



Second Edition

Fundamentals of

Geriatric *Pharmacotherapy*

An Evidence-Based Approach

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DEDICATION

We dedicate this textbook to those who have supported us and shown us the way:

- My grandmother, who lived independently until her mid-90s; my parents, who made my dream of becoming a pharmacist possible; my husband, whose love continues to support me; and my mentors, who encouraged me to be a pioneer in the practice of clinical pharmacy. —*LCH*
- My father Kenneth, through whose career as a nursing facility administrator I was first exposed to long-term care; my husband Brian, who is my greatest source of love and support and also a fellow pharmacist who well understands my passion for this subject; and to my students, who inspire me daily and who will one day care for us all. —*RBS*
- The senior patients who have taught us the most about the use of medications. They continue to inspire us through their lives and words.

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FOREWORD

In January 2010, a social demographic change began in the United States as the Baby Boomer generation began to turn 65 years of age. Persons near or across this threshold are likely to claim that chronological age is not reflective of their true age and vitality. If being 50 is the new 35, what does that make 75? Aging or being “old” is not a well accepted or welcomed stage of life in our culture. Anti-aging therapies, ranging from skin creams that affect cosmetic appearance to individualized hormone regimens that increase or maintain muscle mass and vitality and diminish the appearance of age, dominate the market and media spotlight while shaping the national conscience of how we think about aging. It is unfortunate and damaging that such an industry can delude the public and tarnish the real champions—older adults. Pharmacists have a role in setting this record straight.

The golden age of geriatric clinical pharmacology was the 1970s and 1980s, when basic age-associated pharmacokinetic and pharmacodynamics changes were identified. Since then, information on the efficacy and safety of new drugs, and how to dose and monitor them, has been generated by pharmacoepidemiologic studies, pooled, and secondary analyses of trials of persons above a certain age included in the trials. The pearls of geriatric pharmacotherapy are not generated from such trials and findings, but by experienced and intellectually curious clinicians and scientists such as those chosen to contribute to this text.

To my knowledge, the first recognized pharmacist-leaders in geriatrics were Ron Stewart and the late Peter Lamy. Their contributed works and mentorship directly affected many of the authors of this textbook. That the field of geriatrics has been atrophying is well documented: training programs continue to decline in number, geriatrics continues to be underemphasized in curriculums, and practices cannot survive on Medicare alone. All workforce predictions conclude that the U.S. healthcare education system cannot train enough pharmacists, physicians’ nurses, and other professionals to meet the demand. Thus, all healthcare providers, including pharmacists, must have working competencies in geriatrics to care for the nation’s aging population. That is where this text can be of great value and contribution.

Once again divided into two sections, **General Social, Ethical, Economic, and Biomedical Issues of Aging**, and **Pharmacotherapy Issues of Aging**, the second edition of *Fundamentals of Geriatric Pharmacotherapy* provides a comprehensive knowledge and reference for both novices and experienced clinicians. For the second edition, each chapter has been updated and several expanded, notably Palliative and Hospice Care. Each chapter includes learning objectives that will be useful for educators and self-learners. Geriatrics, like all specialties, has its own language, and the key terms defined in each chapter compose a helpful glossary for understanding this language. Rather than a stand-alone chapter on demographics, the chapter Challenges in Geriatric Care nicely integrates terminology with demographic changes and puts chronological age into context with other variables that must be considered when providing care for the older patient. The clinical pearls, key points, cases, and questions in each chapter provide the reader with clinical insight not found in clinical trials, meta-analyses, or systematic reviews. The case histories accurately represent the complexity and decision-making encountered when caring for geriatric patients in a variety of clinical settings, providing especially good exposure for the student reader. How to interpret and critique clinical trials for their geriatric content and implications for care are discussed in detail, with examples in several chapters.

As the risk-benefit ratio for patients shifts and goals of care change, knowing when to stop a medication can be just as critical as knowing when to start it. As we age, our heterogeneity increases, i.e., we become less like one another, and our differences are magnified. These points are not lost in the text.

