

MEDICAL ASSISTING

SIMPLIFIED

Pharmacology

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PREFACE

Medical Assisting Simplified is an exciting new series designed to make learning enjoyable for medical assisting students. Each book in the series uses a light-hearted, humorous approach to presenting information. Maria, a Certified Medical Assistant, guides students through the books, offering helpful tips and insight along the way.

Medical Assisting Simplified takes a practical approach, providing students with the critical information that they need to know, including complete coverage of the core skills they must master in their studies. The series covers all competencies based on the standards and guidelines established for medical assisting by the Commission on Accreditation of Allied Health Educational Programs (CAAHEP) and the Accrediting Bureau of Health Education Schools (ABHES).



About This Book

Medical Assisting Simplified: Pharmacology provides instruction in the CAAHEP and ABHES competencies that pertain to drug administration and preparation and other pharmacologic principles. These are among the skills that students must master to pass the test required to become either a Certified Medical Assistant or a Registered Medical Assistant.

Special Features

Medical Assisting Simplified: Pharmacology is designed to be enjoyable to read, as well as highly informative. Each chapter in this book includes special features designed to guide students in their study. These elements will help students identify the most important information in the chapter and to understand all of it.



- *Chapter Checklist* includes a list of skills and other important information that students will gain after reading the material.



- *Chapter Competencies* highlights the ABHES and CAAHEP competencies covered in each chapter.



- *Closer Look* explores chapter information in more detail in a list or summary form.



- *Running Smoothly* features situations that medical assistants may encounter in a medical office and shows how students can apply what they have learned to those situations.



- *Ask the Professional* offers expert advice on how to handle difficult situations that medical assistants may face in the workplace.



- *Secrets for Success* provides tips for studying, remembering important material, and success in a career as a medical assistant.



- *Legal Brief* provides important legal and ethical information.



- *Your Turn To Teach* provides students with valuable information regarding patient education.



- *Safety First* offers helpful tips and information pertaining to safety, an important issue for medical assistants.



- *You Try It* provides practice problems so students can strengthen their medical math skills.



- *Hands On* contains procedures for important skills and tasks.



- *Chapter Highlights* summarizes a chapter's key content.

In addition to the above features, this book also includes bolded key terms throughout each chapter and a Glossary in the back of the book, as well as many other boxed features and tables. In addition, special Drug Spotlight tables in chapter 5 give students an overview of different types and examples of common drugs found in various drug classifications.

Additional Resources

In addition to the text, the following resources are available for students and instructors:

- **PowerPoint Slides** with lecture notes and images.
- An **Image Bank** of all images in the text.
- A **Test Bank** with questions in different formats.
- A complete set of **Lesson Plans**.
- ABHES and CAAHEP Competency Evaluation Forms available on the text's online site.

Medical Assisting Simplified: Pharmacology is designed to make the study of medical assisting fun and effective. The purpose of this book, and the entire *Medical Assisting Simplified* series, is student success!

USER'S GUIDE

Hello, my name is Maria. I'm a Certified Medical Assistant and educator, as well as your guide through this textbook. There are a number of features in this **Medical Assisting Simplified** text to help you learn everything you need to become a successful medical assistant. Read through this User's Guide to orient yourself to everything the text has to offer. Good luck in your medical assisting studies!



Chapter Checklist



- Explain how drugs are classified
- Identify the uses for antibiotics and discuss the therapeutic actions of these drugs
- Recognize the conditions topical drugs are commonly used to treat and explain how these medications are thought to work
- List the uses for anti-inflammatory drugs and describe how they work
- List the uses for analgesics and antipyretics and describe how these drugs work
- Explain why muscle relaxants may be prescribed and discuss the two ways these drugs work in the body
- Identify the various conditions cardiac drugs are used to treat and describe the different therapeutic actions of these drugs
- List the uses for respiratory medications and explain the various ways in which these medications work
- Recognize the indications for digestive drugs and discuss how these drugs work
- Explain why urinary drugs may be used and identify the therapeutic actions of these drugs
- Discuss the main use for diuretic drugs and how these drugs accomplish their purpose
- Identify the uses for nervous system medications and recognize where these drugs work in the body

.....→
Chapter Checklists orient you to the material that's covered in the current chapter.

