clinical practice. Caution boxes alert you to problems or issues related to various drugs and their administration. Information on infusion pumps enteral, single, multi-channel, PCA, and insulin helps you understand their use in drug administration. Calculations for Specialty Areas section addresses the drug calculations needed to practice in pediatric, critical care, labor and delivery, and community settings. Detailed, full-color photos and illustrations show the most current equipment for IV therapy, the latest types of pumps, and the newest syringes. A comprehensive post-test allows you to test your knowledge of key concepts from the text. NEW Insulin Administration chapter provides a guide to administering injectable drugs. NEW practice problems, drugs, drug labels, and photos keep you up to date with today's clinical practice. NEW! Updated QSEN guidelines and The Joint Commission standards help in reducing medication errors and in providing safe patient care.

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analysis. It also includes practice problems not only for general care but also for specialty areas such as pediatrics and critical care. A new chapter covers insulin administration, and concise, illustrated information includes the latest medications, drug administration techniques, and devices. Written by a team of experts led by Joyce Kee, *Clinical Calculations* makes it easy to understand drug calculation and emphasizes patient safety above all else. Coverage of all four major drug calculation methods — ratio & proportion, formula, fractional equation, and dimensional analysis — allows you to apply the method that works best for you. Updated information on drug administration techniques and devices helps you master the latest techniques of drug administration, including oral, intravenous, intra-muscular, subcutaneous, and other routes. Updated drug information ensures you are familiar with the most commonly used drugs in clinical practice. Caution boxes alert you to problems or issues related to various drugs and their administration. Information on infusion pumps — enteral, single, multi-channel, PCA, and insulin — helps you understand their use in drug administration. Calculations for Specialty Areas section addresses the drug calculations needed to practice in pediatric, critical care, labor and delivery, and community settings. Detailed, full-color photos and illustrations show the most current equipment for IV therapy, the latest types of pumps, and the newest syringes. A comprehensive post-test allows you to test your knowledge of key concepts from the text. NEW Insulin Administration chapter provides a guide to administering injectable drugs. NEW practice problems, drugs, drug labels, and photos keep you up to date with today's clinical practice. NEW! Updated QSEN guidelines and The Joint Commission standards help in reducing medication errors and in providing safe patient care.

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