

Rau's Respiratory Care Pharmacology, 7th edition. Douglas S Gardenhire EdD(c) RRT. St Louis: Mosby Elsevier; 2008. Softcover, illustrated, 544 pages, \$61.95.

Workbook for Rau's Respiratory Care Pharmacology, 7th edition. Douglas S Gardenhire EdD(c) RRT, Robert J Harwood, MSA RRT. St Louis: Mosby Elsevier; 2008. Softcover, 256 pgs. \$25.95.

This 7th edition of the first pharmacology textbook for respiratory therapy students maintains the focus of the previous 6 versions under the editorship of Gardenhire. It continues to meet respiratory care faculty and practitioner expectations about the organization and completeness of Rau's compilation, and some new expert contributors have improved and updated its content. Although, as with previous versions, this text is focused for the respiratory care student, it will serve as a clinical resource for anyone interested in the pharmacology for pulmonary pathologies, and as an introduction to the developing interest in the pulmonary route for drug delivery. As a resource for the respiratory care student, the text also describes drugs for the cardiac, renal, and neurologic systems, and for infectious processes. This book is a good reference for the wide range of medications that respiratory therapists must consider as medicine becomes more complex and the practice of respiratory care expands to include tasks such as the administration of drugs for conscious sedation.

As in prior editions, the text is divided into 3 units: Basic Concepts and Principles of Pharmacology; Drugs Used to Treat the Respiratory System; and Critical Care and Cardiovascular Drug Classes. The table of contents has been condensed, and several items are noteworthy. Unit I contains the fundamentals of pharmacology and still has a reference chapter on aerosol drug administration. Although other texts within a respiratory care curriculum will contain that information, this is an important convenience. Chapters 6 and 7 lost the 6th edition's sections on the history and development of adrenergic and anticholinergic

bronchodilators, which described the prototypical drugs in those 2 categories and thus established the connection to the physiologic neurotransmitter. That section may also have aided the student's understanding of chemical structure and receptor specificity.

Unit III, "Critical Care and Cardiovascular Drug Classes," has content updates and more tables in Chapters 19 and 20. Chapter 19 has been nicely reorganized and renamed from "Cardiac Drugs" to "Vasopressors, Inotropes, and Antiarrhythmic Agents." Many of the section headings have been modified, and the section "Agents Used in the Management of Shock" was added. The updates to these 2 cardiovascular chapters are examples of material from the expert contributors to this edition. Two thirds of the 16 contributing authors hold a doctorate in pharmacy.

The text's readability has been improved by changes in the color and fonts of the chapter headings and subheadings. Graphics and illustrations have become full color—a substantial improvement over the 6th edition. The instructor's resources at Elsevier's *Evolve* Web site (<http://evolve.elsevier.com>) have also been improved and include images from the text, which are suitable for lecture slides. That, combined with the companion workbook and a test bank, provides an excellent foundation of instructional resources for a respiratory care pharmacology course.

The outline at the beginning of each chapter has been continued in this edition, as have the self-assessment questions and clinical scenarios. The clinical scenarios provide an opportunity to introduce the development of critical thinking skills in a curriculum-comprehensive manner. The summaries of key terms and concepts at the end of each chapter have become "key point thumb prints" interspersed throughout the chapter. New to this edition are chapter objectives, which coincide with learning objectives in the companion workbook.

The content is very well referenced, and the citations have been updated where necessary. Important historical citations were retained, and unnecessary and outdated citations were removed and new citations added. For example, in Chapter 9, on mu-

cus-controlling drugs, the number of citations increased from 83 to 172, whereas some other chapters now have fewer citations. The inclusion of a discussion on a small-particle aerosol generator is interesting and gave me pause. It is notable as an example of how well Gardenhire handles pharmacology, with the ability and commitment to present some of the most difficult pharmacologic concepts, mechanisms, chemical structures, receptor structure and function, and mechanisms of drug action. Although ribavirin is no longer recommended for the treatment of respiratory syncytial virus, Gardenhire discusses ribavirin while explaining respiratory syncytial virus, and discusses concern about occupational exposure. Hopefully, this will raise this as a discussion topic among respiratory therapists and help them more comprehensively consider the risks of aerosol delivery.

