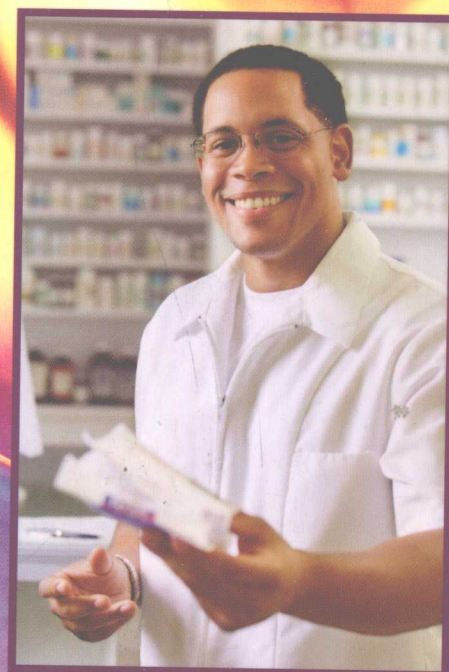


Mosby's Pharmacy Technician

PRINCIPLES AND PRACTICE



T H I R D E D I T I O N

Teresa Hopper

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PRINCIPLES AND PRACTICE

THIRD EDITION

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Mosby's
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Technician

PRINCIPLES AND PRACTICE

Preface

YOU ARE ABOUT TO EMBARK on an exciting journey into one of today's fastest-growing fields in health care. Whether you will end up working in a hospital pharmacy, a community pharmacy, mail order pharmacy, internet pharmacy, or another location, the knowledge you will gain from this textbook and its supplements will prepare you well for your new career. The author and publisher have made every effort to equip you with all of the background knowledge and tools you will need to succeed on the job. To this end, *Mosby's Pharmacy Technician: Principles & Practice* was designed as a fundamental yet comprehensive resource that represents the very latest information available for preparing pharmacy technician students for today's challenging job environment.

Who Will Benefit From This Book?

Pharmacy technicians are increasingly called upon to perform duties traditionally fulfilled by pharmacists. This is because of new federal regulations that now require pharmacists to spend more time with patients providing patient education. As the number of pharmacy technicians in the United States and Canada continues to grow, the need to outline a scope of practice for the pharmacy technician profession has become more urgent. *Mosby's Pharmacy Technician: Principles and Practice* provides students a solid coverage of information needed to be successful, while also giving the instructor the tools needed to present the information effectively and easily.

Why is This Book Important to the Profession?

Although there is no standardization for the qualifications or set job descriptions for pharmacy technicians at this time, this textbook covers all the theory and skills set forth by several national certifying bodies, including the Pharmacy Technician Certification Board (PTCB), the Institute for the Certification of Pharmacy Technicians (ICPT), the American Society of Health System Pharmacists (ASHP), and the American Pharmaceutical Association (APA), the last two of which created the criteria for the Pharmacy Technician Certification Board's certification exam. In Canada the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) accredits pharmacy technician programs. The criteria that are required of technician programs are designed to help pharmacy

technicians work more effectively with pharmacists, provide greater patient care and services, and create a minimum standard of knowledge across all 50 states and providences throughout Canada, to help employers determine a knowledge base for employment. Although there are some differences in pharmacy law and drug terms between the U.S. and Canada much of the information that is related to the pharmacy technician's requirements remain the same.

Organization

Mosby's Pharmacy Technician: Principles and Practice is a reliable and understandable resource written specifically for the pharmacy technician student and for those technicians already on the job, including those who are preparing for the PCTB, ExCPT (issued by the ICPT) in the U.S., or the pharmacy examination board of Canada (PEBC). The writing style, content, and organization guide the student to a better understanding of anatomy and physiology, diseases, and, most importantly, drugs and agents used to treat these diseases. Pharmacologic information is presented in a thorough, yet basic and concise, manner. The text is divided into four sections—**General Pharmacy, Body Systems, Classifications of Drugs, Basic Sciences for the Pharmacy Technician**.

Section One, General Pharmacy, provides an overview of pharmacy practice as it relates to pharmacy technicians. Highlights of Section One include history, law and ethics, drug calculations and dosage forms, abbreviations, routes of administration, filling prescriptions, over-the-counter medications, and the differences in the roles of pharmacists and pharmacy technicians. *Mosby's Pharmacy Technician* is the only book on the market that devotes an entire chapter each to alternative and complementary medicine and medication safety and error prevention.

Section Two, Body Systems, provides a brief overview of each body system and the medications used to treat common conditions that afflict these systems. Unique to this section are detailed discussions of anatomy and physiology, as well as photographs of a number of drugs used to treat various conditions of each body system. In addition each chapter lists the most common drugs within each classification and how to pronounce them as well as a medical terminology list related to the body systems being discussed.

