

# Clinical Therapeutics Primer

**Link to the Evidence for the  
Ambulatory Care Pharmacist**

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#### **Production Credits**

Publisher: William Brott Miller  
Acquisitions Editor: Katey Birtcher  
Associate Editor: Teresa Reilly  
Production Editor: Jessica Steele Newfell  
Production Assistant: Stephanie Rineman  
Marketing Manager: Grace Richards

Manufacturing and Inventory Control Supervisor: Amy Bacus  
Composition: Lapid, Inc.  
Cover Design: Scott Moden  
Cover Image: © Kurhan/Shutterstock, Inc.  
Printing and Binding: Edwards Brothers Malloy  
Cover Printing: Edwards Brothers Malloy

**To order this product, use ISBN: 978-1-4496-8797-7**

#### **Library of Congress Cataloging-in-Publication Data**

Clinical therapeutics primer : link to the evidence for the ambulatory care pharmacist / edited by Jennifer A. Reinhold, Grace Earl.  
p. ; cm.

Includes bibliographical references and index.

ISBN 978-1-4496-3399-8 (pbk. : alk. paper)

I. Reinhold, Jennifer A. II. Earl, Grace.

[DNLM: 1. Pharmaceutical Services. 2. Ambulatory Care. 3. Chronic Disease—drug therapy. 4. Evidence-Based Medicine. 5. Pharmacists. QV 737]

362.12—dc23

2012016800

6048

Printed in the United States of America

16 15 14 13 12 10 9 8 7 6 5 4 3 2 1

*This text is dedicated to my family—Roseann and Jonathan Reinhold and Jon and Emily Reinhold—in genuine appreciation of their support and patience; to the faculty members who inspired and encouraged me to pursue academia—Laura Mandos, PharmD, BCPP, and Cynthia Sanoski, PharmD, FCCP, BCPS; to Anthony Sorrentino, PharmD, who afforded me my first opportunity in ambulatory care; to the pharmacists whose encouragement and mentorship led me to ultimately choose the path that I did—Lee McCarty, Lorissa and Walt Mieloch, and Mary McHale; and to Barbara O'Connor, whose grace and wit in the classroom inspired me to teach long before I realized it.*

*— Jen Reinhold, PharmD, BCPS*

*I would like to dedicate this text to those individuals who shared their time to listen, to mentor, and to inspire—Lisa Davis, PharmD, BCPS, BCOP; Karen Tietze, PharmD; Michael Cawley, PharmD, RRT, CPFT; and Eric Wright, PharmD, BCPS. I also would like to encourage other colleagues and students alike to be open to those chance meetings that may unexpectedly take you in a different direction. I am grateful for crossing paths with alumni who directed me to the pharmacy profession; Rolly Dickerson, PharmD, BCNSP, who was my inspiration to return to school and enter the Doctor of Pharmacy program; and Cathy Poon, PharmD, who encouraged me to return to academia.*

*— Grace Earl, PharmD, BCPS*



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## Foreword

One of the benefits earned by those of us who count our experience in the profession of pharmacy in decades rather than years is the *perspective* with which we can view the progressive changes that have occurred. It wasn't that long ago when the participation of pharmacists in responsibilities such as medication therapy management and immunizations was not even on the horizon. It is tempting to look back and identify the most important changes. However, it is more important to focus on the present and the potential for even greater professional opportunities and service in the future.

The practice innovations and accomplishments of many pharmacists provide a source of encouragement for the profession. However, another part of the perspective is that our profession could have made much more substantial progress than we have—and at a faster pace. The challenges and problems that exist sometimes dominate our attention to the extent that they eclipse our commitment to focus on approaches through which we can further expand our role in providing optimal drug therapy and outcomes for patients.

We can quickly identify the most obvious problems (e.g., inadequate compensation) that so quickly distract us. However, it has not been until recently that I have come to appreciate the importance of another challenge—the *lack of confidence* in our ability to implement progressive change. Recent graduates have the most current and comprehensive drug therapy expertise but have limited experience. Pharmacists who have been in practice for a number of years have accumulated extensive experience and the skills that accompany it but may not have confidence that their drug therapy knowledge is adequate. Some of the most progressive pharmacy practice models with

which I am aware have resulted from the collaboration of recent graduates and veteran practitioners who have knowledge and skills that result in synergy.

One of the reasons for my enthusiasm for *Clinical Therapeutics Primer: Link to the Evidence for the Ambulatory Care Pharmacist* is that this text provides practical information at a level that is of value for both recent graduates and experienced pharmacists. Drs. Grace Earl and Jennifer Reinhold practice in ambulatory care settings and have responsibilities for patient care as well as serve as instructors/preceptors for pharmacy students. Their experience has served them well in establishing the priorities with which they and their coauthors have developed the content for this reference text. A patient-centered approach is emphasized in considering the most important and practical information regarding common chronic conditions in which pharmacists have great opportunities to contribute to the attainment of positive drug therapy outcomes. Patient cases and treatment algorithms are effectively used in applying the drug therapy information and strategies provided.

*Clinical Therapeutics Primer: Link to the Evidence for the Ambulatory Care Pharmacist* provides a scope, depth, and balance of coverage that make it a valuable resource for pharmacists who provide services for patients in an ambulatory care setting. I anticipate that this text also will be a useful tool for increasing the confidence of pharmacists in their abilities to further enhance the scope and benefits of their practice.