Chapter Competencies



- Perform within legal and ethical boundaries (CAAHEP Competency 3.c.2.b.)
- Demonstrate knowledge of federal and state health care legislation and regulations (CAAHEP Competency 3.c.2.e.)
- Monitor legislation related to current health care issues and practices (ABHES Competency 5.g.)
- Maintain medication and immunization records (CAAHEP Competency 3.b.4.h.; ABHES Competency 4.n.)
- Use methods of quality control (CAAHEP Competency 3.c.4.d.; ABHES Competency 4.i.)
- Perform risk management procedures (ABHES Competency 5.h.)
- Document appropriately (CAAHEP Competency 3.c.2.d.)
- Document accurately (ABHES Competency 5.b.)
- Determine needs for documentation and reporting (ABHES Competency 5.a.)

Chapter Competencies tell you which skills are covered in each chapter, as outlined by CAAHEP and ABHES.

Running Smoothly boxes feature situations that you may encounter in a medical office. These boxes are designed to show you how to apply what you've learned to real-life situations.

Running Smoothly



KEEPING UP WITH THE DRUG ENFORCEMENT ADMINISTRATION

What if you're assigned the task of keeping up with the physician's DEA registration?

A DEA number is valid for three years, after which the physician's registration must be renewed. The DEA does not send out reminders to renew soon-to-expire registrations. As a medical assistant, you may be responsible for maintaining registration or reminding the physician or practitioner about registering with the DEA. You can do this by tracking the physician's DEA registration and submitting a renewal application at the appropriate time. The DEA's Office of Diversion Control handles renewal applications. These applications can now be completed online by visiting the Office of Diversion Control's Web site at www.deadiversion.usdoj.gov.

Ask the Professional



ISN'T THERE A UNIT SYSTEM OF MEASUREMENT, TOO?

Q: My sister has type 1 diabetes and gives herself insulin injections. I noticed that her insulin bottles are labeled *100 units/mL*. What are units?

A: You get an A+ for being observant! The strength of the active ingredient in some drugs is measured simply in units. How much of the actual unit depends on the kind of drug. Units are unique to each kind.

Insulin is one of the drugs measured this way. The injectable form of penicillin is another. The label *100 units/mL* means that 100 units of your sister's insulin are in each milliliter of liquid.

You'll usually find units labeled in one of two ways:

- USP, for United States Pharmacopoeia
- IU, for International Units

Handle units like any other measurement you encounter.

Ask the Professional boxes offer expert advice on how to handle difficult situations that you may face in the workplace.

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Secrets for Success boxes provide tips for studying, for remembering important material, and for success in your career as a medical assistant.

Secrets for Success

FINDING COMMON GROUND



Another way to find a common denominator is to list the multiples of each denominator. Compare them until you get the first match. The number that you find this way is the **lowest common denominator**.

For example, look at the fractions $1/4$, $1/6$, and $1/8$

denominators are 4, 6, and 8.

Multiples of 4 are 4, 8, 12, 16, 20, 24 . . .

Multiples of 6 are 6, 12, 18, 24 . . .

Multiples of 8 are 8, 16, 24 . . .

The first match is 24.

The lowest common denominator of these fractions is 24.

Legal Brief



MISLEADING CLAIMS FOR OXYCONTIN BRING FINES

In May 2007, Purdue Pharma was fined \$600 million for giving false or misleading information about oxycodone (OxyContin) to physicians and the public.

The drug manufacturer asserted that OxyContin users were less likely to abuse the drug or become addicted to it than to fast-acting narcotic painkillers such as oxycodone with acetaminophen (Percocet). OxyContin's time-release formula was the reason.

However, according to evidence given in federal court, the product did not live up to these claims. Recreational users soon discovered that they could get an immediate heroin-like high from OxyContin by crushing the tablets open and snorting the drug. Inside was pure, p

.....←

Legal Briefs provide important legal and ethical information.

