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***Herb, Nutrient and Drug Interactions: Clinical Implications and Therapeutic Strategies*** by Mitchell Bebel Stargrove, Jonathan Treasure, and Dwight L. McKee. St. Louis, MO: Mosby Elsevier; 2008. 932 pages; ISBN 978-0-323-02964-3. \$92.95. Available in ABC's online store [and [medicineworks.com](http://www.medicineworks.com)].

This is a remarkably helpful book that is immensely well organized. This book starts with a foreword by Tieraona Low Dog, MD, and a detailed preface by the authors.

Credits are given to an impressive support team and reviewers, and an accompanying CD lists the scientific references. The opening chapter explains the "Interactions Evaluation Guide," which is also abbreviated as a handy "Quick Guide to Interactions Evaluation System" in the flyleaf. The interactions evaluation system establishes categories of numbers and symbols that show the probability, type and clinical significance, and strength and quality of interactions. These are listed in each herb and nutrient section with the prescription drug being reviewed.

The first category explained in the interactions evaluation guide addresses the probability of clinically significant interactions. These are arranged in a numbered list: 1. certain, 2. probable, 3. possible, 4. plausible, 5. improbable, and 6. unknown. The next category contains 21 symbols used to convey the type and clinical significance of an interaction. In this section, symbols have meanings ranging from "potential or theoretical adverse interaction of uncertain severity" to "potentially harmful or serious adverse interaction-avoid" with a large amount of detail for each symbol. The last category contains symbols for the strength and quality of the source evidence. Here symbols are used to convey 5 categories of quality: (a) Consensus: an interaction has been demonstrated across an array of clinical experience and research literature; (b) Emerging: the interaction has been supported in several pieces of clinical experience and research literature;

(c) Preliminary: an interaction has been suggested by some preliminary data or partial evidence; (d) Mixed: the interaction has been proposed but with partial, contradictory, or otherwise inconclusive evidence; and (e) Inadequate: the interaction has been proposed using obsolete, discredited, or inadequate/inappropriate evidence. These criteria are listed with each herb examined, which makes for a quick and easy way to answer common questions for each herb.

The book explores interactions of herbs, vitamins, minerals, amino acids, nutraceuticals, and physiologics. Each herb profile within the book contains a summary, description of the various herb forms, its use in clinical practice, an interactions review, and then specific herb-drug interactions. An example of a specific interaction is valerian (*Valeriana officinalis*, Valerianaceae) and benzodiazepines (Probability rating 3, for "Possible"). This section includes theoretical, speculative, and preliminary interactions

from research including unsubstantiated claims. There are also cross-indexes at the back of the book for interactions by drug class, interactions by generic drug name, and interactions by drug trade name. These cross-indexes are followed by a well executed index.

To explore the depth of this book, I looked for details, such as the eosinophiliamyalgia syndrome associated with contamination of the dimer of L-tryptophan in the accelerated manufacturing process of Showa Denko in Japan 1989; I found this topic well-covered historically, although not referenced in the index. As well, I was pleased to encounter a detailed discussion of Bendectin (doxylamine and pyridoxine) issues beginning in 1969, which gave rise to the famous Supreme Court decision *Daubert v. Merrill Dow Pharmaceuticals Inc.*

The pharmacogenomic basics of why interactions occur, such as the cytochrome (CYP) P450 subenzyme system, are described under summaries and interactions reviews for each herb. This includes CYP 3A4 for St. John's wort (*Hypericum perforatum*, Clusiaceae). It would have been helpful for these metabolic pathways to be more globally covered in the introductory chapters and listed in the index. This would present an opportunity to elucidate other basic aspects of herb and drug metabolism and excretion (such as glucuronidation, sulfation, and esterase metabolism in the liver) as well as metabolic influences from the epigenetic demethylation of SNPs (single nucleotide polymorphisms).

The book is well-priced considering its size (932 pages) and accompanying reference-containing CD. As such, I recommend this as an essential day-to-day interactions counseling reference for any and all persons in healthcare, whether integrative or conventional. Plus, all involved in herb and nutrient marketing and manufacture will find this an essential and helpful backgrounder reference. The authors are to be congratulated on their valuable work and encouraged to provide periodic updates of this book with Internet access.

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