The text is not intended as a comprehensive source for chest imaging, but it provides quite a bit of information in the answer sections. It includes cases that are often presented to radiology residents in teaching files and on examinations. The images, particularly the chest radiographs, are small, but perhaps that is good preparation for the reprinted tests. For those who like the question/answer format of learning, this text would be a useful adjunct to more exhaustive texts.

Kathleen R Tozer MD
Department of Radiology
University of Washington
Seattle, Washington

Imaging of the Airways: Functional and Radiologic Correlations. David P Naidich MD, W Richard Webb MD, Philippe A Grenier MD, Timothy J Harkin MD, and Warren B Gefter MD, editors. Philadelphia: Lippincott Williams & Wilkins. 2005. Hard cover, illustrated, 216 pages, $129.

In the last 10 years there have been a number of advances in both the radiologic and bronchoscopic appraisal of and bronchoscopic management of airway diseases. The goal of these authors was to put forth a comprehensive book that illustrates the benefits and limitations of state-of-the-art technologies of airway assessment, in order to best serve the patient. Naidich, Webb, Grenier, and Gefter are renowned thoracic radiologists, and Harkin, a renowned interventional pulmonologist.

This compact, well-illustrated text contains 6 chapters, based predominantly on the distribution of diseases within the tracheobronchial tree. The first chapter is dedicated to airway anatomy and the specific computed tomography (CT) techniques and variables used to evaluate the airways, including 3-dimensional reconstructions and virtual bronchoscopy. The second chapter reviews the bronchoscopic appearance of airway diseases with virtual-bronchoscopic correlates and discusses the technique and limitations of transmural biopsies of extraluminal structures (primarily lymph nodes). The chapter briefly introduces various bronchoscopically guided treatment modalities (eg, laser phototherapy, photodynamic therapy, cryotherapy, stenting), autofluorescent bronchoscopy, and endobronchial ultrasound.

The next 3 chapters discuss and demonstrate the CT appearance (axial, coronal, sagittal, 3-dimensional reconstruction, inspiratory-expiratory, and/or virtual bronchoscopic) of disease processes that affect the trachea and central bronchi (Chapter 3), and small airways (Chapter 5), and various causes of bronchiectasis (Chapter 4). Differential diagnoses for particular CT patterns are often displayed in color-highlighted tables, which is a particularly useful detail for residents and fellows. The last chapter touches on functional imaging techniques, some of which are currently used in clinical practice, such as ventilation-perfusion scintigraphy, static inspiratory-expiratory CT scanning, physiologic imaging of the upper and lower airways with CT and magnetic resonance imaging (MRI) in obstructive sleep apnea, tracheobronchomalacia, and chronic obstructive pulmonary disease. The remainder of the chapter deals with experimental techniques in CT (using stable xenon gas), MRI (using hyperpolarized noble gases), and molecular imaging, which may soon permit investigation of regional ventilation, perfusion, and inflammation in patients, and the results of which can be fused with CT images, allowing function and structure correlations. There are hundreds of references in each chapter, and the index is quite useful, although not exhaustive.

The intended readership includes residents and fellows in radiology, thoracic surgery, and pulmonary medicine, subspecialists in these fields, and those with an interest in expanding their knowledge of airway imaging.

A few inconsequential faults do not substantially detract from this book. Among these are the lack of an accepted conventional display of standard and virtual bronchoscopic images, which can be confusing, because CT images are displayed as if viewed from below and bronchoscopic images as if viewed from above. The images are therefore flipped 180 degrees with respect to each other. In some illustrations the images or arrows do not show what the legend or text indicates (Figures 2–8, 2–19, 3–8, 3–22, 3–23, 4–12, 5–22). There are a few minor mistakes where words are interchanged: "osteochondrolytica" for "osteochondroplastica" (page 86), "proximal death" for "proximal disease" (page 102), "dermatomyosis" for "dermatomyositis" (page 148), and "collagen tissue disease" for "connective tissue disease" (page 149). I found rare typographical errors ("mucus" spelled 2 different ways in the same sentence, misspelling of an author's name). One other error was the inclusion of 10 R/L nodes as mediastinal rather than as hilar nodes (page 39). Overall, the chapters are well written and well organized and nearly all of the images are excellent. The book's division of chapters based on anatomic location is practical and useful with regards to the generation of differential diagnoses in the clinical setting.

