

Contents

| CON | TRIBUTORS |
|--------|--|
| 1 | STUDY GUIDE FOR THE PCOA |
| area | BASIC BIOMEDICAL SCIENCES Editor: Robert B. Parker |
| 2 | ANATOMY AND PHYSIOLOGY |
| 3 | BIOCHEMISTRY |
| 4 | MICROBIOLOGY RELATED TO HUMAN DISEASE |
| 5 | IMMUNOLOGY |
| area 2 | PHARMACEUTICAL SCIENCES Editors: Robert B. Parker (6, 7) and Andrea S. Franks (8–13) |
| 6 | MEDICINAL CHEMISTRY |
| 7 | PHARMACOLOGY |

vi

| 8 | PHARMACOGNOSY AND DIETARY SUPPLEMENTS |
|----|--|
| 9 | PHARMACEUTICS AND BIOPHARMACEUTICS |
| 10 | CLINICAL PHARMACOKINETICS |
| 11 | CLINICAL PHARMACOGENETICS AND PHARMACOGENOMICS |
| 12 | EXTEMPORANEOUS COMPOUNDING AND PARENTERAL |
| 13 | FUNDAMENTALS OF PHARMACY PRACTICE |
| 3 | SOCIAL, BEHAVIORAL, AND ADMINISTRATIVE PHARMACY SCIENCES Editors: Andrea S. Franks (14), Peter A. Chyka (15–21), and Bradley A. Boucher (22–24) |
| 14 | HEALTH CARE DELIVERY SYSTEMS |
| 15 | POPULATION-BASED CARE AND PHARMACOEPIDEMIOLOGY |
| 16 | ECONOMIC AND HUMANISTIC OUTCOMES |
| 17 | PHARMACY PRACTICE MANAGEMENT |
| 18 | PHARMACY LAW AND REGULATORY AFFAIRS |
| 19 | BIOSTATISTICS |
| 20 | CLINICAL TRIAL DESIGN |
| 21 | ETHICS IN HEALTH CARE PRACTICE |





| 22 | PROFESSIONAL COMMUNICATIONS |
|--------|--|
| 23 | SOCIAL AND BEHAVIORAL ASPECTS OF PHARMACY PRACTICE |
| 24 | MEDICATION DISPENSING AND DISTRIBUTION SYSTEMS |
| area 4 | CLINICAL SCIENCES Editor: Bradley A. Boucher |
| 25 | EVIDENCE-BASED PRACTICE |
| 26 | CLINICAL PATHOPHYSIOLOGY |
| 27 | HEALTH PROMOTION, DISEASE PREVENTION, |
| 28 | PATIENT ASSESSMENT |
| 29 | CLINICAL PHARMACOLOGY AND THERAPEUTIC |
| 30 | TOXICOLOGY |
| INDE | (|









(



Preface

am honored to serve as editor-in-chief of the first edition of *The Complete PCOA® Review*. I would like to express my utmost appreciation to my area editors, Drs. Peter Chyka, Andrea Franks, and Robert Parker. These outstanding faculty members have worked in concert with colleagues largely at the University of Tennessee Health Science Center College of Pharmacy to develop a comprehensive review book that will help prepare student pharmacists for the Pharmacy Curricular Outcomes Assessment (PCOA) based on the published National Association of Boards of Pharmacy (NABP) content areas. The faculty of the University of Tennessee Health Science Center College of Pharmacy and I appreciate the confidence that the American Pharmacists Association (APhA) has demonstrated by allowing us this opportunity to assist student pharmacists in preparing for the PCOA.

The objective of this book is to provide a study guide on the knowledge necessary to perform well on the PCOA examination. This unique publication is one of the only resources currently available to student pharmacists completing the PCOA. The PCOA is a comprehensive tool developed and administered by the NABP. It was designed to provide an independent, objective, external measure of student performance in United States pharmacy curricula and was first launched by the NABP in 2009. At that time, many pharmacy programs chose to use it in various ways throughout their curricula (i.e., to different classes and with varying stakes attached), while many others chose not to use it at all. The Accreditation Council for Pharmacy Education mandated the use of the PCOA in their most recent accreditation standards revision, effective July 2016, requiring all pharmacy programs to administer the 3-hour examination to student pharmacists near the end of their didactic curriculum (typically the third professional year [P3] in a 4-year PharmD program). Pharmacy programs can use the PCOA data to review individual student pharmacist performance as well as a curricular continuous improvement tool from year to year. National comparison data are also available to each institution. Furthermore, some institutions administer the examination more than once (e.g., upon entry into a PharmD program and upon completion of the core didactic curriculum as a formative assessment).

The PCOA consists of 225 items encompassing four domains. Preparing for this exam is a daunting task when one considers the breadth of topics outlined within each of the four major competency areas—basic biomedical sciences; pharmaceutical sciences; social, behavioral, and administrative sciences; and clinical sciences—broken down into 28 subtopic areas. Furthermore, student pharmacists may be actively engaged in concurrent coursework at the time the PCOA examination is administered. Reviewing material from every course taken during a student pharmacist's formal pharmacy education would be an inefficient and nearly impossible task, as well as one that possibly contains dated information. Therefore, we have developed an up-to-date, succinct, comprehensive review of basic pharmacy educational information that reinforces material learned in the past for use as student pharmacists prepare to take the PCOA.







Х

Furthermore, student pharmacists may identify areas that need additional reinforcement based on their level of success answering the self-study questions within the review book.

This study guide attempts to summarize the information in a user-friendly manner. Each chapter of the review book includes (1) educational material that synthesizes the most salient points, (2) key points (which further delineate the most important factors), (3) a study guide checklist, (4) self-study questions and answers, and (5) additional resources for further study as needed.

Importantly, this review book is not an exhaustive discussion of the topics presented; rather, it uses an abbreviated format to enable student pharmacists to review and organize the material in an efficient manner for easy recall and recognition. Student pharmacists should have confidence that their pre-pharmacy and pharmacy education has prepared them for the PCOA. In addition, a thoughtful review of the PCOA competency areas, especially in those subjects needing a refresher, may ensure greater success when taking the PCOA examination required by each student pharmacist's respective school or college of pharmacy. Finally, any student pharmacist interested in learning more about the PCOA examination should review the PCOA Information for Students on the NABP website (https://nabp.pharmacy/programs/pcoa/students/) or contact the NABP at 1600 Feehanville Drive, Mount Prospect, IL 60056 (telephone: 1-847-391-4406; fax: 1-847-375-1114; e-mail: help@nabp.pharmacy). Student pharmacist registration within NABP is coordinated through an administrator at each student's respective school or college of pharmacy. An optional 45-minute practice PCOA assessment consisting of 50 items is available following registration and within 14 days prior to the test day to help student pharmacists become more familiar with the types of questions on the examination as well as its format.

I wish to thank John Fedor, Senior Director, Books and Digital Publishing, and Janan Sarwar, PharmD, Director of Content Development, Books and Digital Publishing, both of the APhA Books and Digital Publishing Department, for their assistance with the editorial work on this book. The insight of APhA in recognizing the student pharmacists' need for this review book is a true service to the profession of pharmacy.

Bradley A. Boucher, PharmD, FCCP, FNAP, MCCM, BCPS Editor-in-Chief



