

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 pres-

sure-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 pre-clinical coursework to clinical practice.

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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

function, and the role of pulmonary function tests. There is also a brief description of dyspnea that seems a bit out of place in this chapter. Although each topic is clearly delineated, the separation of various aspects of pulmonary function tests into 3 different chapters seems disjointed and may make it difficult for students to understand how to put all aspects of pulmonary function tests into one clinical impression. Overall, Part One does provide the necessary tools to understand the diseased lung. This strong foundation is important, as the remainder of the book frequently references this information.

Part Two, "Function of the Diseased Lung," is divided into 4 chapters and details the physiologic abnormalities associated with different categories of lung disease. Chapter 4, "Obstructive Diseases," provides an excellent review of the pathophysiology associated with chronic obstructive pulmonary disease and asthma. Photomicrographs and illustrations aid in understanding the pathogenesis of the diseases and the subsequent physiologic derangements. Although the classification of patients with chronic obstructive pulmonary disease as "pink puffers" or "blue bloaters" has fallen out of favor, West's detailed descriptions of these different presentations of one disease illustrates the disease heterogeneity and emphasizes the variety of physiologic impairments that can occur. The section on asthma gives a broad introduction to the actions of bronchoactive drugs. However, the indications for use are covered only briefly, leaving readers with a long list of medications but no clear sense of appropriate prescription.

Chapter 5, "Restrictive Diseases," discusses interstitial lung diseases as well as other extraparenchymal causes of restrictive lung disease. A brief review of alveolar pathology provides a helpful framework for discussion of physiologic changes in interstitial fibrosis. Although it is certainly appropriate to discuss idiopathic pulmonary fibrosis as the quintessential example of the idiopathic interstitial pneumonias, West neglects to mention that there are other manifestations of this heterogeneous group of diseases. Additionally, the discussion of idiopathic pulmonary fibrosis does not include any mention of dysregulated fibrosis and repair mechanisms, which is the current theory of the pathogenesis of this disease, not an overactive immune response. There are also brief introductions to other interstitial lung diseases, such as hypersensitivity pneumonitis, sarcoidosis, drug-induced lung dis-

ease, and collagen-vascular-associated interstitial lung disease. Hypersensitivity pneumonitis is described as being due to an exposure that is "usually occupational and heavy," which could mislead readers to believe that only large exposures in the workplace lead to this disease. Chapter 5 also provides straightforward explanations of pleural diseases, chest wall disorders, and neuromuscular disorders that cause restrictive physiology.

Chapter 6, "Vascular Diseases," goes over pulmonary edema, pulmonary embolism, pulmonary hypertension, and pulmonary arteriovenous malformation. The majority of this chapter is devoted to pulmonary edema and includes a very thorough narrative on its pathogenesis. Noticeably absent from the section on pulmonary embolism is any discussion of computed tomography pulmonary angiography. West does discuss use of the nuclear medicine ventilation-perfusion scan, but computed tomography pulmonary angiography is increasingly used as the diagnostic modality of choice. Additionally, he neglects to mention extremity ultrasonography as an important adjunct in the evaluation of pulmonary embolism. He also cites multiple small pulmonary emboli as a cause of primary pulmonary hypertension. Although chronic thromboembolic disease can result in pulmonary hypertension, primary pulmonary hypertension is a very specific entity, thought to have a genetic basis.

Chapter 7, "Environmental and Other Diseases," rounds out Part Two with sections on environmental and occupational lung disease, bronchogenic carcinoma, and infectious diseases of the lung. There is an excellent, concise description of particle deposition in the lung. West focuses on silicosis, coal workers' pneumoconiosis, and asbestos-related lung disease. His comment that "cigarette smoking is often an aggravating factor" in the development of bronchogenic carcinoma after asbestos exposure trivializes the multiplicative effect of the combined exposure on lung cancer risk. He also fails to emphasize the long latency period between exposure and onset of disease. In the section on pneumonia, psittacosis is incorrectly attributed to rickettsia, rather than the rickettsia-like chlamydia organisms. The chapter concludes with brief sections on bronchiectasis and cystic fibrosis, especially their relationship to suppurative lung disease. Readers would benefit from a more in-depth list of causes of bronchiectasis; only childhood pneumonia is listed as an etiolo-

gy. Worldwide, tuberculosis is the most common cause of bronchiectasis, and yet there is no mention of this etiology. The section on cystic fibrosis contains an incorrect description of a high sweat sodium (rather than high sweat chloride) as diagnostic of cystic fibrosis.

Part Three, "Function of the Failing Lung," includes 3 chapters on respiratory failure, oxygen therapy, and mechanical ventilation. Chapter 8, "Respiratory Failure," describes the associated changes in gas exchange, causes of respiratory failure and management of respiratory failure. West does a very good job of emphasizing how patients respond differently to various degrees of respiratory failure.

