

Despite the above problems, in general the book will be a useful read for those who want to become familiar with respiratory drug delivery. Many readers of *RESPIRATORY CARE* will focus on the pharmaceutical technology chapters in Part III, and these are in general well written and have good coverage of the relevant material. There is a strong emphasis on MDI formulations; 3 chapters are devoted solely to this topic, compared to one chapter devoted to nebulizers, and one on powder inhalers, plus another chapter that touches on all 3 device types. However, this mix adequately reflects the current prevalence of MDIs in the marketplace. Several chapters in Part III include material on diverse topics that are not well covered elsewhere from an inhalation aerosol perspective (eg, Chapter 10 on alternative aqueous devices, and Chapter 11 on alternative powder processing methods).

In short, this book includes a wealth of information that many readers of *RESPIRATORY CARE* will find useful. Naturally, the book is not without its faults, as mentioned above, so caution needs to be exercised in assimilating some parts the book. However, this book should occupy a well-deserved place on the shelf of anyone starting out in this exciting field.

Warren H Finlay PhD PEng

Aerosol Research Laboratory of Alberta
Department of Mechanical Engineering
University of Alberta
Edmonton, Alberta, Canada

The author of this review reports no conflict of interest.

Genetics of Asthma and Chronic Obstructive Pulmonary Disease. Dirkje S Postma and Scott T Weiss, editors. *Lung Biology in Health and Disease*, volume 218, Claude Lenfant, executive editor. Boca Raton: Informa Healthcare. 2007. Hard cover, illustrated, 414 pages, \$199.95.

Volume 218 of the *Lung Biology on Health and Disease* series is devoted to the genetics of asthma and chronic obstructive pulmonary disease (COPD). This is a welcome and timely volume in the series. It provides state-of-the-art updates on the genetics of asthma and COPD, which will assist readers in comparing and contrasting these 2 complex conditions, and describes the genetic differences between these 2 common obstructive lung diseases. The editors assembled 41 experts, from the basic animal laboratory to practicing clinicians, who

provided articles that highlight the relevance of the recent advances in the genetics of obstructive lung disease. Understanding the genetics of these 2 conditions is paramount to understanding their pathogenesis, to the development of new therapies, and to determining why some patients respond to some therapies and others do not.

It is hard to do justice to this work in a succinct review, so I have chosen to briefly outline the content and appeal of the various chapters as a guide to the wealth and diversity of knowledge the volume provides, both for the novice and the experienced researcher. All the chapters are well supported with references to pivotal and key publications.

Chapter 1 serves to orient the novice to this field; it provides an excellent introduction to genetics and introduces the terminology and methodology in the rest of the book.

The relevance of genetics to impairment of lung function is outlined in Chapter 2, with some interesting data from studies of twins. Chapters 3 and 4 focus on the gene/environment interaction, the influence of age and gender in asthma, the genetics of the "hygiene hypothesis," and the conundrum of gender differences in COPD and asthma.

Chapters 5 through 7 focus on the latest laboratory molecular techniques and are mostly directed toward basic researchers working with mouse models in the laboratory. These chapters are quite detailed for those unfamiliar with bench research. They are probably most relevant to undergraduates, and they provide a framework of application of basic genetic techniques to the continuum of asthma/COPD laboratory research.

Chapters 8 and 9 address the comparative genomics of asthma and current proteomic techniques. Chapters 10 and 11 provide a detailed schema, from bench to bedside, of the linkage of the complex clinical syndromes of asthma and COPD to genetics research.

Chapters 13 through 18 provide practical information from genetics research for health care workers and clinical researchers in asthma and COPD, and will assist in understanding the recent medical advances. In particular, Chapters 13 and 14 focus on association studies in asthma and COPD and provide a method to understand how targets for new drugs have been identified, and the evolution of potential novel therapies.

These chapters clearly outline the underlying differences in the genetics and pathogenesis of asthma and COPD. This is timely, as presently guidelines and pharmaceutical company research trials seem to be blurring the differences between asthma and COPD. These chapters emphasize the necessity to approach these conditions with different therapies, rather than suggesting almost identical treatment algorithms, particularly the present vogue of early introduction of combination therapy (inhaled corticosteroid and long-acting β_2 agonist in a single inhaler) in both asthma and COPD.

Chapters 15 and 18 are particularly relevant, as they provide background information on the ongoing politically charged debate about potential harmful effects of regular short-acting β agonists, which are the most-used therapy in both acute and chronic asthma. There is extensive individual variability in the response to β agonists, of which genetics is thought to account for as much as 50%. This controversy has recently been extended to cause confusion about the risk/benefit ratio of long-acting β agonists. Both debates focus on β agonists in asthma management but are confounded by factors such as asthma severity, concomitant inhaled corticosteroids use, and (as outlined in this book) genetic and ethnic subgroups.

Both asthma and COPD are common conditions, and their prevalence is increasing substantially. Asthma is rising primarily due to globalization, the gene/environment interaction of groups of patients previously naïve to the western lifestyle moving to western countries or adopting a western lifestyle in their native land. The worldwide COPD rate is also increasing, which is thought to be driven in western countries by our rapidly aging population and an increased smoking rate in women, and in developing countries by industrial pollution and the rising prevalence of smoking.

COPD, which has traditionally been overshadowed by asthma and allergy, is now a major topic of clinical and research interest. We need to better understand genetic susceptibility, gene/environment interactions, and response to therapy in asthma and COPD.

This may be the first time many of us will consider the genetic origin of these 2 contrasting obstructive lung diseases. Many questions remain unanswered. Why do only 18% of smokers develop COPD? Why do asthmatics, and not COPD patients, develop

airway remodeling? With the ongoing advances of genetic research, we are now more capable than ever of discovering the complex answers to these basic questions.

