Preface

The seventh edition of *Introductory Clinical Pharmacology* reflects the ever-changing science of pharmacology and the nurse's responsibilities in administering pharmacologic agents. All information has been updated and revised according to the latest available information to prepare nurses to meet the challenges of safely administering medications. The text prepares the nurse to meet the challenges of the 21st century by promoting critical thinking and problem solving when administering medications.

PURPOSE

This text is designed to provide students with a clear, concise introduction to pharmacology. The basic explanations presented in this text are *not* intended to suggest that pharmacology is an easy subject. Drug therapy is one of the most important and complicated treatment modalities in modern health care. Because of its importance and complexity and the frequent additions and changes in the field of pharmacology, it is imperative that health care professionals constantly review and update their knowledge.

CURRENT DRUG INFORMATION

The student and practitioner should remember that information about drugs, such as dosages and new forms, is constantly changing. Likewise, there may be new drugs on the market that were not approved by the Federal Drug Administration (FDA) at the time of publication of this text. The reader may find that certain drugs or drug dosages available when this textbook was published may no longer be available. For the most current drug information and dosages, the practitioner is advised to consult references such as the most current *Physician's Desk Reference* or *Facts and Comparison* and the package inserts that accompany most drugs. If reliable references are not available, the hospital pharmacist or physician should be contacted for information concerning a specific drug, including dosage, adverse reactions, contraindications, precautions, interactions, or administration.

SPECIAL FEATURES

A number of features have proven useful for students in their study of basic pharmacology. The following features appear in the seventh edition:

- **Key Terms**—lists the important words defined in the chapter
- **Nursing Process**—used as a framework in most chapters for presenting care of the patient as it relates to the drug and the drug regimen. *Preadministration* and *Ongoing Assessments* are included in the assessment phase of the nursing process. These assessments are divided in order to highlight the important assessments to perform before administering a specific drug and those important during the entire time the drug is being administering. In the implementation phase of the nursing process, most chapters contain sections *Promoting an Optimal Response to Therapy* and *Monitoring and Managing Adverse Reactions*. These sections provide invaluable information needed to ensure that the drug is properly administered and nursing interventions to use when certain adverse reactions occur.
- **Nursing Alerts—**short segments that identify urgent nursing considerations in the management of the patient receiving a specific drug or drug category
- **Gerontologic Alerts**—short segments to alert the nurse about specific problems for which the older adult is at increased risk. As the number of the older adults in our society increases, it becomes imperative that nurses recognize the necessity of specialized care.
- **Contraindications, Precautions, and Interactions—**of the most commonly used drugs in the category under discussion. While space prevents every contraindication, precaution, and interaction to be listed, the more common ones are included in the text. Pregnancy categories are identified for many drugs discussed within the chapter.
- **Home Health Care Checklists**—highlight specific issues that the patient or family may

encounter while undergoing drug therapy in the home setting. As more and more patients are cared for outside the hospital, it becomes increasingly important for the nurse to know what information the patient or family needs to obtain an optimal response the drug regimen.

- **Patient and Family Teaching Checklists—** highlight teaching points relating to specific pharmacologic techniques and most-know information for the patient undergoing drug therapy. This empowers the family to participate knowledgeably and accurately in the patient's drug regimen.
- **Summary Drug Tables—**contain commonly used drugs representative of the class of drugs discussed in the chapter. Important drug information is provided, including the generic name, pronunciation guide for generic names, trade names, adverse reactions, and dosage ranges. In these tables, generic names are followed by trade names; when a drug is available under several trade names, several of the available trade names are given. The more common or serious adverse reactions associated with the drug are listed in the table's adverse reaction section. It should be noted that any patient may exhibit adverse reactions not listed in this text. Because of this possibility, the nurse, when administering any drug, should consider any sign or symptom as a *possible* adverse reaction until the cause of the problem is determined by the primary health care provider.

  The adverse reactions are followed by the dose ranges for the drug. In most cases, the adult dose *ranges* are given in these tables because space does not permit the inclusion of all possible dosages for various types of disorders. Likewise, space limitation does not permit an inclusion of pediatric dose ranges due to the complexity of determining the pediatric dose of many drugs. Many drugs given to children are determined on the basis of body weight or body surface area and have a variety of dosage scheduling. When drugs are given to the pediatric patient, the practitioner is encouraged to consult references that give complete and extensive pediatric dosages.
- **Critical Thinking Exercises**—realistic patient care situations that help the student apply the material contained in the chapter by exploring options and making clinical judgments related to the administration of drugs
- **Abbreviations—**important pharmacologic and general medical abbreviations the nurse needs to know when caring for the patient undergoing drug therapy are spelled out in the back of the text.
- **Glossary—**key terms and other drug-related terms are listed and defined in the back of the text