The companion workbook, by Gardenhire and Harwood, is a welcome addition to the instructional toolbox. Where applicable, the workbook contains supportive review information that is presented less formally than in the textbook and, at times, in a conversational tone. These sections dovetail with the chapter outline and reinforce the key points from the text. The contents of the 2 books are well organized and matched. Exercises ranging from key terms and definitions to National Board for Respiratory Care type questions orient the student, provide an organized study pattern, and progress to more complex critical thinking and professional-examination-level practice questions. Some chapters include a Respiratory Care Assessment of Therapy category that initiates the critical thinking process, which is continued with case-study activities—an excellent continuation of the book's content.

Gardenhire's 7th edition of **Rau's Respiratory Care Pharmacology** is a complete, updated version of a textbook already known for its quality treatment of its topic. It is improved by text fonts and full-color graphics, and enhanced by Elsevier's *Evolve* instructor resources and the student workbook. There is only one aspect of this book that left me less than satisfied: the cover. As

a valuable resource for students and practitioners, this book is worthy of a hard cover.

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Chronic Obstructive Pulmonary Disease: A Forgotten Killer. Carol Midgley, editor. *Introducing Health Sciences: A Case Study Approach* series. Basiro Davey, series editor. Oxford UK: Oxford University Press/The Open University. 2008. Soft cover, illustrated, 108 pages, with DVD, \$37.50.

This book is one of 7 separate presentations that compose the text material for an Open University first-year introductory course in an undergraduate program in health sciences. As the foundation for a distance-education course, its DVD and Web site provide multimedia learning materials and activities. Some resources and activities are only accessible by enrolled Open University students, but this does not detract from the text's ability to stand alone.

The book is professionally presented, with liberal use of color photographs, charts, tables, and boxes. Interspersed through the text are "life snippets" from 2 women with chronic obstructive pulmonary disease (COPD), which personalize the text's academic points. The book's intended audience is novices; it introduces many global issues associated with disease in general and COPD in specific. The book is very easy to read and uses a global approach, both geographically and theoretically, which is refreshing. It assumes a very low entering knowledge base and discusses such concepts as scientific objectivity, statistical probability, and how chemical bonds hold atoms together to form simple and complex molecules.

One peculiarity that manifests the book's European roots is its use of the terms "respiratory nurse" and "clinical specialist respiratory physiotherapist," rather than the more familiar North American terms "respiratory therapist" and "pulmonary function technician." It also uses British spellings such as "humour."

Chapter 1 presents a very basic introduction to COPD and its morbidity and mortality. A couple of very interesting tables are provided. One compares the 10 leading health risks in the world, Europe, and Africa, based on 2000 data from the World

Health Organization. Europe has a predictable list of risks, similar to that in the United States. Health risks worldwide and in Africa are quite different; the number 1 and 2 health risks are being underweight and unsafe sex (the latter barely made the European list, at number 10). The other noteworthy table lists the leading causes of mortality globally in 2002 and the predicted leading causes in 2030.

The DVD has a fascinating 13-minute video that focuses on the personal experiences of individuals coping with COPD. It provides insight on the plethora of factors that contribute to COPD sufferers' limitations during physical and social activities. A common reason given for not attending social functions was the fear of having a coughing attack that would draw disapproval in a formal setting or unwanted attention in a casual setting.

Given the overall tenor of the book, Chapter 2 provides a surprisingly thorough discussion of the worldwide prevalence of COPD and which populations are most likely to contract it. Various studies are referenced, and the Latin American COPD prevalence study (PLATINO, <http://www.platino-alat.org>) is used to make several points. There is a revealing discussion on the role of sex in COPD development, and the contrast between developed nations and developing nations in the pattern of COPD. A theme throughout the book is that tobacco is the most important cause of COPD worldwide. Globally, approximately 15% of COPD may be due to occupational exposure. Although workplace health and safety are increasingly being addressed by a growing number of countries, smoky and dusty work environments continue to have a global impact. Another rarity in western society is home exposure to smoke from biomass fuels such as dung and crop residues, which, globally, remain an important cause of respiratory disorders, including COPD.

Chapter 3 focuses on respiratory anatomy and physiology. Considerable space is spent on such basic concepts as molecules, chemical bonds, balancing of chemical equations, and gas physics. The chapter ends with a brief description of the oxygen cascade. The majority of the 15-min multimedia presentation provides little that is not found in the text, but in a different format. The presentation ends on a high note, with innovative magnetic-resonance-imaging lung studies with inhaled magnetized hyperpolarized helium 3, in a healthy volun-

teer and in a patient with COPD. The images clearly show the marked contrast in gas movement and distribution between the normal lungs and those with COPD. There is also an excellent artificially colored electron microscopy image of respiratory epithelium, which shows cilia, mucus-producing cells, sputum, and a dust speck.