Radiologic assessment of the airways has always been an important adjunct to bronchoscopy, particularly because of CT's ability to provide "road mapping." Virtual bronchoscopy allows the bronchoscopist to visualize the pathway leading to a suspicious airway abnormality before the procedure, which is a valuable tool now that ultra-thin bronchoscopes are available. Airway imaging in combination with physiologic or functional measurements will allow us to better understand the effects of pathologic processes and interventions on the patient, perhaps leading to new interventions or prevention of disease. Knowledge of currently available technology in both radiologic and bronchoscopic areas will benefit the radiologist as a consultant and the pulmonologist and thoracic surgeon by allowing them to use these tools in patient management.

This book is a timely and valuable resource. The recent explosion of literature on this topic has created the need for an up-to-date review in the form of a textbook, and this publication provides that information in an interesting and easy-to-read fashion.

Julie E Takasugi MD.
Department of Radiology
Division of Thoracic Radiology
Veterans Affairs Puget Sound
Health Care System
University of Washington
Seattle, Washington

Functional Imaging of the Chest. Hans-Ulrich Kauczor MD, editor. *Medical Radiology Diagnostic Imaging* series, AL Baert and K Sartor, editors. Berlin: Springer-Verlag. 2004. Hard cover, illustrated, 228 pages, $159.

Until recently, imaging of the chest has been limited to evaluating structure and morphology, while various aspects of lung function were the dominion of pulmonary function tests. Correlation between the imaging

appearance and functional status of the lungs was often unsatisfactory. Nuclear medicine techniques provide some functional assessment of the lungs, but limited spatial resolution makes anatomic correlation difficult. Currently, however, with advances in both computed tomography (CT) and magnetic resonance imaging (MRI), integration of the structural and functional aspects of the chest has become reality. **Functional Imaging of the Chest** is a complete and highly detailed review of functional chest imaging, compiled by experts in the field.

Functional Imaging of the Chest is aimed primarily at dedicated thoracic radiologists and pulmonary physicians, as many of the techniques described are currently investigational and are not in widespread clinical use. This particularly applies to functional pulmonary MRI, given that such techniques may be available or in use only at select research institutions. However, any medical professional or scientist who works in the field of pulmonary medicine may find the subject matter of great interest, as functional chest imaging will continue to grow as a field, with increasing applications in daily clinical practice. Much of the material discussed is quite technical, but it can be understood with careful reading and attention to the supporting illustrations.

The opening chapter reviews the general role of imaging of diffuse infiltrative diseases of the lungs, and airways diseases. The stage is set with descriptions of early studies in correlation of lung structure and function; specific problems with these previous correlative studies of structure and function are addressed, including mismatch of high-resolution CT findings and histopathology, statistical methodological errors, errors in measurement, and inherent biases.

Chapter 2 provides an excellent and detailed description of pulmonary function tests. The authors of this chapter meticulously outline the physiology and mechanics of lung function, clearly explain techniques for evaluating specific components of lung function, and comment on limitations and potential pitfalls of these various diagnostic tests. While some of this information may be quite familiar to pulmonary physicians, it may be quite useful and enlightening to radiologists, general internists, thoracic surgeons, and other health-care professionals who work in chest medicine but may have limited exposure to or knowledge of pulmonary physiology and diagnostic tests.

The Chapters 3 and 4 focus on CT evaluation of large and small airways diseases, respectively. CT scanning techniques and post-processing applications are presented first. This is followed by specific discussions of topics within airways disease such as asthma, bronchiectasis, bronchiolitis, and air trapping.

The Chapter 5 focuses on CT and MRI of lung structure and function in the setting of emphysema. The authors outline various methods of quantifying pulmonary emphysema, including an extensive description of objective CT quantification methods. MRI methods are covered only briefly in this chapter, although more detailed chapters on the subject are presented later in the book.

