
Over the past several years the area of drug-drug interactions has exploded into a major area of basic and clinical research as a result of our better understanding of the mechanisms of drug metabolism and how drugs can act as inhibitors or inducers of various drug-metabolizing enzymes. With the advent of recombinant DNA methods it is now possible to study the individual enzymes involved in drug metabolism and to determine the mechanisms of inhibition shown by various drugs. Unfortunately, the ability to translate in vitro studies into in vivo predictions of drug-drug interactions is still in its infancy and much remains to be done in developing reliable methods to predict the clinical consequences of inhibition or induction of specific drug-metabolizing enzymes.

This book consists of 18 chapters that cover many aspects of drug-drug interactions as the result of inhibition or induction of drug-metabolizing enzymes. Topics range from a basic introduction of pharmacokinetic and pharmacodynamic concepts (Chapter 1) to the marketing aspects of drug-drug interactions (Chapter 18). As one would anticipate the majority of the chapters deal with inhibition and induction of cytochrome P450s both in vitro and in vivo. There are also excellent chapters on the role of human UDP-glucuronosyltransferases (Chapter 4), membrane transport processes (Chapter 5), P-glycoproteins (Chapter 8), and gut mucosa (Chapter 9) on drug-drug interactions.

The chapters vary in length from 12 to 78 pages and are well referenced and reasonably up to date (some references as recent as 2000). As with most multi-authored texts there is some repetition and variation in style between the chapters, but the editor has done well to keep this to a minimum by providing for a significant amount of cross-referencing between chapters when basic pharmacokinetic and/or pharmacodynamic concepts overlap.

In summary, this book is an excellent reference for those unfamiliar with the basic pharmacokinetic and pharmacodynamic aspects of drug-drug interactions as well as for graduate students entering this area of research. For those who teach basic principles of medicinal chemistry, pharmacology or pharmacokinetics this book provides a valuable resource for examples and mechanisms of drug-drug interactions. Unfortunately the price may preclude individual purchases, but it certainly should be a text for the library or departmental reference collection.

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This text represents the first treatise concerning the medical applications of therapeutic proteins from abxiximab to vaccines. As stated by one of the contributors in the text, 369 biotechnology products are currently in the clinic and market for treating over 200 diseases, excluding the 75 approved biotech products for diagnostic use. Clearly, biotechnology products are "alive and well," and will continue to represent a sustainable market presence.

Thirty scientists representing six different nations have contributed to this volume which is comprised of fifteen chapters. These chapters have been grouped into five topical areas, including: Introduction and Overview; Recombinant Hormones; Recombinant Cytokines and their Receptors; Recombinant Enzymes, Enzyme Activators, and Inhibitors; and Recombinant Vaccines. Each chapter represents a "case study" of sorts, insofar as each selected biotechnology product is discussed in terms of manufacturing processes, clinical development strategies and clinical trial hurdles that were encountered.

Chapter 1 provides the framework for the text and represents an update of an earlier review written by the same author in 1999. Chapters 2 through 4 clearly document the application of several recombinant hormones, including human erythropoietin, human growth hormone, and human follicle stimulating hormone. Chapters 5 through 7 address the recombiant cytokines and their receptors, including granulocyte colony stimulating factor, the use of interferon-beta-1b in multiple sclerosis, and, the use of TNF-alpha for treatment of rheumatoid arthritis. Chapters 8 through 10 cover tissue plasminogen activator, coagulation factor VIII for treatment of hemophilia A, and apoprotin for the reduction of surgical blood loss. Recombinant hepatitis B vaccine is covered in a single chapter, and the remainder of the text comprises monoclonal antibodies, with chapters covering antibody therapy for sepsis, the use of CDP571 for chronic therapy, and the evolution of the antithrombotic agent abciximab (ReoPro®). The total volume contains over 1,200 references to the primary and secondary literature, with a bibliography section following each chapter. Structures, tables, and illustrations are found throughout the text, however, the illustrations are in black and white, and this greatly limits the impact. The use of colorplates throughout the text would have been beneficial (there is a single colorplate page at the beginning of the book).