Chapter 4 describes the mechanisms involved in transporting oxygen from the lungs to the tissues via the cardiovascular system. The crucial relationship between hemoglobin and oxygen transport is well discussed in simple terms. A nice presentation is made on the impact of carbon monoxide poisoning on oxygen transport. Other topics discussed include cor pulmonale and the effects of hypoxia on cognitive function. Staying at the introductory level, the authors indicate that it would benefit a patient with COPD to breathe 100% oxygen rather than air for most of the day. This simplification is justified perhaps at the introductory level, but it does gloss over some important clinical considerations, such as that patients with COPD generally respond readily to small increases in $F_{I_{O_2}}$, and that when initiating oxygen therapy we must monitor for oxygen-induced hypoventilation, though that is fairly rare. I give this example because it represents the book's overall approach. The chapter ends with a brief discussion of the relationship between CO_2 and blood pH and how in COPD pulmonary dysfunction may lead to a low blood pH that can interfere with many body processes.

Chapter 5 gives an overview of the immune system and how chronic irritation affects the lungs. It presents how large numbers of phagocytic cells migrate to the lungs, where they release large amounts of elastase, which overwhelm the body's natural defenses and break down healthy lung tissue. This leads to loss of alveoli, as in emphysema, and chronic airway changes associated with bronchitis. The presentation is consistent with the target novice audience. There are 2 great figures in this chapter. One is a color electron microscopy image of a particle being engulfed by a phagocyte. The second is photographs of normal lungs, alveoli, and an airway juxtapositioned with pictures of severely emphysematous lungs, alveoli, and an airway with chronic bronchitis.

Chapter 6 focuses on the diagnosis of COPD. The text proposes that there are 2 methods of diagnosis. The first is chest ra-

diograph or computed tomography. An excellent figure shows a chest radiograph of a patient with advanced bullous disease, beside a remarkable computed tomogram of a similar patient with severe emphysema. The second diagnosis method is lung-function assessment via spirometry and measurement of gas transfer, diffusing capacity, and arterial blood gases. Although published in 2008, the book refers back to the 2005 and earlier Global Initiative for Chronic Obstructive Lung Disease (GOLD, <http://www.goldcopd.com>) guidelines for staging, including "Stage 0: At Risk," which was dropped in the 2006 and 2007 versions of the GOLD guidelines.

Chapter 7 looks at COPD management. It begins with the socioeconomic and psychological costs, followed by COPD treatment. A table nicely summarizes COPD treatment, and the text elaborates on measures that can improve the quality and duration of life. There is a nice section on prevention, but it lacks the clarity and profundity of the GOLD guidelines, which loudly proclaim the centrality of COPD prevention.

Chapter 8 provides a 3-page perspective on what it means to have COPD in a world that still largely overlooks its impact. To make the point it includes 2 newspaper excerpts: one on the battle against cancer; the other on the formation of a support group for COPD patients. Although cancer and COPD kill roughly the same number of citizens in the United Kingdom each year, the tone of the pieces is dramatically different. The book concludes with an upbeat look at cutting-edge research on COPD treatment.

This book provides a very easy read, with some interesting side trails and elaborations. It meets its objective of providing an insightful overview of COPD and its impact on individuals and society. A non-health-professional or a first-year university student would find this book a useful introduction to COPD. For the clinician with more than cursory knowledge of pulmonary anatomy, physiology and pathophysiology, this book would at best provide light reading.

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Infection Prevention and Control: Theory and Practice for Healthcare Professionals. Debbie Weston. West Sussex, United Kingdom: John Wiley & Sons. 2008. Soft cover, illustrated, 348 pages, \$60.

This book is quite timely, given the increased media and public scrutiny on health-care-associated infections. The foreword sets the stage as it informs the reader that in developed nations 5–10% of in-patients get health-care-associated infections, which have enormous costs to health-care systems. Many of these infections are preventable with basic infection-control principles.