NEW FEATURES

- **Four-Color Illustrations**—the text is beautifully illustrated throughout with new four-color illustrations. Each illustration highlights and explains an important pharmacologic concept, technique, or idea.
- **New Chapters**—new chapters are included, such as Chapter 33, Cholinesterase Inhibitors, and Chapter 18, Nonsteroidal Anti-Inflammatory Drugs. Several of the chapters in previous editions have been divided. For example, the chapter on antiviral and antifungal drugs was divided into two chapters: Chapter 14, Antiviral Drugs, and Chapter 15, Antifungal Drugs.
- **Drug Lists**—replacing the chapter outline is a listing of the classifications and drugs discussed in the chapter. This new format allows the student to quickly identify the important drugs discussed in the chapter.
- **Herbal or Health Supplement Alerts**—provide important information on common herbs and supplements not regulated under the auspices of the Federal Drug Administration. **Appendix B** gives a listing of select herbs with examples of their common and scientific name(s). While not all of the common or scientific names are given, the more common names (both common and scientific) are included. With more and more individuals using herbs as a part of their health care regimen, it is critical that the nurse be aware of the more common herbs currently in use. The nurse must consult appropriate sources when patients indicate they are using herbs as part of their health care regimen.
- **Review Questions—**several questions, reviewing important information covered in the chapter, can be found at the end of each chapter. The questions are written in PN-NCLEX format and provide the student an opportunity to answer questions specifically about the drugs covered in the chapter. Space does not permit more questions of this type, but provides the student practice in answering questions concerning medication therapy and administration of drugs.
- **Medication Dosage Problems—**Calculation of medication dosage is an important aspect of medication administration. Chapter 3 reviews the mathematics involved in dosage calculation and formulas used in the calculate medication dosages. To ensure the student's understanding and application of this type of problem, two or more medication dosage problems are included at the end of most chapters dealing with specific medications discussed in the chapter. This provides

the student an opportunity for immediate application in medication administration. As an added benefit, several current medication labels are used throughout the text to help the student learn to read these labels and solve medication dosage problems using the information found on these labels.

- **Drug and Health Care Information Sources on the World Wide Web—**The inside back cover provides a listing of websites dealing with pharmacology and medication administration. The student can use these sites as valuable resources to identify new drugs and important new information on current drugs.

ORGANIZATION

The text contains 58 chapters, which are divided into 11 units. Organization of the text in this manner allows the student to move about the text when these general areas are covered in the curriculum. While pharmacologic agents are presented in specific units, a disease may be treated with more than one type of drug, which may require consulting one or more units.

Unit I presents a foundation for the study of pharmacology and covers general principles of pharmacology, the administration of drugs, a review of arithmetic and calculation of drug dosages, a discussion of the nursing process as applicable to pharmacology, and a review of the teaching learning process and general areas of consideration when educating the patient and family.

Unit II contains 11 chapters that present the anti-infective drugs, grouped according to classification. These shorter chapters allow for more inclusive coverage of the different types of anti-infectives and the appropriate nursing considerations for each classification.

Unit III includes four chapters covering the various types of drugs used to manage pain: the nonnarcotic analgesics (Salicylates, Nonsalicylates, and Nonsteroidal Anti-Inflammatory Drugs), the narcotic analgesics, and the narcotic antagonists.

Unit IV has been expanded to 15 chapters covering the many classifications of drugs that affect the nervous system and the neuromuscular system. These chapters include the following types of drugs: drugs that affect the musculoskeletal system, adrenergic drugs, adrenergic blocking drugs, cholinergic drugs, cholinergic blocking drugs, sedatives and hypnotics, central nervous system stimulants, anticonvulsants, antiparkinsonism drugs, antianxiety drugs, antidepressant drugs, antipsychotic drugs, cholinesterase inhibitors, antiemetic and antivertigo drugs, and anesthetic drugs.

Unit V has three chapters concerning drugs that affect the respiratory system. The first chapter in this unit discusses antihistamines and decongestants, the second chapter in the unit covers bronchodilators and antiasthma drugs, and the last chapter of the unit deals with antitussives, mucolytics, and expectorants.

Unit VI covers drugs that affect the cardiovascular system. This unit is divided into five chapters: cardiotonics and miscellaneous inotropic drugs, antiarrhythmic drugs, antianginal and peripheral dilating drugs, antihypertensives, and antihyperlipidemics.

Unit VII consists of two chapters dealing with drugs that affect the hematological system: anticoagulants and thrombolytic drugs, and agents used in the treatment of anemia.

Unit VIII has been expanded to cover drugs that affect both the gastrointestinal and urinary systems. The unit consists of three chapters: uretics, urinary anti-infectives and miscellaneous urinary drugs, and drugs that affect the gastrointestinal system.

Unit IX discusses drugs that affect the endocrine system and consists of five chapters: antidiabetic drugs, pituitary and andrenocortical hormones, thyroid and antithyroid drugs, male and female hormones, and drugs acting on the uterus.

Unit X discusses drugs that affect the immune system. The unit consists of two chapters: immunologic agents and antineoplastic drugs.

Unit XI consists of three chapters that discusses types of drugs not previously discussed or that are not members of a particular class or group. Chapters in this unit include topical drugs used in the treatment of skin disorders, otic and ophthalmic preparations, and fluids and electrolytes.