Chapter 6 is dedicated to lung fibrosis, focusing primarily on the use of CT in quantifying the severity of fibrosis. The relationships between CT findings and functional indices are described, accompanied by both CT images and statistical data presented in graph form. Specific entities, including sarcoidosis, systemic sclerosis, and extrinsic allergic alveolitis (hypersensitivity pneumonitis), are described. Discussion of MRI of lung fibrosis follows in the second part of the chapter. This section is appropriately brief, as the role of MRI in lung parenchymal disease remains limited, especially in general clinical practice.

Chapter 7 covers analysis of distribution of ventilation. It begins with a comprehensive section on helium MRI, first detailing how hyperpolarized helium is obtained and then outlining the technical requirements to image with this agent. Methods for both static and dynamic imaging are given. The section then concludes with a description of specific applications of helium MRI, including in the settings of cystic fibrosis, asthma, and obliterative bronchiolitis in lung-transplant recipients. The second section in this chapter addresses the role of CT in assessing distribution of ventilation with conventional, dynamic, and xenon techniques, followed by a brief section on lung scintigraphy. The authors correctly denote the limited role of ventilation scintigraphy in functional assessment of the lungs. Positron emission tomography is mentioned only briefly, as its use in lung function is extremely limited at this time.

Oxygen-sensitive imaging is described and illustrated in exquisite detail in Chapter 8. The authors provide a schematic of the imaging system and numerous example images. Because oxygen-sensitive imaging is still in its infancy, many illustrations provided are obtained from animal studies.

Chapter 9 covers the topic of lung perfusion, with a very good discussion on the use of CT in the setting of pulmonary embolism. Specific techniques addressed include filtering techniques, color coding, and image fusion. Clinical examples with ample illustrations are provided. This chapter also discusses electron-beam CT, which has enjoyed only limited popularity; its advantages have been largely surpassed by multidetector-row CT. The second section of Chapter 9 is dedicated to MRI pulmonary perfusion, presenting the various available techniques with a good variety of illustrations.

Chapter 10 focuses on respiratory mechanics and the role of CT and MRI. The 3-dimensional configuration of the chest wall and the mechanics of respiration are described, and changes in chronic obstructive pulmonary disease, both before and after surgery, are addressed. The final chapter is entitled "Respiration Therapy" but focuses almost exclusively on acute respiratory distress syndrome. A fairly detailed description of electrical impedance tomography concludes the chapter.

The book's overall appearance, with its high quality figures, appropriate and up-to-date references, and outline format, make it easy to use as both a targeted reference and a general text on the topic of functional lung imaging. Each chapter begins with its own table of contents and concludes with cited references. The book's index seems thorough. The use of color images, as would be employed in clinical practice with many of these techniques, accentuates the results of quantification methods. Moreover, the photographs and schematics of the various devices and systems, such as gas-delivery equipment, help the reader to better understand how various types of functional lung imaging are performed.

The shortcomings of **Functional Imaging of the Chest** are few and quite minor. The discussion of MRI techniques is limited in Chapter 5 (CT and MRI of Pulmonary Emphysema: Assessment of Lung Structure and Function), as the authors refer to such previously presented techniques in the text that actually are presented in subsequent chapters. Furthermore, specific MRI protocols are not provided with the same level of detail that they are for CT. One reason for this omission may be the great variety of combinations of MRI hardware and software components in use, which lim-

its the use of highly specific imaging protocols.

Finally, I think the book's organization could be improved upon by grouping the chapters on CT separately from those on MRI. That organization scheme might be more appealing to a radiologist, whereas grouping by disease category may be more practical for the clinician seeking information on how to appropriately image a particularly condition.

Nevertheless, **Functional Imaging of the Chest** provides an up-to-date and detailed description and illustration of various applications in functional chest imaging. Current and evolving techniques are presented, and the text sets the stage for future applications and developments in the field. Although thoracic radiologists and pulmonary physicians will probably find the text most relevant to their respective practices, any medical professional with an interest in pulmonary disease and thoracic imaging will find this text valuable.

Jeffrey P Kanne MD
Department of Radiology
Vancouver General Hospital
Vancouver, British Columbia, Canada

Medical Terminology Systems: A Body Systems Approach, 5th Edition. Barbara A Gylys MEd CMA-A and Mary Ellen Wedding MEd MT(ASCP) CMA. Philadelphia: FA Davis. 2005. Soft cover, illustrated, 559 pages, audio CD (Interactive Medical Terminology v.2.0), $47.