The book is organized into 2 parts. The first part has 8 chapters and gives a historical perspective on infection control by looking at past epidemics, and then discusses the modern problem of health-care-associated infections in more detail. It is important to note that the book focuses primarily on the United Kingdom's health-care system, and readers who are not familiar with that system may have difficulty following some of the text. However, the basic principles are the same for all readers, so the book does not lose its relevance.

Chapter 2 provides a basic overview of microbiology and is a good review for those with limited exposure to this topic. Notably missing is a description of fungal organisms, particularly *Candida* species, which are important causes of health-care-associated infections. Chapters 3 and 4 provide an adequate review of the collection and processing of specimens used to diagnose infections, but a few statements are not quite correct. For instance, regarding blood-culture collection, the author states that circulating bacteria in the blood are at their highest level when the patient is febrile, but we now know that is not the case: bacteria level is highest just prior to fever onset. Also, the author states that *Staphylococcus aureus* can be a contaminant in blood cultures, which is generally considered untrue. With regard to specimen processing there is no mention of automated systems for identifying or susceptibility-testing bacteria, which are now used in many microbiology laboratories. Also, *Clostridium difficile* infection is now typically diagnosed via toxin assay or cytopathic effect in cell culture, rather than via culture, as stated in the book. Chapter 5 gives a basic review of immunology, again

mostly for people without a prior background in this subject.

Chapter 6 outlines the basic infection-control measures, including hand hygiene, personal protective equipment, appropriate handling of sharps, and cleaning of equipment and the environment.

Chapter 7 gives an excellent review of the types of health-care-associated infections and appropriately emphasizes the importance of distinguishing between colonization and infection, particularly with regard to catheter-associated urinary tract infections. However, with regard to central-venous-catheter-related bloodstream infections, a review of the mechanisms of catheter contamination would be helpful.

Chapter 8 deftly tackles the increasing problem of antimicrobial resistance and provides an excellent summary table of the classes of antibiotics. One misstatement is that combination antimicrobial therapy can help combat resistance; that is generally considered untrue for routine bacterial infections, and is more important for specific organisms, such as the mycobacteria. Also there is no mention of antimicrobial stewardship, which is increasingly used to prevent development of resistance.

The second part of the book consists of 12 chapters, each dedicated to health-care-associated infections caused by a specific organism, including methicillin-resistant *Staphylococcus aureus*, *Mycobacterium tuberculosis*, *Clostridium difficile*, group A *Streptococcus*, meningococcus, norovirus, bacterial enteric pathogens, blood-borne viruses, severe acute respiratory syndrome (SARS) virus, influenza, prions, and *Legionella*. Each chapter gives an overview of the epidemiology and diagnosis of the disease caused by the organism, as well the specific infection-control measures required when the disease is suspected or diagnosed. For the most part these chapters are excellent, and in the cases of SARS, influenza, and prion diseases, give very interesting historical perspectives as well.

Despite the outstanding information provided in the second part of the book, there are a few noteworthy problems. First, the chapter on tuberculosis states that only individuals with multidrug-resistant tuberculosis should be placed in negative-pressure isolation rooms, and that only certain health-care personnel need to wear masks when caring for patients with drug-sensitive tuberculosis. However, it is generally accepted that all patients with known or suspected

tuberculosis should be placed in negative-pressure rooms whenever possible, and that respiratory face protection should be worn by all individuals entering the patient's room. The chapter on group A streptococcus, while highly informative, goes into more detail than necessary on diagnosis and management of necrotizing fasciitis. And the chapter on blood-borne viruses implies that most cases of hepatitis B infection are symptomatic, but less than half of healthy adults who are newly infected become symptomatic, and children and immunosuppressed adults rarely have symptoms. The chapter does not mention that hepatitis B is treatable and that all infants in the United States are now routinely immunized against this virus.

Overall the book is well organized and highly readable for individuals at all levels of medical training. All of the chapters contain useful summarizing tables. The glossary and index are helpful, and the citation list is very complete; infection-control specialists will find them particularly useful. However, occasionally (eg, in the case of central-venous-catheter-related bloodstream infections) the relevant guidelines are referenced, rather than the primary supporting literature. There are scattered typographical errors, as well as the occasional repeated sentence, but in general the text is very clear.