Your Turn to Teach

VITAMIN C AND THE COMMON COLD



Many patients that you see have probably heard that vitamin C can cure the common cold and respiratory infections. However, large clinical trials have shown that taking vitamin C doesn't reduce the risk of getting a cold. It also doesn't have any effect on the severity of the cold. For a small number of people, it reduces the length of a cold. So, what should you say to a patient who asks if it will help to start taking vitamin C after the cold starts? Break it down simply: the studies say no. Although it won't hurt to drink some extra orange juice, it's not likely to have any effect on the patient's cold.

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Your Turn To Teach boxes provide helpful information about patient education.

SAFETY FIRST

ADVERSE REACTIONS TO NONPRESCRIPTION DRUGS

Although nonprescription drugs may be easily available, they still carry some risk. For example, some people react poorly to acetylsalicylic acid, commonly known as aspirin. In some patients, taking aspirin can cause gastrointestinal bleeding, or bleeding in the stomach and intestines. Medical practitioners often recommend that such patients take products that contain acetaminophen instead. Acetaminophen is sold under a variety of brand names, including Tylenol.

Often, over-the-counter medications may have additional ingredients. For example, Excedrin contains aspirin and caffeine, and Tylenol PM has acetaminophen and diphenhydramine, which is an antihistamine originally sold as Benadryl. Patients should be aware of these ingredients and not mix medications because they can cause unpleasant or dangerous adverse reactions.

Some drugs may be released as over-the-counter medications at a lower strength, whereas a higher dosage of these drugs, such as cimetidine (Tagamet) and famotidine (Pepcid), requires a prescription. This can be confusing for patients, so you need to stay up to date on the latest information about drug releases.

.....←

Safety First boxes offer tips and information about lab safety, an important issue for medical assistants.



FIGURING OUT FRACTIONS

Find the lowest common denominator.

1. $\frac{1}{5}$ and $\frac{2}{3}$
2. $\frac{5}{8}$ and $\frac{3}{16}$
3. $\frac{1}{5}$ and $\frac{1}{7}$
4. $\frac{1}{16}$ and $\frac{3}{4}$
5. $\frac{2}{3}$ and $\frac{1}{2}$

Reduce to the lowest term.



HANDS ON PROCEDURE 8-1: ADMINISTERING ORAL MEDICATIONS

This procedure should take five minutes.

1. Wash your hands and gather your supplies, including the physician's order, the correct oral medication, a disposable calibrated cup, a glass of water, and the patient's medical record.
2. Check the medication label and compare it to the physician's order. Note the expiration date. Remember to check the medication label three times—when taking the medication from the shelf, when measuring, and when returning it to the shelf.
3. If necessary, calculate the correct dose.
4. For a multidose container, remove the cap from the container. Touch only the outside of the lid to avoid contaminating the inside. Single, or unit-dose, medications come individually wrapped. Packages may be opened by pushing the medication through the foil backing or by peeling back a tab on one corner.
5. Remove the correct dose of medication according to your calculations and the label.
 - A. For solid medications:
 - Pour the correct dose into the bottle cap to pre-

Hands On boxes contain step-by-step, easy-to-follow procedures for important skills and tasks.

Chapter Highlights



- Fat-soluble vitamins are stored in fatty tissues for up to six months. The body does not break them down into other substances. Vitamins A, D, E, and K are the fat-soluble vitamins.
- Water-soluble vitamins pass through the bloodstream and leave the body through the kidneys. Vitamin B₁, B₂, B₃, B₆, B₉, B₁₂, and C are the water-soluble vitamins.
- Vitamins help maintain normal body functions such as formation of bone and tissue, production of white and red blood cells, and cell repair. Lack of vitamins can cause disease, poor eyesight, and other problems.
- Dietary minerals in different quantities are among the building blocks of bone, teeth, soft tissue, muscles, blood, and nerve cells. The body also uses minerals to make hormones and regulate the heartbeat.
- Multivitamins usually contain small amounts of minerals.

Chapter Highlights summarizes a chapter's key content.

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