—Daniel A. Hussar, PhD  
Remington Professor of Pharmacy  
Philadelphia College of Pharmacy





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## Preface

Our aim in developing *Clinical Therapeutics Primer: Link to the Evidence for the Ambulatory Care Pharmacist* was to provide a resource for Doctor of Pharmacy students and new practitioners who are in the pursuit of knowledge as they begin their careers. Students begin to organize their knowledge gleaned from lectures, readings, and applied courses such as case studies or seminars. New practitioners must develop a process for self-learning that they will continue throughout their careers. The philosophy behind this text is to assist both students and practitioners in preparing for an ambulatory care rotation or experience.

We encourage students by telling them that the efforts made during the rotation will pay off as they quickly see their knowledge of drugs and therapeutics expand. Real learning begins the first time we give a presentation to the healthcare team; the first time we rush to research an answer to a drug information question at the conclusion of patient care rounds; and the first time the patient tries to circumvent the messages offered in a well-intentioned counseling session. Ambulatory care pharmacy practice provides many challenges and opportunities to us.

As educators, we know we can foster learning, whether in the classroom or in real-world situations. This text is the foundation to model clinical decision making. We feel the solid strength of the text is in the number of case studies that pose questions dealing with practical therapeutic issues. Each chapter author has modeled his or her approach to clinical decision making for selecting optimal drug therapy based on risk assessment, the application of diagnostic tests results, and the staging or classification of diseases.

But, apart from instilling new knowledge, we hope that we will inspire others to be the best they can be as professionals so they can serve their patients. We are reassured at the end of the spring semester when we hear students voice their enthusiasm as they make the transition from the classroom to practice rotations and as they transition to clinical practice the following year.

We hope *Clinical Therapeutics Primer: Link to the Evidence for the Ambulatory Care Pharmacist* brings out the confidence in you to feel well prepared for an ambulatory care rotation or experience.





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has a special clinical interest in pharmacist role in transitional care, reducing medication errors, and medication reconciliation.

**Valerie Shafir, PharmD, BCPS**

Dr. Shafir received her Doctor of Pharmacy degree from Temple University School of Pharmacy. After graduation, she pursued a pharmacy practice residency followed by an ambulatory care specialty residency at The Johns Hopkins Hospital in Baltimore, Maryland. She currently holds an appointment as an Assistant Professor of clinical pharmacy within the Philadelphia College of Pharmacy at the University of the Sciences. Her clinical practice site is at the Philadelphia Veterans’ Administration Medical Center, where she shares a pharmacy medication management clinic and an anticoagulation clinic with another faculty member. Her responsibilities at the clinics include management of chronic illnesses such as diabetes, hypertension, and dyslipidemia in addition to management of antithrombotic agents. She is a member of the American College of Clinical Pharmacy and the American Society of Health-System Pharmacists and is a board certified pharmacotherapy specialist.

**Gary Sloskey, PharmD, BCPS**

Dr. Sloskey received his bachelor of science in pharmacy and his Doctor of Pharmacy from the Philadelphia College of Pharmacy at the University of the Sciences and completed a specialty residency in drug information at the Thomas Jefferson University Hospital. Dr. Sloskey has held a number of clinical, administrative, and academic positions at a variety of institutions, including Thomas Jefferson University Hospital, Temple University, the Philadelphia College of Osteopathic Medicine, and the Philadelphia College of Pharmacy. His current interests are related to the evaluation of biomedical literature based on evidence-based principles as well as pharmacy-related healthcare management.

**Tyan F. Thomas, PharmD, BCPS**

Dr. Thomas is an Assistant Professor of Clinical Pharmacy in the Department of Pharmacy Practice and Pharmacy Administration at the University of the Sciences. She received her bachelor of science in chemistry from Morgan State University and her Doctor of Pharmacy degree from the University of Maryland–Baltimore. She went on to complete

a pharmacy practice residency at the Virginia Commonwealth University Medical Center (Medical College of Virginia Hospitals) and an ambulatory care specialty residency at the Baltimore Veterans' Administration Medical Center. Dr. Thomas, along with another faculty member, manages a pharmacist-run clinic at the Philadelphia Veterans' Administration Medical Center where she actively manages drug therapy for anticoagulation, diabetes, dyslipidemia, and hypertension. Her clinic is a practice site for Doctor of Pharmacy students completing advanced ambulatory care experiential clerkships and pharmacy practice residents.

**Eric Wright, PharmD, BCPS**

Dr. Wright is an Associate Professor of pharmacy practice at Wilkes University and an investigator

at the Geisinger Center for Health Research. He received his Doctor of Pharmacy from the University of Pittsburgh and completed a pharmacy practice residency at the Veterans' Administration Pittsburgh Healthcare System. Dr. Wright is a Board Certified Pharmacotherapy Specialist (BCPS), and he developed the Medication Management Clinic at the Wilkes-Barre Veterans' Administration Medical Center, which focuses on appropriate medication therapy management, with particular attention paid to nonadherent patients. Dr. Wright is the author of several journal publications and textbook chapters. His professional pursuits relate to outpatient medication use and include practice and research in medication adherence, hypertension, hyperlipidemia, and diabetes.