Section Three, Classifications of Drugs, discusses five major drug classifications, anti-infectives, anti-inflammatories, antihistamines, vaccines, and oncology agents. A description of these drug classifications helps the pharmacy technician student understand how similar agents work. Section Three also includes a chapter on vitamins and minerals, their importance and possible drug interactions.

Section Four, Basic Sciences for the Pharmacy Technician, includes two chapters—on microbiology and chemistry—that are indeed unique to this textbook. They give the pharmacy student a basic overview of both fields that will greatly help technicians understand the method of action.

Distinctive Features of this Edition

DRUG NAMES AND PRONUNCIATIONS

A list of the drugs (generic and trade names) discussed within a chapter, along with the pronunciation, appear at the beginning of each body system chapter. This helps familiarize students with the spelling and pronunciation of drugs that they need to be familiar with on the job. It is essential that students be proficient in this area.

COMMON DRUGS USED FOR PSYCHOTHERAPEUTIC CONDITIONS

Trade Name	Generic Name	Pronunciation	Trade Name	Generic Name	Pronunciation
Agents for Psychosis and Bipolar Disorder			Seroquel	quetiapine	(kwe- tye -a-peen)
Atypical Antipsychotics			Zyprexa	olanzapine	(oh-lan- zah -peen)
Abilify	aripiprazole	(ar-i- pip -ra-zole)	Phenothiazine Antipsychotics		
Clozaril, FazaClo	clozapine	(kloe-za- peen)	Mellaril	thioridazine	(thy-oh- rid -ah-zeen)
Fanapt	iloperidone	(eye-low- per -i-done)	Prolixin	fluphenazine	(flew- fen -ah-zeen)
Geodon	ziprasidone	(zi- praz -ih-dohn)	Serentil	mesoridazine	(meh-zoe- rih -da-zeen)
Invega	paliperidone	(pal-ee- per -i-done)	Stelazine	trifluoperazine	(try-flew- per -ah-zeen)
Risperdal	risperidone	(ris- per -ih-done)			

TECH NOTES

Helpful pharmacy technician notes appear interspersed throughout the chapters, providing interesting historical facts, drug cautions, hints, and safety information. These notes enhance students' knowledge of practical information that they will need to know in a pharmacy setting.

**Tech Alert!**

Remember the following sound-alike/look-alike drugs:

dopamine versus
dobutamine
levodopa versus
methyldopa
clonazepam, lorazepam,
and clorazepate
esmolol versus Osmitol
Trandate versus Tridrate

TECH ALERTS

Tech Alerts can be found in the margins throughout the text. These boxes indicate important information the tech needs to remember when in the pharmacy. A lot of times, Tech Alerts will be medication safety reminders or proper drug names.

MINI DRUG MONOGRAPHS

Drug monograph information with pill photos is provided in every body systems and drug classification chapter. These monographs include drug class, generic and trade names, strength of medication, route of administration, dosage, and photos of drugs, providing students with quick, easy to understand information about specific drugs.



GENERIC NAME: duloxetine

TRADE NAME: Cymbalta

INDICATION: antidepressant, fibromyalgia

ROUTE OF ADMINISTRATION: oral

COMMON ADULT DOSAGE: 40 or 60 mg once daily

SIDE EFFECTS: nausea, vomiting, dizziness, insomnia, dry mouth, headache, diarrhea, loss of appetite

AUXILIARY LABEL:

■ May cause dizziness and drowsiness.

PHARMACIST'S PERSPECTIVE

Written by a practicing pharmacist on specific topics related to content, these boxes provide students with more information on content from the point of view of the pharmacist, making the content more interesting by relating the content information to on-the-job situations.

TECHNICIAN'S CORNER

Technician's Corner boxes appear at the end of each chapter, providing critical thinking questions to help students prepare for on-the-job experiences.

New to This Edition

NEW CHAPTER! CHAPTER 14: MEDICATION SAFETY AND ERROR PREVENTION

This textbook is the only pharmacy technician text that looks into the growing concern of medication errors by taking a compressive look into the history of medication errors and how handling them has changed over the years. Topics covered in this chapter are agencies involved in drug enforcement, new technologies used to deter common drug errors, real life cases of drug errors and the lives they have affected. Tools are also given to the students to further enlighten their perspective on drug errors with several scenarios given within the chapter.

MEDICAL TERMINOLOGY

Basic medical terminology is covered in this textbook which gives the student a basic foundation onto which they can expand their knowledge base in Chapter 5. In addition, each body system chapter lists the most common terms used in medical terminology and conditions. This will greatly enhance the student's comprehension of the materials covered in each chapter and ultimately in the workplace.

PSYCHOPHARMACOLOGY TERMINOLOGY

Word Combinations

Claustr/o	Barrier
Agor/a	Marketplace
Acr/o	Top
Pyr/o	Fire
Trichotill/o	Related to hair
Anxi/o	Anxiety
Somn	Sleep

APPENDIX A: REVIEW FOR THE PTCB, EXPCT, OR PEBC EXAMINATION

This appendix presents a 150-question practice certification exam with multiple choice questions, assisting students as they prepare for taking the PTCB or ExCPT exam in the United States or, The Canadian Pharmacy Examining Board of Canada (PEBC). Certification is now a requirement in several U.S. States and is required throughout Canada.