Despite those limitations, the book provides an excellent overview of infection control. The intended readership is all health-care professionals, but those involved in inpatient care will find the book most useful. Given the increased attention on health-care-associated infections, a working knowledge of infection control is not just for specialists anymore, but is required for all who provide in-patient care. This book is a valuable resource for those who would like to broaden their knowledge of infection-control practice and understand the evidence on which recommendations are based. Importantly, the author advises readers to refer to local practice guidelines rather than relying on those in the book, but the book lays the foundation for understanding the basis of such guidelines. In addition, readers will be engaged by the specific and interesting "real world" examples of infection control.

In summary, **Infection Prevention and Control** provides a concise, easy-to-read, and informative review of infection control

for all health-care professionals interested in this increasingly important topic.

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Medical Statistics: A Textbook for the Health Sciences, 4th edition. David Machin, Michael J Campbell, and Stephen J Walters, editors. Hoboken, New Jersey: John Wiley & Sons. 2007. Soft cover, illustrated, 331 pages, \$37.50.

Any consumer of the medical literature in general, and reports of clinical investigations in particular, knows that journal articles' descriptions of the statistical analyses performed often assume a degree of knowledge that makes the descriptions impenetrable to the statistically naïve reader. This in turn requires from the reader a degree of trust in both authors and editors when interpreting results, which makes many uncomfortable, and this discomfort can result in cynical or (perhaps worse) uncritical reading of the literature. Thus, there is substantial value in an accessible statistics textbook for non-statistician health professionals. This is just such a book, and will help clinicians become more informed consumers of the medical literature. In the preface the authors (all statisticians with extensive medical research experience in the United Kingdom) clearly state their goal for this edition, which is "not to turn the students into medical statisticians, but rather to help them interpret the literature and appreciate how to design studies and analyse data arising from their own projects." Their explicit avoidance of jargon, statistical notation, and dense technical details, while limiting its usefulness to readers with substantial background in statistics, does improve its readability and accessibility for their intended audience. Their 2 main goals form the basis for dividing the book into 2 main sections: the first 7 chapters are written for all consumers of medical literature, and the latter 8 are for those involved in the design and execution of medical studies.

The chapters are divided into between 4 and 14 sections, each with its own bold heading. This format improves the utility of the text for quick reference and topic review, especially since the table of con-

tents lists each of these sections. Each chapter ends with a section entitled "Points When Reading the Literature," which describes the appropriate statistical features and common statistical flaws in studies of the type described in that chapter. Each chapter contains exercises (answers are at the end of the text), which enhance the text's value as a self-study tool. Figures are used liberally and are generally of good visual quality and well labeled. A particular strength of this book is its frequent use of real-world examples from the literature.

The range of content is broad, as would be expected of a general text such as this, whose goal is an overview of a complex and varied field. The book begins and ends with chapters on the proper role of statistics in the medical literature, as well as abuses and pitfalls commonly seen there. The first and last chapters are quite well written and would be particularly valuable for students and trainees in any of the health professions. Topics covered in the excellent last chapter include problems associated with adjustment for baseline values in randomized studies, the phenomenon of regression to the mean, the fallacy of assuming independence of repeated measures, problems of multiple comparisons, and the dangers of atheoretical "fishing expeditions." This chapter alone would empower a reader to be a much more sophisticated user of the medical literature.

Perhaps the most important chapter is Chapter 7, where they discuss *P* values and statistical inference. The authors point out the critical difference between clinical importance and statistical significance, and describe the appropriate interpretation of *P* values. Judging from the frequency with which *P* values are discussed as if they were binary indicators of the "truth" of a study's findings, rather than "a measure of the strength of the belief in the null hypothesis," the lessons in this chapter are sorely needed. The chapter makes the critical point that *P* values should never be reported without means and confidence intervals, and should never merely be reported as "significant," "nonsignificant," or " $P < 0.05$." Chapter 4 is also particularly valuable; the authors present Bayes's theorem and its application in the interpretation of diagnostic tests.

The last 8 chapters are aimed at clinical researchers. These chapters serve as a useful introduction to analytical tech-

niques such as 2-group comparison tests, correlation and linear regression, logistic regression, and survival analysis. The chapters discuss appropriate use of statistical techniques and situations in which techniques would be invalid. In keeping with the book's goal, the theory and mathematics underlying the techniques are not discussed in any depth. As with the first half of the book, these chapters are written with an efficiency that makes them approachable and easy to digest. Despite the authors' stated goal, I think these chapters work better as instruction for those seeking better understanding of the literature they read rather than providing the understanding necessary to implement the techniques for data analysis. On the other hand, these chapters would serve as accessible introductions to the topics for students and trainees who plan on gaining more knowledge on the techniques. These chapters discuss observational studies, randomized controlled trials, and sample size. Like the other chapters, these are succinct, well written, and demystify important issues that are frequently misunderstood.

