1. The inhaled bronchodilator protocol does not mention the need to mobilize secretions in the indications, but improved ability to mobilize secretions is listed as an outcome.

2. The lung re-expansion protocol does not mention fever in the list of indications, but resolution of fever is listed as an outcome.

The indications listed in the recap at the end of the section, are not the same as the indications previously provided. I realize that the indications for therapy differ from hospital to hospital, but the inconsistency within this section could be confusing.

Although the SOAP technique is an effective assessment process, the purposes of this manual might be better served if the assessment and evaluation process used in the case studies were consistent with the format of the example assessment forms and care plans presented in the section on implementation, so the case studies would better serve as reinforcement.

The re-assessment portion of the case studies uses the terms "up-regulate" and "down-regulate" in reference to therapy modifications. It may be more meaningful for students if the changes were more completely described: does up-regulate suggest greater frequency, higher dose, or both?

Finally, perhaps it is time to omit mention of ethanol nebulization. There are probably only a few of us who recall this therapy, as it has not been recommended for some time.

This book contains a great deal of useful information that can help educate respiratory therapy staff regarding patient assessment and evaluation, and can facilitate implementation of respiratory care protocols. The basic groundwork is provided and needs only to be modified to fit the user's specific institution. Overall, the book will be a useful addition to libraries in hospital where respiratory care protocols are in use or are being contemplated. The modifications suggested above would make the book even more useful, internally consistent, and attractive.

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The author reports no conflict of interest in the content of this book review.

Pulmonary Physiology and Pathophysiology: An Integrated, Case-Based Approach, 2nd edition. John B West MD PhD DSc. Philadelphia: Point/Lippincott Williams & Wilkins. 2007. Soft cover, illustrated, 166 pages, $36.95.

West's **Pulmonary Physiology and Pathophysiology** offers a case-based introduction to both respiratory physiology and pathophysiology. This relatively uncommon format is targeted toward curricula that combine physiology and pathophysiology into a single course. The text is derived from the author's 2 renowned, widely read books *Respiratory Physiology: The Essentials* and *Pulmonary Pathophysiology: The Essentials.* Although the new 2nd edition is also case-based and offers new chapters on respiratory infections, lung cancer, and cystic fibrosis, the target audience remains preclinical students. The discussion of epidemiology, natural history, diagnosis, and treatment of respiratory diseases is limited in scope, and this lack of clinical emphasis limits its applicability to routine practice. However, the discussion of physiology and pathophysiology is sufficiently detailed to serve as a resource for other clinicians, including respiratory therapists, residents, and pulmonary subspecialists.

The first 2 chapters focus exclusively on normal physiology. Chapter 1 reviews oxygen uptake and delivery in the context of a maximal exercise test in a normal subject. In Chapter 2 a climber at high altitude provides the framework for discussing acid-base status and control of ventilation. The subsequent 7 chapters use a case presentation of a respiratory disease as a springboard for further discussion of the relevant physiology and pathophysiology. For instance, Chapter 3 compares pressure-volume curves, regional differences in ventilation, airway closure, dynamic compression of airways, arterial blood gases, ventilation-perfusion mismatch, and pulmonary function tests in normal subjects and patients with chronic obstructive pulmonary disease. Other case presentations include asthma, pulmonary fibrosis, pulmonary embolism, coal workers' pneumoconiosis, congestive heart failure, and acute respiratory distress syndrome. Although coal workers' pneumoconiosis is infrequently encountered, the author uses it to frame a discussion of inhaled pollutants and aspects of host defense. Each chapter ends with 3 to 10 multiple-choice questions.

Readers familiar with the author's previous introductory texts will recognize much of the same material in **Pulmonary Physiology and Pathophysiology**. This heavy reliance on time-tested text and figures is, overall, a strength of the book. The figures are particularly effective in rendering complex physiology comprehensible to the novice learner. The non-linear discussion of related topics inherent to a case-driven approach to the material does present challenges. For instance, the chapter on pulmonary fibrosis refers the reader back to figures from previous chapters over a dozen times and alludes to material to be discussed in subsequent chapters on a number of occasions. The text manages this issue as well as can be expected.

Although the format is case-based, discussion of the clinical aspects of respiratory disease is limited. This is particularly true of respiratory infections. For instance, in the less than 1 page of text dedicated to community-acquired pneumonia, there is no discussion of host defense, routes of acquiring pneumonia, or treatment. Similarly, tuberculosis is covered in a third of a page and pulmonary complications of human immunodeficiency virus in one paragraph. There is no discussion of respiratory disease in other immunocompromised populations. Arguably, further discussion of non-infectious-disease topics, such as pleural effusion, massive pulmonary embolism, and obstructive sleep apnea, would also enhance understanding of the relevant pathophysiology and highlight the clinical applicability of the material. However, some of these limitations may not be a concern if these topics are covered elsewhere in the curriculum by another discipline.

There are several instances in which aspects of the clinical material are suboptimally presented. For instance, chest computed tomography angiogram, D-dimer assay, and lower-extremity Doppler ultrasound are not mentioned as diagnostic options for pulmonary embolism, even though lower-extremity venography, radioactive fibrinogen uptake, and impedance plethysmography are included. There is no mention of inherited hypercoagulable states, yet Homans sign, which has poor sensitivity and specificity, is covered. In the chapter on pulmonary fibrosis the case presented is referred to primarily as "diffuse interstitial pulmonary fibrosis" rather than idiopathic pulmonary fibrosis, there is no mention of the pathology term "usual interstitial pneu-

monia," the diagnosis is obtained via bronchoscopy rather than surgical biopsy, and the patient has an atypical clinical course in which there is a marked response to prednisone. There are other examples scattered throughout the text in which the clinical material is dated or has atypical features, including what is arguably an excessive emphasis on the anti-inflammatory properties of β_2 agonists in the asthma chapter.