Overall, this text would be extremely beneficial for graduate students in pharmaceutical sciences, as well as pharmacy undergraduate students. For example, seven years ago, our School of Pharmacy had

created and implemented a new curriculum which introduced a PS-level class titled "Pharmacogenetics and Pharmacomunology." This textbook would be a nice addition to this class as a secondary text or as a supplementary reading resource. At the very least, this text should be added to every library system based on the content and very affordable price.

John M. Rimoldi
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In the forward the editors of the text state that their ultimate goal is "to provide expert guidance on how to treat patients." This text seems more appropriately designed to serve as basic review of clinical pharmacology. The authors have separated the text into three main sections: General Principles (subdivided into Medicinals in Society and General Clinical Pharmacology), Pharmacotherapeutic Products, and Treatment of Health Problems. The text seems to be a merger of a pharmacology text and a therapeutics text. Uniquely, this book is composed of chapters authored by an international panel of writers. The majority of these authors are clinicians including physicians and some pharmacists. The text provides a very broad overview of a number of general topics.

Drug classes are discussed in a mechanistic approach at a level more readily digestible than that found in Goodman and Gilman. The text is very complete in terms of drug classes. The text also includes a number of diagrams and graphs in various sections that do a very good job of illustrating and summarizing key points. A clinical emphasis is seen in the "Treatment of Health Problems" section where a number of disease states are reviewed. Included in this section are chapters on symptomatic treatment and emergency medicine. The clinical emphasis in the text with regards to a number of disease states and pharmacotherapeutic options will make future editions and revisions necessary to maintain a current focus.

While the book is generally well organized, I did find the alphanumeric system used for heading purposes of specific sections to be slightly cumbersome. Readers should not expect great detail in any individual section as a wide variety of topics are covered but not at great lengths. The text would serve as a very broad tertiary reference that provides a cursory review of many topic areas but not in the same detail as that seen in Goodman and Gilman nor any major Therapeutics text.

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Handbook of Clinical Drug Data, 10th edition is designed to aid healthcare professionals in the provision of drug information and in the process of therapeutic decision-making. The editors of this handbook state that the goal of this publication is to serve as "...the superior source of evaluative and comparative information on over 1,200 drugs in common use."

This handbook is divided into three parts: Parti consists of monographs, mini-monographs, and comparison charts of drugs from ten therapeutic categories; Part 2 contains lists of agents associated with selected adverse effects and drug interactions and information related to drug usage in special patient populations, vaccinations, medical emergencies, and nutrition support; Part 3 consists of appendices entitled Conversion Factors, Anthropometrics, Laboratory Indices, and Pharmacokinetic Equations.

Monographs in this book are organized by drug category, and subdivided into therapeutic groups. Drugs considered to be of greater therapeutic importance are described in monographs, while those of lesser importance are summarized in mini-monographs. Monographs are divided into twelve sections: Pharmacology, Administration and Adult Dosage, Special Populations, Dosage Forms, Patient Instructions, Pharmacokinetics, Adverse Reactions, Contraindications, Precautions, Drug Interactions, Parameters to Monitor, and Notes. These monographs are concise, well written, and contain most of the information a clinical pharmacists need to make basic therapeutic recommendations. When compared to similar publications, these monographs do not contain information related to stability, product recognition, or toxicology. Therapeutic uses are also not explicitly listed in monographs, and must be derived from reviewing either Pharmacology or Administration and Adult Dosing. Off-label indications are not discussed. Foreign drug names are not included in the monographs, but the book's index cross-references Canadian and British drug names. What makes the monographs in Handbook of Clinical Drug Data unique is that they reference primary literature, allowing pharmacists to more easily evaluate the evidence used to make recommendations in the book. The Notes section is also very helpful, in many cases summarizing significant studies, allowing pharmacists to cite clinical research results in making recommendations.