In summary, this is a very well written introductory statistics text that meets its goal of providing a readable self-study guide for improving your reading of the medical literature. The minimal use of statistical notation, the frequent use of examples from the literature, the well demarcated sections, and the self-study questions add to the book's quality. Though the text does not provide enough depth to serve as the sole instruction in statistics for a budding clinical investigator, the extremely accessible style makes this a valuable companion even for those students engaged in formal training in applied statistics. I highly recommend this text for anyone seeking to improve his or her skills in interpreting the medical literature, and for students and trainees entering the world of clinical research.

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The Comfort of Home for Chronic Lung Disease: A Guide for Caregivers. Maria M Meyer and Paula Derr RN, with Mary E Gilmartin BSN RRT AE-C. Portland, Oregon: CareTrust Publications. 2008. Soft cover, 345 pages, \$24.95.

According to Friedland, 83% of people with health problems that require long-term care live at home, and of that group 78% do not hire outside help.¹ This means that family members, few of whom have formal training in providing care and who themselves are affected by their loved one's diagnosis, are the main caregivers for the chronically ill. Medical professionals do not aid this burdensome task by presenting to the patient and family that chronic lung disease is a death sentence. What is needed is a guide to *living*, and that's what this book is.

The book's title is supported by the feeling of warmth and comfort from the picturesque and colorful book cover and the note pages at the end of the book, which make the book feel welcoming. This book, which is part of the *The Comfort of Home* caregiver book series, is divided into 3 parts: Getting Ready; Day by Day; and Additional Resources. Each part is divided into chapters, which include appropriate illustrations, highlighted notes and tips of special importance, and an extensive resource directory. The print is in a large, easy-to-read font. The language is appropriate for its target audience: the patient and family. Medical terminology is kept to an appropriate minimum, and abbreviations are explained on first mention. Most of the abbreviations also appear in the "Common Abbreviations" section in the third part. This will help readers understand the terminology that medical professionals frequently use unaware that the patient/family does not fully understand the terms. The chapters are short, which makes for easy reading and contributes to the ease of using this book as a guide for addressing particular problems and questions.

The 10 chapters of Part 1 cover the basic information needed after diagnosis, to understand what the diagnosis means. "Now what?" is the driving question for the content. This section covers treatments both in the clinic/hospital and at home.

For continuity of topics, Chapter 4, "Using the Health Care Team Effectively," should have come before Chapter 3, "Getting In-Home Help." Chapter 4 has several helpful lists to improve communication be-

tween patient/caregiver and the medical community. The majority of Part I is dedicated to the home as the site of care. This section would have been better if it began with the important question raised in Chapter 3: Is home care for you? The discussion of home preparation and supplies is basic to any chronic disease cared for at home.

The chapters on financial aspects of home care include information about financial assistance, which is often one of the first concerns because of the high cost of drugs. Again, for continuity, Chapter 8, "Planning for End-of-Life Care," should have come at the end of Part 1. This section should have included the general outline of the legal documents the chapter presents, and options, including but not limited to hospice. Most chronically ill patients with a terminal disease want to know what the end will be like. The authors could have better served the reader by going there, when many medical professionals won't.

The 8 chapters of Part II are devoted to the day-in/day-out tasks of caring for someone. The idea of a written care plan, which is discussed extensively in the first chapter of this section, is probably beneficial but not always practical. The chapters on activities of daily living, diet, nutrition, and exercise are broadly covered and would apply to any chronic illness. Information specific to chronic lung disease was missing. For example, the section "The Shower" indicates to turn on the cold water then the warm water, to prevent burns, but turning on the water in that order prevents the production of steam, which affects the lung patient's breathing. The chapters on activities of daily living were interrupted in flow by the chapters on therapies and special challenges. Chapter 14, which covers the allied health professionals the patient will encounter, was out of place in a part titled "Day by Day," and was the most disheartening of all of the chapters. The emphasis on the physical therapist and the occupational therapist and the de-emphasis of the role of the respiratory therapist was surprising, considering the book was co-authored by a Registered Respiratory Therapist—the one allied health professional that is seen by every patient with chronic lung disease. The one-paragraph description of the respiratory therapist shares the same page as "Pet Therapy." Is it any wonder the members of the respiratory care profession are not given proper recognition when their own are not champions for the profession? Maybe the authors

should have asked patients with chronic lung disease which profession above all others has educated, treated, and encouraged them to live?