This book provides easy-to-read reviews, with chapters that are relevant to diverse groups, from basic researchers to epidemiologists to clinicians. It introduces what we understand today about the genetics of asthma and COPD. This general appeal may stimulate and foster further collaboration and cross-pollination of ideas between researchers who have focused on asthma or COPD, but not both. Advances in genetics research have substantially advanced our understanding of these conditions and will improve management and prevention.

R Andrew McIvor MD MSc FRCP

Firestone Institute for Respiratory Health
McMaster University
Hamilton, Ontario, Canada

The author of this review reports no conflict of interest.

Exacerbations of Asthma. Sebastian L Johnston MBBS PhD FRCP, and Paul M O'Byrne MB FRCPI FRCP (C) FRCPE, editors. Boca Raton: Informa Healthcare. 2007. Hard cover, illustrated, 354 pages, \$169.95.

Exacerbations of Asthma is a comprehensive book edited by 2 seasoned writers. With contributions from 38 renowned asthma experts, the editors provide a global view of asthma and its impact on morbidity and mortality. The book has 20 chapters and 6 sections, on epidemiology of asthma exacerbations, pathophysiology, in vitro and in vivo experimentation models of asthma, treatment, prevention, and delivery of care to patients with asthma. Each chapter includes an overview and a concisely written conclusion.

This book is written for a variety of readers. Most chapters are written for health care providers such as asthma educators, respiratory therapists, physicians, and nurses. The information is clearly written and most of the chapters are easily understood, but the chapters on in vivo, in vitro, and murine models for asthma, although well written, require a solid understanding of microbiology, immunology, and biochemistry.

One of this book's strengths is that the chapters are well referenced and have ample discussion of pertinent clinical studies. Most of the studies cited are recent, but a few chapters refer to data from as far back

as the 1960s, which weakens their arguments with outdated statistics.

I had 2 major disappointments about the book. First, the cover art includes a large photograph of a woman using a metered-dose inhaler with the closed-mouth technique and no spacer. Of course, one should never judge a book by its cover, but this photograph illustrates the least effective aerosol delivery method, which would discourage me from purchasing it. I question the editor's intent in using that photograph. My other disappointment is the absence of a chapter on aerosol delivery methods. The pivotal point in asthma management is effective delivery of medications. An evidence-based review of delivery systems and techniques is greatly needed to balance out the topics in this book and provide important information. If I came across this book in a health sciences book store and glanced at the cover and noted the lack of a chapter on aerosol delivery, I would not purchase the book. However, after reading and reviewing it, despite these flaws, I would recommend its purchase.

Chapter 1 clearly defines the nature of asthma exacerbations and their morbidity. Numerous studies are cited on asthma exacerbation frequency, severity, frequency of associated hospital and clinic visits, and financial burden. Unique to this chapter is a discussion on the relationship between thunderstorms and asthma—a concept well supported by studies but not discussed in other books, to my knowledge.

Chapter 1, like several other chapters in the book, contains figures that are confusing and difficult to interpret. For example, Figure 1.1 plots 2 variables at different times of the day: the percent drop in peak expiratory flow, and asthma score. But nowhere does the text or figure legend explain the method for interpreting the 0.0–2.0 range on the Y axis, or define the asthma score. Four graphs plot the effects of 4 different medications on these 2 variables. The legend for the 4 graphs is difficult to discern from the text. The X axis is labeled with a continuum of time, using negative to positive numbers. For example, 15 days prior to the day of asthma exacerbation (which is labeled day 0) is listed as –15 days, and 15 days following the exacerbation is labeled 15. Using a North American orientation for interpreting graphs, this is a nonconventional and difficult approach to present data. Several other chapters also include graphics that are difficult to interpret, lack explanation of

certain variables, symbols, and data points, and are “busy.” These deficits weaken the graphs' and tables' clarity and value. The legend for Table 1.1, which lists data regarding asthma exacerbation rates from 10 studies, does not explain one column of numbers, which rendered the table useless to me.

Chapter 2 differentiates between asthma exacerbation and poorly controlled asthma. This is a clinically important distinction, and this chapter explains the concept well and describes how the pathophysiology of the 2 conditions differ. Tools for diagnosing exacerbations and the use of β agonists and corticosteroids during exacerbations are discussed. This chapter provides an in-depth discussion of the clinical use and limitations of peak flow monitoring. The heart of this chapter is the argument that during an exacerbation the clinician should assess the patient by looking at the differences from the patient's baseline, rather than absolute change, in variables such as peak flow, β agonist use, and symptoms.

Figure 2.10 contains 10 graphs that plot the use of oral corticosteroids, changes in peak flow, symptom score, β agonist use, and inhaled corticosteroid use during exacerbations. As in Chapter 1, the “symptom score” is not defined. The 0–10 scale on the Y axis of the oral steroid graph is not explained. The lack of explanations, along with the graph being printed too small, rendered this figure useless to me.

Chapter 3 addresses the socioeconomic impact of asthma exacerbation. This is discussed in global terms, with emphasis on North America and the European Union. Direct and indirect costs are discussed. This chapter clearly identifies the need for health care providers and decision-makers to identify cost-effective interventions to treat asthma exacerbations.

Chapter 4 discusses the factors that influence the seasonal patterns of asthma exacerbation, such as air pollution, climate, pollen, and viral infections. There is a comprehensive review of studies that have documented global causes of seasonal asthma. The importance of recognizing seasonal asthma risk factors and developing an asthma management plan are highlighted in this well-written chapter. One section on seasonality of respiratory viral infections is discussed with a graph that plots data from 1963–1966. Although this graph illustrates a typical pattern of increased incidence of