Chapter 9, "Oxygen Therapy," provides excellent descriptions of the different methods of oxygen delivery—information that is often overlooked by physicians. An important component of this chapter is the explanation of how different patients and different diseases respond to oxygen administration.

Chapter 10, "Mechanical Ventilation," contains outdated descriptions of ventilators and only brief explanations of mechanical ventilation modes. However, the section on positive end-expiratory pressure provides a very good discussion of its positive and negative effects.

The appendixes include helpful information on reference values for pulmonary function tests, a list of other resources for further reading, and the answers to the United States Medical Licensing Examination format questions, which are peppered throughout the book.

Overall, West provides an excellent resource that connects basic respiratory physiology with clinical medicine. The book is very clear and well written. Although some sections seem out of place, the book is generally well-organized, and its structure suits the subject matter. The illustrations and figures are quite instructive and help provide graphical representation of some very difficult concepts. I did not find any typographical errors, but there were some factual errors, as discussed earlier.

This book provides a great introduction to clinical pulmonary pathophysiology, but the breadth of information in this field is obviously difficult to cover, so the descriptions are often truncated, potentially leaving readers with misperceptions of some of the diseases presented. However, the book provides a strong framework on which students

can build their pulmonary physiology knowledge and physicians can review the underlying physiology of the diseases they see every day.

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Pulmonary Imaging: Contributions to Key Clinical Questions. Sujal R Desai MD FRCP FRCR, Tomás Franquet MD PhD, Thomas E Hartman MD, and Athol U Wells MD FRACP, editors. Boca Raton: Taylor & Francis/Informa Healthcare. 2007. Hard cover, illustrated, 181 pages, \$174.95.

Pulmonary Imaging: Contributions to Key Clinical Questions is one of the few textbooks in which 11 of the 15 chapters are written by a team consisting of a radiologist and a clinician, in an interactive format. The main aim of the book is to describe the value of various imaging modalities in certain clinical scenarios, not only to clinicians but also to the other members of the clinical team (physician assistants, respiratory therapists, and nurses).

In the last few decades there have been major advances in the way we image the chest. The change has been so rapid that even radiologists sometimes find it difficult to keep up with newer modalities. In such an atmosphere this book is a welcome aid to all the members of the clinical team, and will enable them to catch up with the advances and learn the way these newer modalities work, when to use them, and their strengths and weaknesses. The editors have taken care to address the utility in different

clinical settings, which fulfills their primary goal.

The book is divided into 3 sections. The first section is an introduction by a chest physician. It encourages the reader to pay closer attention to the evidence behind the use and utility of various modalities. The author explains using the example of high-resolution computed tomography (CT), a widely used modality.

The second section is further divided into 3 chapters, which ease the reader into the world of pulmonary imaging. Chapter 2 deals with basic principles of thoracic imaging and introduces the modalities in use today, and describes their clinical utility on a broad scale. Plain radiography, CT (including multidetector CT), magnetic resonance imaging, nuclear medicine, and other modalities are addressed. The author simplifies understanding of these modalities for non-radiologists and provides insight into their basic techniques and working principles. Chapter 3 describes pulmonary anatomy by imaging in a more comprehensive and easily understandable language. The appearance of different structures is shown with side-by-side images from various modalities, which I think will enhance readers' understanding. Post-processing images that enhance anatomic points are also used, rendering images close to real-life pictures. The last chapter in this section deals with basic radiologic patterns of lung disease as seen in day-to-day clinical radiology practice. Detailed differential diagnosis for each of the described radiologic signs is provided, which will simplify learning the basic radiological interpretation of pulmonary diseases via plain radiography and CT.

The final section addresses the commonly encountered clinical radiology settings. Each chapter gives in-depth analysis of one specific clinical situation from the point of view

of the evidence that guides the utility of imaging modalities. A common format is used, with situation-specific modifiers. This unique format consists of the clinician author posing common radiologic questions that arise in a particular clinical scenario, and responses by the radiologist author. The responses are based on sound evidence and add strength to the overall practical applicability of this book, which provides "one-stop shopping" for information for clinicians and radiologists alike. The more I read through this book, the more I am convinced that it would be of value both to the clinical team and radiologists.

The chapter on lung cancer has an excellent discussion of the status of and current thinking on lung cancer screening via low-dose CT, the work-up of a lung nodule, and the imaging modalities for staging. The chapter on diffuse lung diseases has depth that will exceed most readers' expectations. Modalities available, utility and accuracy of each modality, timing of surgical lung biopsy, interobserver variability, the accepted standards, quantification, prognostic information, and the role of monitoring disease progression are all addressed. The chapter on connective-tissue disorders elegantly combines clinical and radiologic analysis.

The only difficulty I had in reading this book was with the small size of the images, which obscured detail in some of them. Overall this is a well-written textbook, useful for beginners and veterans in medicine and radiology alike.

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