Comparison charts are used appropriately and are well labeled, quickly orienting readers to the information being presented. The only problem with the tables in this book (and any other handbook) is that they frequently run over from the front of a page to the back, which slows drug comparison and referring to footnotes. Information presented in the second and third sections of the book is complete, concise and easily navigated. Pharmacists will find the chapter dedicated to drug induced adverse effects especially useful.

Several factors must be considered before choosing this book over other clinical drug information publications. First, pharmacists should compare the breadth and depth of information in drug monographs. Next, pharmacists should consider the organization of monographs in this book. Those who frequently refer to single drug monographs may find this book less convenient than references where monographs are organized alphabetically. Pharmacists who are more likely to use a reference to compare numerous drugs in the course of decision-making may find this book more easy to use. Pharmacists practicing in specialty areas should ensure that a majority of the drugs used in their area of practice are summarized. For example, critical care specialists will not find monographs for drugs such as cisatracurium, lorazepam, pentobarbital, propofol, or vasopressin in this book. Finally, at nearly 1 3/4 inches thick, only those with large pockets will be able to keep a copy of this book in a lab coat.

Overall this book is an excellent condensed drug information reference for clinical pharmacists. Information is organized and presented in a way that makes it more appropriate for use as a therapeutic decision-making tool than similar references. The use of primary literature references and summation of selected clinical research data are also major advantages of the Handbook of Clinical Drug Data. This book would be a useful addition to the collection of any drug information center, medical library, hospital pharmacy, community pharmacy, or clinical pharmacy practitioner.

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RICHARD FINKEL. **Patient Care Management Lab: A Workbook for Prescription Practice.** *Baltimore, MD: Lippincott Williams & Wilkins, 2002. vii + 397pp., $39.95.*

This book was written for a course in which students interpret prescriptions, check patient profiles for accuracy, appropriateness and compatibility, label and fill prescriptions and provide counseling. It is divided into 10 chapters, each dealing with a specific disease state, patient population or drug category. Cardiovascular, anti-inflammatory, ophthalmic and psychiatric drugs, antibiotics, chemotherapy, pain control, geriatrics, diabetes and lung, liver, and genitourinary disorders are covered. Each chapter is introduced with succinct objectives, a list of drugs in the exercise and "hot points" containing important indications, interactions and monitoring parameters of the drugs. There is a section of extensive questions regarding the drugs and related disease states that students must answer before each lab. The bulk of the book consists of patient profiles (15-25 for each chapter) and prescriptions pertaining to each. Blank prescriptions are included in some of the chapters so the instructor may compose his own problem prescriptions. There is an appendix with numerous supplemental prescriptions and significant abbreviations.

The patient profiles contain the patient's age, gender, allergies, approximate weight and major diagnoses as well as a list of medications with directions for use, prescriber, original fill date and refill history.

The prescriptions that accompany the profiles contain the prescriber's name and address, medication, directions for use, strength, amount, patient's age and conform to pharmacy legal requirements except in examples where there may be a problem with the prescription.

Examining the correctness of the prescription and attempting to sort out problems related to the patient's profile is both instructive and great fun. Much thought and effort has gone into the arrangement of these prescriptions, which are adapted from actual prescriptions collected by the author. The book would be invaluable for anyone presenting or contemplating a similar course. It would also be very useful for students participating in patient counseling competitions or for students preparing for board examinations. The cost makes it unlikely that the book could be used as part of a broader based pharmacy practice course. It would, however, make an excellent self-study elective, omitting the dispensing component.

Unfortunately, the physical layout of the book is very poor. The pages are 8.5 inches long and 11 inches wide making it bulky and hard to carry. Opened, it would probably fill up all the counter space in which the student is attempting to fill the prescription. Also, the book is bound with a flimsy metal ring binder. My copy started falling apart before I reached page 20.

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