

the patient experiences a flare-up. He also sets out a plan for early detection of exacerbation symptoms and the progressive interactions that are needed. He discusses monitoring your asthma symptoms with a peak flow meter, determining your personal best, and setting up a treatment strategy for intervening when the peak flow falls by 25%, 50%, or 75% of your personal best. This early-detection/intervention strategy has been the hallmark of asthma treatment for more than 20 years, and this easy-to-understand strategy for early intervention is a helpful addition to that overall treatment plan. With this knowledge an asthma patient (or his or her support person) is in a much better position to evaluate the doctor's recommendations.

What are the shortcomings of the book? I found two that are easily addressed and another one less so. The first problem I encountered, which is more one of style than substance, was in this effort I described earlier of being a careful reader from the start. For a layman in the field of medicine, I am relatively knowledgeable about asthma, and I can read and understand complex material with a new vocabulary. But I found the early going difficult, particularly in internalizing some of the medical terminology. For example, on page 4, in one short paragraph the reader is introduced to "adrenergic" and "cholinergic" effects and "acetylcholine" and "epinephrine" neurotransmitters. The only one of those I was familiar with was epinephrine. Then, "boom," we were on to a discussion of α and β receptors. My reading and comprehension style would have benefited from a slightly longer discussion of the neurotransmitters, perhaps explaining their function in more general terms before introducing the foreign terms. As it was, my eyes (and brain) glazed over when I hit these foreign words, and I was not as equipped as I should have been later in the book when anticholinergic drugs were discussed.

The second problem was one of substance. This book is 207 pages long, only 6 pages of which were devoted to alternative medicines, so the discussion of alternative medicines was brief and summary, and many of the alternative approaches were dismissed as not meeting the scientific requirement of proven value. Though my own life-threatening experience with asthma made me a firm believer in traditional medicine, my wife and son are strong believers in alternative approaches to medical problems.

They encourage me to consider such treatments. Other than responding with a simplistic argument that there is no medical evidence those treatments work, I have little answer for them, and, unfortunately, this book's skimpy treatment of this subject did not make me any more informed. Notwithstanding my biases in favor of traditional medicine for asthma, based on my own experiences, I am aware of the substantial impacts alternative medicine, including lifestyle changes, can have. I would like to have seen a less judgmental, more descriptive treatment of alternative approaches.

The third shortcoming is this. Though I am an extremely "religious" follower of the medication treatment plan my doctor set out for me, it is clear that I am in a distinct minority among asthmatics. Adams provides anecdotes about patients who simply did not follow their treatment plans and did not take their medicines. For example, one patient drank black tea instead of taking his medications, even though he was experiencing periodic bouts of asthma severe enough to send him to the emergency room. For all the discussion of the physiology of asthma and current and future asthma drugs, a patient in 2008 who does not adhere to his or her prescribed asthma regimen is in no better position than I was in 1958, when few drugs were available. I'm sure this non-adherence to therapy is a major frustration for allergists and asthma doctors. I'm equally sure that, in these days of 4-to-6-patients-an-hour medical practice, little can be done to improve that adherence. This seems to be a classic situation where spending a dollar now on adherence would provide many dollars of return in fewer asthma flare-ups and emergency-department visits. I would like to have seen some discussion of therapy adherence and research on improving it, or at least objectively monitoring it. I'm not a research scientist, but I can think of several protocols that should be tested to see if they improve adherence.

So perhaps **The Asthma Sourcebook** is not really *everything* you need to know about asthma and asthma treatment, but it's pretty darn close, and for me it was an extremely informative read.

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Therapeutic Strategies in Asthma: Current Treatments. Riccardo Polosa and Stephen Holgate, editors. Oxford: Clinical Publishing. 2007. Hard cover, 192 pages, \$89.95.

Therapeutic Strategies in Asthma: Current Treatments explores the pharmacology and pharmacobiology of asthma. It does not address the control of asthma triggers or how to facilitate adherence to therapy. The book appears to be most concerned about evaluating current knowledge to point the direction to future asthma drugs. It is consciously less concerned about the present than the future. The preface states that the goal is to "provide readers with an overview of possible novel approaches in a field in need of innovation." This book is likely to be most interesting to scientists interested or involved in asthma drug development. For those interested in a clinically applicable, practical review of current asthma therapy, the reader would be better served by the current asthma care guidelines from the National Asthma Education and Prevention Program¹ or the Global Initiative for Asthma.²

Chapter 1 focuses on the role and mechanisms of glucocorticoids in asthma, with an emphasis on mechanisms and mediators. This chapter touches on a large amount of complex material, and, unfortunately, within the space constraints it does not do the material justice. To someone who is not a molecular biologist, it reads like a poorly organized list of pathways and mediators. Each mechanism and mediator has its own acronym, each defined at first appearance; I counted 46 acronyms in the chapter. This made for a very difficult read.

Chapter 2 examines risk/benefit assessment of long-acting β agonists and touches on the controversies about down-regulation of the β_2 receptor and the role of enantiomers. Research on ultra-long-acting β agonists in development is described.

Chapter 3 reviews β_2 agonist activities other than bronchodilation. In vitro research has documented inhibition of mediator release from mast cells, degranulation of eosinophils, and inhibition of lymphocyte function, although tolerance to these effects occurs rapidly. However, in vivo, clinically important anti-inflammatory effects of β_2 agonists have not been demonstrated. The authors believe that the disparity between those in vitro and in vivo responses is best explained by the rapid desensitization of β_2

adrenergic receptors on airways inflammatory cells.