Medical Terminology Simplified: A Programmed Learning Approach by Body Systems, 3rd Edition. Barbara A Gylys MEd CMA-A and Regina M Masters RN CMA MEd. Philadelphia: FA Davis. 2005. Soft cover, illustrated, 597 pages, audio CD, $39.95.

Most health-care professionals begin their careers by learning the "foreign language" that we call medical terminology. Struggling with medical terminology makes it difficult for any student or new health-care professional to communicate effectively in the health-care setting. Many texts today, including **Medical Terminology Systems: A Body Systems Approach**, provide students with all of the necessary terminology tools to succeed in their journey toward a health-care career.

Medical Terminology Systems: A Body Systems Approach is a well-recognized medical terminology textbook/workbook that is used in many different learning institutions. It is an up-to-date text that utilizes a combination of visual, audio, and computer programs to enhance student learning. This approach reaches out to different learning styles and gives educators additional options to teach medical terminology effectively and efficiently.

The first 3 chapters focus on the basic elements of medical terms, suffixes, and prefixes. The remaining chapters are each devoted to a specific body system, much like an anatomy and physiology textbook.

Each chapter is sequenced in the following way: objectives, key terms, anatomy and physiology, medical word elements, pathology, diagnostic and symptomatic with related terms, diagnostic and therapeutic procedures, pharmacology for the specific system, abbreviations, learning activities, and medical-record activities. This format is easy to follow and builds upon itself as the reader works through the chapters, providing a consistent learning process.

One feature that stands out is the book's use (new to this edition) of full-page color illustrations of the specified system in each chapter. These illustrations detail basic anatomy and physiology as well as pathology and current therapeutic techniques that enhance the readers' ability to apply new medical terms.

Another feature is that each chapter has 4 "learning activities." After the reader works through the objectives, key terms, and the medical-word-elements sections, the learning activity has the reader write in the new terms on a fill-in-the-blanks illustration. Then the reader moves on in the chapter and works through the other learning activities.

In addition to the learning activities, each chapter has 2 medical-record learning activities that the reader can work through in sections as well. Each involves a patient scenario that asks the reader to define common medical terms used in patient care. These scenarios are a great way to introduce and familiarize the health-care student with chart review and patient assessment, using a general SOAP (subjective, objective, assessment, plan) format.

This book has a thorough index that supports each of the chapters in the text. In addition, there are separate indexes for terms related to genetic disorders, diagnostic imaging procedures, pharmacology, and oncology. There is also a very thorough and complete glossary of medical word elements.

Overall, the type is clear and easy to read, and the color illustrations enhance the text. There are some typographical errors, but nothing that detracts the reader from successfully working through each chapter.

Also included is an audio CD and an interactive medical terminology computer program. The audio CD, which is new to this edition, can be played on a computer or a home or car CD player. I found its audio approach to learning medical terminology easy to follow, and it covers each of the chapters in the text.

The computer program has various activities to enhance learning. It allows the user to pick any chapter and work through learning activities similar to those in the text. The program also includes crossword puzzles, matching, and word-jumble games, and it gives access to Taber's Cyclopedic Medical Dictionary.

For instructors of medical terminology, medical transcription, and medical assisting, there is an additional disk available, which includes PowerPoint presentations, an electronic bank of test questions, and an activity pack with suggested readings and various activities. Another feature is a comprehensive list of medical abbreviations, including abbreviations prohibited by the Joint Commission on Accreditation of Hospital Organizations. All of these additional multi-media learning tools and updated features greatly enhance the text by providing additional options for different learning styles.

The authors have done an excellent job of improving the effectiveness of the text by incorporating full-page color illustrations. They have also done a nice job staying current with legal issues, such as the aforementioned prohibited abbreviations, and they also enhanced the sections on drugs.

This text provides the essentials for building a strong foundation of medical terminology and is ideal for anyone beginning a career as a health-care professional. The text is intended to be part of a medical terminology didactic course, combining lecture with reading, learning exercises, audio instruction, and computer-based instruction, but it is complete enough to be used as a self-paced textbook/workbook as well. I wish I had had this text as I began my career.