The chapter "Special Challenges" covers a topic of great interest to patients with chronic lung disease and their families, especially: "the Vicious Cycle of Dyspnea." The illustration makes a wonderful presentation of the cycle. In turning the page, however, we find page 342 of the index, not page 242, which would have been a continuation of the discussion on seasonal affective disorder and whatever the next topic was.

Another topic important to the target audience is traveling with oxygen equipment. This section should have received a more prominent place in the chapter, rather than being behind the section on consumer fraud. Diet and nutrition are topics of interest to most people and need to be addressed when caring for someone with any disease process. The authors cover several dietary plans directed more at the person with or trying to prevent cardiac disease. On a couple of occasions the authors mention the idea of nutritional snacks for patients with COPD. A list of suggested types of snacks would have been helpful.

The chapter on emergencies is a quick reference to first aid. Putting the topics in alphabetical order might have made this resource more user-friendly. A concern about the book's suggested handling of shortness of breath was the directive to increase the oxygen liter flow.

Being a caregiver is physically and emotionally demanding, and the authors comprehensively cover both aspects. Part II ends with a chapter on body mechanics for the caregiver. The illustrations and step-by-step instructions are well written. The emphasis on the caregiver was well deserved and could have been amplified by moving the section on caregiver burnout to this same position in Part II. The analogy of caregiving to a race was used throughout the chapter. The suggestions made were simple and augmented by highlighted "tip windows." Author Derr's personal experience as a caregiver assisted this chapter and is a wonderful addition to the guide. The authors mention in the acknowledgments that portions of the book were taken from previous books in the series. This was evident throughout the text, but especially in the section "Respite Time," which uses the word "survivor." Obviously,

some modification of those borrowed passages should have been made.

Part III includes a list of common abbreviations. Medical professionals often speak and write with acronyms, which can be confusing and limit a patient's understanding of the disease process. Some of the acronyms used in the text are not included in the list.

The section "Caregiver Organizations" is a wonderful resource for additional help; it supplements the chapter-by-chapter resource guides that make this book valuable to the caregiver. I think many readers will find the last section, "Glossary," to be their "caregiver bible." The definitions provided are clear and easily understandable and will take some of the mystery and fear out of medical jargon.

This book meets the goals of the authors and the mission of CareTrust Publications, and it meets a caregiver's need for a general resource. However, the specific challenges faced by and the specific information needed by the caregiver of a person with a chronic lung disease would not possibly have been missed had the authors utilized respiratory therapists to review the manuscript.

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REFERENCE

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Manual of Pulmonary Function Testing, 9th edition. Gregg L Ruppel MEd RRT RPFT FAARC. St Louis: Mosby Elsevier. 2009. Soft cover, illustrated, 512 pages, \$59.95.

Many textbooks enjoy short runs of popularity in respiratory therapy and pulmonary medicine, but only a few span the careers of several generations of clinicians. First published in 1975, Ruppel's **Manual of Pulmonary Function Testing** is one such textbook. It is a "must-have" for respiratory

therapy students, pulmonary function test (PFT) laboratories, and anyone preparing to take the National Board for Respiratory Care PFT examinations. I began my training in respiratory care one year after the publication of the 4th edition (which is still on my bookshelf), and it is an honor to review such a distinguished and important book.

Key components of the book's successful format have carried over to the 9th edition, including learning objectives, interpretive strategies, case studies, and tests for each chapter, which are divided into entry-level and advanced-practitioner categories. Ruppel's changes and additions to the 9th addition were prompted by reader input and in response to evolutionary changes in the field of pulmonary medicine, including American Thoracic Society/European Thoracic Society guidelines, office-based spirometry, and exhaled gas analyzers (eg, nitric oxide). In addition, online learning materials are available at Elsevier's *Evolve* Web site (<http://evolve.elsevier.com>).

Aesthetically, this is a very nice book. It includes 229 illustrations, which successfully depict the intended teaching points. The photographs are in black-and-white, but this does not distract. The index and glossary are comprehensive and useful. The appendices provide predicted regressions and pulmonary function equations.