Chapter 4 reviews combination therapy for asthma. This chapter focuses on the combinations of inhaled corticosteroid plus long-acting β agonist. Other combinations, such as inhaled corticosteroid plus leukotriene modifier or inhaled corticosteroid plus theophylline, are not discussed. There is speculation on mechanisms of synergism of the combination of long-acting β agonist plus inhaled corticosteroid. Preliminary data suggest that inhaled corticosteroids may block the down-regulation of β_2 receptors, and β_2 agonists may activate glucocorticoid receptors.

Chapter 5 discusses the leukotriene modifiers, both in comparison to inhaled corticosteroids and in combination with inhaled corticosteroids. The chapter does not differentiate between the leukotriene-receptor blockers zafirlukast and montelukast and the 5-lipoxygenase inhibitor zileuton.

Chapter 6 examines the phosphodiesterase inhibitors. Work on the development of new selective phosphodiesterase-4 inhibitors is described. Chapter 7 reviews the anticholinergic agents. Chapter 8 reviews research on anti-immunoglobulin E monoclonal antibodies in asthma. Chapter 9 discusses immunotherapy for asthma, which preliminary research suggests may attenuate the progression from allergic rhinitis to asthma.

Chapter 10 investigates strategies to shift the T helper cell type 1 (Th1) phenotype to Th2. The research focus is on purified bacterial products, specifically the immunostimulatory bacterial CpG deoxyribonucleic acid, either alone or as an adjuvant with traditional immunotherapy. Preliminary proof-of-concept studies demonstrated suppression of Th2-associated cytokines and increased production of Th1-associated cytokines from administration of immunostimulatory deoxyribonucleic acid conjugates. The authors caution that definitive clinical data are lacking.

Chapter 11 examines research on antimicrobials in asthma. The chapter notes that the studies that found no benefit from antimicrobials in asthma failed to examine medications effective against chlamydia and mycoplasma. The chapter describes seroprevalence data that suggest an association between chlamydia, mycoplasma, and asthma, and describes molecular mechanisms by which chronic, subclinical infection with these organisms could lead to the

phenotype of chronic asthma. Clinical studies of macrolide therapy in asthma have suggested some benefit but have not yielded consistent dramatic sustained improvements. The authors speculate that failure to eradicate the organisms may be a factor in the lack of sustained response, and that some of the benefits observed may be from immunomodulatory (rather than antibacterial) properties of the macrolides. They note that studies are limited by small numbers and differences in the methods used to define infection.

Chapter 12 covers treatment of acute asthma. The authors note studies that found harm from administration of 100% oxygen in acute asthma and suggest that the fraction of inspired oxygen should be titrated to target P_{aO_2} or arterial oxygen saturation. They also review the studies on levalbuterol versus racemic albuterol and conclude that, although there are theoretical advantages to levalbuterol, the randomized studies found no clinically important difference between the two. The authors were also not convinced that the research showed any advantage of formoterol over albuterol in acute asthma.

Chapter 13 looks at the use of inflammatory markers to guide therapy. The authors note that sputum eosinophilia suggests corticosteroid responsiveness, although lack of sputum eosinophilia does not rule out a corticosteroid response. Exhaled nitric oxide increases with deterioration of asthma control. The authors note that one study suggested that exhaled nitric oxide monitoring may allow a lower inhaled corticosteroid dose than would be used if following the Global Initiative for Asthma guidelines.² On the other hand, it is not clear if a high exhaled nitric oxide in an otherwise asymptomatic patient requires action. The authors conclude that exhaled nitric oxide monitoring in asthma requires further evaluation to determine if it will be useful in routine clinical practice.

The final chapter examines the effect of cigarette smoking on asthma. The authors point out the decreased response to oral and inhaled corticosteroid among both active smokers and individuals with involuntary tobacco smoke exposure. Of course, the best treatment is smoking cessation, but the authors point out that this is often difficult to achieve in tobacco-dependent individuals. They also note that, because of the exclusion of smokers from medication trials in asthma, optimal pharmacotherapy for asth-

matics who smoke has yet to be determined. Smoking increases urine cysteinyl leukotrienes, and the authors speculate that leukotriene-modifier medications might benefit asthmatics who smoke.

In summary, this book meets its stated goal to "provide readers with an overview of possible novel approaches in a field in need of innovation," particularly in relation to asthma pharmacotherapy. The book is likely to be useful to scientists and others who wish to investigate novel approaches to asthma. However, individuals looking for a clinically useful summary of current asthma treatment would be better off referring to the asthma management guidelines.^{1,2}

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1. Expert panel report 3: guidelines for the diagnosis and management of asthma. Bethesda, Maryland: National Institutes of Health, National Asthma Education and Prevention Program; 2007. NIH Publication No. 08-4051. <http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.pdf>. Accessed April 1, 2008.
2. Global Initiative for Asthma. Global strategy for asthma management and prevention. Updated December 2007. <http://www.ginasthma.com/guidelinesresources.asp>. Accessed April 1, 2007.

Models of Exacerbations in Asthma and COPD. Ulf Sjöbrink and John D Taylor, editors. *Contributions to Microbiology* series, volume 14, Axel Schmidt and Heiko Herwald, series editors. Basel, Switzerland: S Karger. 2007. Hard cover, illustrated, 145 pages, \$132.

Exacerbations of asthma and chronic obstructive pulmonary disease (COPD) are important components of these airway diseases. As we try to enhance our understanding of these phenomena, we need experimental models that mimic the pathobiological processes in exacerbations. These model systems could include both animal models and human experimental models. This book is a timely addition to the literature in this growing field of research. The book has 5 sections: Introduction, Human Asthma Models, Animal Asthma Models, Human COPD