The figures are, with few exceptions, easily readable and nicely complement the text. However, as the figure legends acknowledge, many of the images of chest radiographs are of insufficient quality to demonstrate the key findings. Addition of chest computed tomograms would nicely complement the pathology descriptions and provide an alternative means of illustrating respiratory diseases that are difficult to appreciate on plain chest radiograph. The pathology figures generally succeed in conveying the pertinent information, although in some cases additional labeling of the key findings would have been helpful.

I found no typographical errors. The sources of the figures are included, but no additional references are provided.

A new feature of the 2nd edition is "board-format" questions. However, the questions consist almost exclusively of single sentences or phrases rather than clinical vignettes. Furthermore, the answers do not provide explanations of the correct and incorrect responses, although the correct answer can be identified by reviewing the pertinent portion of the text. The new "Key Points" feature highlights the most important pathophysiology teaching points; normal physiology is not emphasized in this feature.

In the preface the author states that one of the impetuses for creating a combined respiratory physiology and pathophysiology texts is the need to create space in the curriculum for new, emerging areas of medical knowledge. To that end, **Pulmonary Physiology and Pathophysiology** contains about 90% of the physiology and 70% of the pathophysiology material from his two, aforementioned definitive texts. This proportional emphasis will probably suit many course directors, but others may seek a less robust discussion of physiology in favor of an expanded discussion of the application of pathophysiology to clinical care. For instance, some of the discussion of regional differences in ventilation, isovolume pressure-flow curves, calculation of Reynolds number, single-breath nitrogen test, and absorption atelectasis may surpass what is needed for a student's introduction to respiratory medicine.

In summary, West's **Pulmonary Physiology and Pathophysiology** draws on the strengths of the author's previous texts and is well-suited for selected courses that combine physiology and pathophysiology in a case-based format. The limited discussion of the epidemiology, natural history, diagnosis, and treatment of common respiratory diseases, along with the superficial coverage of respiratory infections, may limit its utility for courses that more closely link preclinical coursework to clinical practice.

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The author reports no conflict of interest in the content of this book review.

Pulmonary Pathophysiology: The Essentials, 7th edition. John B West MD PhD DSc. Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins. 2008. Soft cover, illustrated, 199 pages, $37.95.

In this 7th edition of **Pulmonary Pathophysiology: The Essentials**, West once again shares his expertise in pulmonary physiology. As in previous editions, this book serves as a companion to the 7th edition of **Respiratory Physiology: The Essentials**, which details physiology of the normal lung. In **Pulmonary Pathophysiology: The Essentials**, West emphasizes the physiologic alterations of the diseased lung. This book is intended primarily for medical students, so its goal is to bridge the gap between the basic pulmonary physiology taught in preclinical undergraduate medical education and the clinical physiology seen during the clinical years of medical school. However, as West points out, a variety of health care providers encounter patients with respiratory problems, so this book may be useful to many other practitioners as well.

This book is divided into 3 sections and 10 chapters. It contains substantial revisions to the discussions on exercise testing, ventilation control, asthma pathogenesis, and bronchoactive drugs. In addition, each chapter now highlights important concepts, and at the end of each chapter a list of key concepts has been added. Review questions have also been updated to be consistent with the United States Medical Licensing Examination format. Despite these additions and modifications, West has maintained the overall length of the book.

Part One, "Lung Function Tests and What They Mean," is composed of 3 chapters. Chapter 1, "Ventilation," starts with a description of basic spirometry maneuvers and interpretation of forced expiratory volume in the first second, forced vital capacity, forced expiratory flow, and flow-volume curves. This chapter discusses the single-breath nitrogen test as a measure of ventilatory capacity. The clear and concise descriptions in this chapter help establish a framework on which West builds throughout the remainder of the book.

Chapter 2, "Gas Exchange," focuses on 2 other important tests of lung disease: arterial blood gases and diffusing capacity. He does an excellent job of detailing the typical causes of hypoxemia and offering relevant clinical correlates. Changes in P_{aCO_2} are also discussed, and there is an in-depth description of the interplay between arterial oxygen and P_{aCO_2} in the setting of ventilation-perfusion inequality. Although the gas equations are often a source of confusion for students, West highlights key relationships that help simplify gas exchange. Unfortunately, some may consider West's descriptions oversimplified, and other texts should be consulted for more detailed descriptions of alveolar gas exchange. A discussion of gas exchange would not be complete without an understanding of how acid-base status is affected, and this chapter does include a brief review of acid-base interpretation. The chapter concludes with a concise section on measurement and interpretation of diffusing capacity. West does a very good job of providing examples that demonstrate the relationships between structure and function that are so important to understanding diffusing capacity.

Chapter 3, "Other Tests," concludes the discussion of the tools available to evaluate the physiology of the diseased lung. The diverse array of topics in this chapter includes static lung volume, lung elasticity, airway resistance, control of ventilation, exercise tests, topographic differences of lung