Each of the 11 chapters begins with a chapter outline, a list of learning objectives for entry-level and advanced practitioners, and key terms. One of my favorite features is the "PFT Tip" teaching vignettes, which offer important insights. Each chapter ends with a bullet-format summary, case studies, self-assessment questions, and a selected bibliography. I prefer textbooks that are referenced in the style of journal articles, and I think this book would be improved by incorporating that format. Throughout the book the writing style is concise and intelligible; however, there are some areas where the text is redundant to the point of distraction. For example, pages 173 and 174 repeat the elementary fact that respiratory frequency can be derived from capnography.

Chapter 1, "Indications for Pulmonary Function Testing," would be more appropriately named "Introduction to Pulmonary Function Testing," since the chapter's content includes not only indications for PFT but also a well organized overview of the types of tests, preliminaries to testing, report layouts, and technologist-adapted protocols.

Chapters 2 through 6 cover the most common tests in PFT laboratories, including spirometry, lung volume determination, basic measures of ventilation, ventilatory control tests, diffusion capacity of the lung for carbon monoxide, and blood gases. As one might expect from Ruppel and this book's contributors, the reader will find all the essential information about the physiologic basis, performance, critique, and interpretation of these core PFTs. That said, there are a few statements that are not completely accurate. All the inaccuracies I found were in the realm of pathophysiology.

For example, Chapter 2 states that a "reduction in inspiratory capacity is consistent with restrictive defects"; however, it should be pointed out that reduced inspiratory capacity is a very important feature of obstructive diseases, such as emphysema.¹ Chapter 2 also states that "obstruction is characterized by a reduction of maximal airflow at all lung volumes." That is not completely accurate, because many patients with obstruction can have normal forced expiratory flow at the start of the maneuver (ie, near the total lung capacity), but the flow rapidly drops below the expected rate as the maneuver continues. There is mention made of that possibility, but not until 12 pages later.

In Chapter 3, case study 3-3 refers to a 9.2%, 100-mL increase in the forced expiratory volume in the first second (FEV₁) as clinically unimportant; however, many patients with chronic obstructive pulmonary disease have clinically important improvements in dyspnea with little or no change in FEV₁.² Perhaps "statistically insignificant" would be a more appropriate description of such FEV₁ changes. It is not clear whether the case studies are real or fictional. I mention this only because case 6-2 describes a

patient with hemolytic anemia, a hemoglobin of 7.4 g/dL, and a concomitant carboxyhemoglobin of 0.3%, which is highly unusual, because hemolysis to the extent that it causes severe anemia should increase carboxyhemoglobin as a consequence of heme breakdown by heme oxygenase.³

Chapter 7 provides an excellent review of the fundamentals of cardiopulmonary exercise testing. This topic can be overwhelming for students and practitioners alike, and I applaud contributor Mottram for explaining a very complex arena of testing with such intelligibility. As pointed out in the preface, readers are encouraged to continue their learning by utilizing the chapter bibliographies. This advice is particularly applicable to this chapter, because Mottram's clear description of the fundamentals of cardiopulmonary exercise testing is made at the cost of little discussion of its intricacies. For example, on page 211 the anaerobic threshold is described to "occur when the energy demands of the exercising muscles exceed the body's ability to produce energy by aerobic metabolism." However, the anaerobic threshold is a complex, poorly understood concept that involves lactate accumulation and can occur even in the presence of abundant intracellular oxygen.⁴

Chapters 8 and 9 review pediatric testing and specialized test regimens (eg, bronchial challenge, exhaled nitric oxide) and provide concise information about testing situations that may not be commonly encountered in many laboratories, which makes this a great book for quick reference.

Chapters 10 and 11 review PFT equipment and quality-control in the PFT laboratory. Ruppel's writing style, insight, and organizational skill make these sometimes ponderously dull topics interesting and even fun to read. I am particularly fond of the

concise, coherent descriptions of how the different pneumotachographs operate. The chapter on quality-control should be mandatory reading for anyone working in or managing a PFT laboratory.

This is a "must-have" book for anyone performing or interpreting PFTs. The \$59.95 price is a bargain, given the wealth of information contained within. I echo the advice from Enright in the book's foreword: "Take this book home and read it chapter by chapter for the first time. Then take it to your office and keep it as a reference."

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