CHAPTER CONTENT

Each chapter opens with learning objectives and a listing of key terms used and defined in the chapter. Less commonly used medical terms are also defined within the chapter and may be found in the Glossary. Chapters 1 to 5 provide introductory information concerning general principals of pharmacology, medication administration, a review of arithmetic and calculation of drug dosages, the nursing process, and patient and family teaching. Each chapter ends with critical thinking questions and several chapter review questions.

The remaining chapters discuss specific drug classifications and contain a common format. In addition to the learning objectives and key terms, the remaining chapters contain a table indicating the drug classifications and drugs discussed in the chapter. The body of each chapter contains the actions, uses, adverse reactions, contraindications, precautions and interactions of

the class or type of drug being discussed, followed by a section devoted to the nursing process. These chapters end with critical thinking questions, several chapter review questions, and two or more medication dosage problems. To promote easy retrieval of information, each area is identified by a large type heading.

- Actions—a basic explanation of how the drug accomplishes its intended activity
- Uses—the more common uses of the drug class or type are provided. No unlabeled or experimental uses of drugs are given in the text (unless specifically identified as an unlabeled use) because these uses are not approved by the FDA. Students should be reminded that, under certain circumstances, some physicians may prescribe drugs for a condition not approved by the FDA or may prescribe an experimental drug.

  When discussing the use of antibiotics, this text does not list specific microorganisms. Microorganisms can become resistant to antibiotic drugs very rapidly. Because of this, the author feels that listing specific microorganisms or types of infections for an antibiotic may be misleading to the user of the text. Instead, when antibiotics are needed, the author recommends consulting culture and sensitivity studies to indicate which antibiotic has the most potential for controlling the infection.
- Adverse Reactions—the most common adverse drug reactions are listed under this heading
- Contraindications—contraindications for administration of the drug or drugs discussed in the chapter
- Precautions—precautions to take before, during, or after administration
- Interactions—more common interactions between the drug(s) discussed in the chapter and other drugs
- Nursing Process—with a few exceptions, the nursing process is used in every chapter of the test and geared specifically to the administration of the drugs discussed in the chapter. The assessment phase is divided into two distinct parts to include a preadministration and ongoing assessment. This assists the reader in determining what assessments to perform before administration of specific drugs of drug categories and what important assessments to perform during the entire time the drug is administered. Nursing diagnoses related to the administration of the drug are highlighted in a nursing diagnoses checklist. Under "Implementation," three sections are included when applicable: "Promoting an Optimal Response to Therapy," "Monitoring and Managing Adverse Reactions," and "Educating the Patient and Family."
- Critical Thinking Questions—each chapter includes critical thinking questions that provide the student with the challenge of applying chapter content to specific clinical situations
- Review Questions—several PN-NCLEX review questions are found at the end of each chapter
- Medication Dosage Problems—when applicable, the chapter contains real medication dosage prescriptions and the medication available for dispensing. The student solves medication dosage problems using the information provided. Several current medication labels are used to help the student learn to read these labels and solve medication dosage problems using the information found on these labels. AQ1

APPENDICES

Seven appendices containing important pharmacologic information are located at the back of the text.

Appendix A contains a MedWatch form, which is used by health care professionals for voluntary reporting of adverse reactions and problems with the drug product. Is also contains advice about voluntary reporting. This form is a part of the FDA medical products reporting program.

Appendix B is a table of Select Herbs and Natural Products Used for Medicinal Purposes.

Appendix C contains a United States Pharmacopeia (USP) medication errors reporting program form, which is used by health care professionals for sharing information of medication errors to prevent them from occuring again. Also included is text explaining medication error and the USP.

Appendix D provides metric–apothecary equivalents and conversions. This guide covers liquid measurements; weights; Celsius and Fahrenheit temperatures; and a comparative scale of measures, weights, and temperatures.

Appendix E contains two body surface area nomograms—one for infants and young children and one for older children and adults.

Appendix F is a Vaccine Adverse Event Reporting Form.

Appendix G contains answers to the review and dosage calculation exercises appearing at the end of the chapters.

Appendix H lists examples of combination drugs.

TEACHING/LEARNING PACKAGE

- Student Study Guide—the *Student Study Guide to Accompany Introductory Clinical Pharmacology*, 7th Edition, correlates with the textbook chapter

by chapter. For each chapter in the textbook, the *Study Guide* contains a corresponding chapter and includes three or more of the following components: a crossword puzzle featuring important terms of the chapter, multiple-choice questions, short-answer questions, word search puzzles, and critical thinking exercises derived from the textbook. Multiple-choice question have been written using the same format as currently used in the NCLEX-PN examinations. The *Study Guide* also features activities designed around specific drug-related websites. These activities promote use of the World Wide Web as an important learning tool in the study and practice of nursing pharmacology.

- Instructor's Manual—the *Instructor's Manual to Accompany Introductory Clinical Pharmacology*, 7th Edition, contains a variety of testing items as well as tips for classroom teaching. Multiple-choice questions and critical thinking exercises are provided. Answers are given for the multiple-choice questions. No answers are supplied for the critical thinking exercises, to encourage the students to use their creative abilities rather than be confined to a predetermined answer. Also included is a computer disk contain PN-NCLEX-style test items in multiple-choice format.

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