Medication management can be a complex and comprehensive task for patients, caregivers, and families. The challenges for pharmacists, physicians, nurses, and others are similarly complex and time-consuming and often require in-depth reviews of a patient’s history; home visits; an understanding of the patient’s and

FOREWORD (CONT'D)

family's knowledge and belief about medications; and assessments of function, cognition, and social support as well as contacting multiple prescribers. The time and energy required to accomplish these tasks are enormous and exhausting. These challenges and the tools to address them are presented throughout the text, along with the pharmacotherapy for treating the diseases, conditions, and syndromes encountered when caring for geriatric patients.

The American Society of Health-System Pharmacists, editors Drs. Lisa Hutchison and Rebecca Sleeper, and all the contributing authors are to be congratulated for their commitment to updating *Fundamentals of Geriatric Pharmacotherapy*. Readers and users should not be exclusively pharmacists but all healthcare professionals who prescribe or have a desire to know more about this important component of geriatric caregiving. Pharmacists, pharmacy educators, and students will find the text a beneficial tool in attaining or teaching geriatric competencies.

Where will future leaders in geriatric pharmacy come from? Hopefully, the continued availability of this text will inspire, stimulate, and nurture them.

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PREFACE

The older population is growing. The U.S. Census Bureau projects the world's 65-and-older population will double by the year 2050, and the 85-and-older population will increase fivefold in the same time period.¹ With elderly patients come special healthcare needs, and the professional healthcare workforce must be prepared. More and better focused information on geriatrics must be disseminated to healthcare providers.

For most patient populations, providers refer to evidence-based guidelines and the studies on which they are based to provide the best pharmacotherapy for patients. This practice assumes that elderly subjects are well represented in the study populations; however, most trials exclude elderly participants, especially participants who have multiple disease states, are frail, or are more susceptible to rare adverse effects. The risk-benefit ratio may be skewed in these patients, particularly those who are nearing the century mark. This text is designed to build on content that would be delivered in a general pharmacotherapy text. The learner's foundational knowledge of disease-specific pathophysiology and pharmacology is assumed, allowing this book to focus on evidence published in the elderly population, stressing the differences that are seen across the continuum of young-old, middle-old, and the oldest old.

This textbook is divided into two sections. Section I provides general concepts: biomedical principles of aging, social/behavioral issues, ethical considerations, approaches to geriatric assessment, adverse drug events, and suboptimal prescribing are addressed. There is also a new chapter on palliative and hospice care. Along with updating information in these chapters, we felt that combining the information on adverse drug events and suboptimal prescribing, while incorporating new information on medication therapy management, would strengthen the reader's understanding of medication review specific to geriatric patients. This foundational material ensures the knowledge base required for a general approach. Section II, which is the bulk of the book, covers disease states commonly encountered in the aging adult and reviews age-specific epidemiology and evidence for treatment in the different senior populations. Common problems and clinical controversies encountered when treating elderly patients are described, with suggested methods to minimize their occurrence. Another new chapter focuses on major infections, with detailed descriptions of the changes in the immune system and ways to ensure proper antimicrobial stewardship for older adults, especially those in long-term care settings.

Every chapter includes key terms, learning objectives, key points, patient cases, clinical pearls, and self-assessment questions that help guide the student through the maze of information required in caring for an older patient. In addition, web-based materials such as course outlines and lesson plans are available to facilitate incorporation of the textbook into course delivery. As a contributed work, we have solicited the expertise of authors and reviewers who practice in the care of elderly patients or who mentor learners in pharmacy or other health professions in the mastery of geriatric pharmacotherapy content.

Although designed primarily as a textbook for pharmacy students to use in an elective or required course focused on geriatric pharmacotherapy, this book is also useful for practicing pharmacists and other healthcare providers who wish to learn more about pharmacotherapy for the elderly patient. The use of medications continues to be one of the most difficult aspects of geriatric practice, regardless of the professional discipline.

It is our fondest hope that this book will serve as a mechanism for pharmacists and other clinicians to improve the use of medications in their older adult patients so they may experience the longest life possible coupled with fullest quality of life.

Lisa C. Hutchison

Rebecca B. Sleeper

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¹U.S. Census Bureau News [press release]. June 23, 2009.

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