UPDATED PILL IMAGES

Updated pill images have been added to the third edition, assisting the pharmacy technician in identifying pills on sight and avoiding pharmacy errors.

ADDITIONAL MATH EXERCISES

Additional math exercises have been added to the textbook, as well as to the Evolve site. These additional math exercises will help students strengthen their math skills in the appropriate areas.

OVERALL CONTENT UPDATE

Mosby's Pharmacy Technician provides the student with the most up-to-date pharmacy information available. New drugs added, including indications and pill photos, provide pharmacy technicians with the most current information.

Learning Aids

FOUR-COLOR DESIGN

The colorful design, figures, and pill images help to present a difficult subject in an inviting and unthreatening manner.

EXTENSIVE VISUAL AIDS

Mosby's Pharmacy Technician contains over 500 line drawings and photos in full color, helping students see concepts and procedures in visual form, while greatly enhancing learning of this new information that can be difficult to learn.

CHAPTER OBJECTIVES

Chapter objectives appear at the beginning of each chapter, clearly outlining key concepts covered.

KEY TERMS

Key terms with definitions appear at the beginning of each chapter, identifying new terminology for the student and making it easier to learn.

DO YOU REMEMBER THESE KEY POINTS?

This review of key points appears at the end of each chapter, providing students the opportunity to quickly revisit the main concepts of the chapter before attempting to answer the review questions.

Ancillaries

Considering the broad range of students, instructors, programs, and institutions for which this textbook was designed, we have developed an extensive package of supplements designed to complement *Mosby's Pharmacy Technician: Principles and Practice*, third edition. Each of these comprehensive supplements has been thoughtfully developed with the shared goals of students and instructors in mind: producing students who are well prepared for a career in pharmacy, as well as for earning their certification. All these supplements and their inventive features can be found on the Evolve website (<http://evolve.elsevier.com/Hopper/>), and include:

FOR THE INSTRUCTOR

TEACH Instructor Resource

TEACH for Mosby's Pharmacy Technician is designed to help the pharmacy technician instructor prepare for class by reducing preparation time, providing new and innovative ideas to promote student learning, and helping to make full use of the rich array of resources available. This completely revised manual includes:

- Lecture Outlines to correspond with the PowerPoint presentations
- Detailed lesson plans
- Chapter-specific PowerPoint presentations
- Instructor's Resource with additional tools to use in the classroom (discussed below)

Instructor's Resource. This product, included with *TEACH for Mosby's Pharmacy Technician*, includes:

- Additional Classroom Activities
- Sample Class Syllabus
- Sample Program Outline
- All textbook review question answers
- Answers to the workbook/lab manual exercises

TEACH Online Pharmacy Technician Program Guide. The TEACH Online Pharmacy Technician Program Guide assists instructors seeking to start or expand a pharmacy technician program. The Program Guide is accessible via this textbook's Evolve web site at <http://evolve.elsevier.com/Hopper/>.

Additional Instructor Ancillaries

- Examview Test Bank
- Image Collection
- Supplemental Canadian Material

FOR THE STUDENT

Ancillaries Available on the Evolve Companion Web Site

- Interactive crossword puzzles, drag and drop, and flashcard activities for each chapter
- Additional math review
- Appendices on abbreviations, HIPPA, and proper hand care for pharmacy
- Answer key to odd numbered review questions in the text
- Anatomy Animations
- English/Spanish Audio Glossary
- Mosby's Essential Drug List
- WebLinks

Student Workbook/Lab Manual

The student workbook/lab manual has been completely revised and is a combination traditional workbook, and enhanced with lab exercises for the student to perform in class. This valuable product includes:

- Exercises to **Reinforce** key concepts taught in the Hopper, 3rd edition text
- **Reflect** critically on topics to assist students as they develop critical thinking and decision-making skills.
- Complete lab activities that will **relate** to practice.



Acknowledgments

TO ENSURE THE ACCURACY of the material presented throughout this textbook, an extensive review and development process was used. This included evaluation by a variety of knowledgeable pharmacy technicians and pharmacists. We are deeply grateful to the numerous people who have shared their comments and suggestions. Reviewing a book or supplement takes an incredible amount of energy, time and attention, and we are glad so many colleagues were able to take time out of their busy schedules to help ensure the validity and appropriateness of content in this new edition. The reviewers provided us with additional viewpoints and opinions that combine to make this text an incredible learning tool.

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*This book is dedicated to
all student technicians who have chosen a career in the healthcare field.
As the population grows more experienced technicians are desperately needed.
You are an important component in future pharmacy.*

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