

## ***Concepts in Clinical Pharmacokinetics, 6<sup>th</sup> Edition***

***By William J. Spruill, PharmD, FASHP, FCCP, William E. Wade, PharmD, FASHP, FCCP, Joseph T. DiPiro, PharmD, Robert A. Blouin, PharmD, Jane M. Pruemer, PharmD, BCOP, FASHP***

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### **[REVIEWER'S EXPERT OPINION]**

Christina Rose, PharmD (Temple University School of Pharmacy)

### **Description**

The first half of this thoroughly updated book discusses pharmacokinetic concepts and presents clinical examples and practice questions after each chapter, while the second half applies the pharmacokinetic concepts in chapters on the most commonly dosed drugs in clinical practice. Throughout, there are problems and discussion points, which may be used by instructors in classroom settings. The previous edition was published in 2010.

### **Purpose**

The purpose is to introduce and explain important pharmacokinetic concepts and then use a stepwise approach to apply these concepts using clinical cases.

Pharmacokinetics is a complicated topic that is important for pharmacists and pharmacy students to understand and apply to clinical scenarios. The authors do an exceptional job of explaining the concepts simply and clearly, and each chapter builds on the previous ones to allow the reader to gain a better understanding of the material.

### **Audience**

Although the target audience appears to be pharmacy students, the book also would serve as a good refresher for residents and general pharmacists and pharmacy practitioners. The authors are all well-known pharmacy educators who are well qualified to write a book on this topic.

### **Features**

Brief discussions and definitions of concepts related to pharmacokinetics and pharmacodynamics begin the book. The next lessons (chapters) go into more detail about each important pharmacokinetic parameter. The last four lessons review clinical dosing cases using the most commonly monitored drugs in clinical practice. This book presents many opportunities for readers to assess and apply what they have learned from each lesson, with multiple review questions and answers with explanations, as well as three sets of practice questions placed throughout the book to test understanding of the previous few chapters. The frequent opportunities for assessment and feedback (with answers included) are strengths of this book. Each chapter contains numerous relevant clinical pearls to illustrate important points. The book also contains a glossary of abbreviations, definitions, and a multiple-page equation sheet which would be very helpful to students encountering this material for the first time.

**Assessment**

This is a useful reference for pharmacy students or practitioners looking to refresh their knowledge or skills. The material is presented in an easy to understand format, more so than other books on this topic. This update does expand on a few important clinical pharmacokinetic concepts: estimating renal function, extended-interval aminoglycoside dosing, and pharmacogenomics. These expanded sections are brief, yet needed additions.

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***Weighted Numerical Score: 88 - 3 Stars***

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**The Pharmaceutical Journal, Vol. 29.3, No. 7818, July 12, 2014**

**[REVIEWER'S EXPERT OPINION]** Laurence A. Goldberg

This book introduces pharmacokinetic and biopharmaceutic principles, including relevant terminology and calculations. Most of the material relates to the individualization of drug dosing regimens. The book sets out to teach the basic biopharmaceutic concepts, mathematical models and clinical applications needed to determine values such as dose, interval and steady-state concentration. It aims to provide the student or healthcare practitioner with the knowledge required to understand better this complicated yet vitally important subject.

It is organized into 15 lessons (chapters), some relating to individual drugs such as aminoglycosides, vancomycin, theophylline, phenytoin and digoxin and others are based on concepts such as two-compartment models, drug distribution and protein binding. Eleven of the lessons include practice quizzes designed to chart progress and four lessons are completely devoted to clinical cases. The first lessons include pharmacokinetic and pharmacodynamic principles, as well as an overview of biopharmaceutic principles. Each of these lessons begins with a list of educational objectives and concludes with a series of self-assessment review questions. Answers and feedback for incorrect responses are provided for these short answer questions. Discussion points, intended for group discussion, complement each lesson. Lessons 12 to 15 present brief patient case studies with aminoglycosides, theophylline, vancomycin, digoxin and phenytoin so the reader can practice using pharmacokinetic equations.

After completing the basic pharmacokinetics lesson, for example, the reader should be able to define the concept of apparent volume of distribution and the components of body fluids that make up extracellular and intracellular fluid, define drug clearance and describe the difference between first- and zero-order elimination and how each appears graphically.

Similarly, the reader should be able to calculate the elimination rate constant, define half-life, calculate a drug's half-life, define the relationship between half-life and elimination rate constant, define drug clearance, and when given plasma concentration data after an intravenous bolus dose of a drug, be able to calculate a drug's volume of distribution, concentration at time zero and AUC.

Pharmacy students and busy practitioners wishing to come to terms with pharmacokinetic calculations and wanting to illustrate pharmacokinetic principles in graphic form will find this book of immense value.