

Mosby's Respiratory Care Equipment, 7th edition. JM Cairo PhD RRT and Susan P Pilbeam MSc RRT FAARC. St Louis: Elsevier Mosby. 2004. Hard cover, illustrated, 885 pages, \$72.95.

Today the respiratory therapist is faced with ever-changing and more complex equipment than ever before. Respiratory care practitioners need to be armed with the knowledge and understanding of the many devices at their disposal to provide the highest, safest level of care to their patients. Authors Cairo and Pilbeam have taken on the daunting task of reviewing, updating, and improving upon a text that was first published over 20 years ago and has become an essential tool for respiratory care professionals everywhere.

The 7th edition of **Mosby's Respiratory Care Equipment** quickly catches your eye with its brightly colored hard cover. This is followed by a comprehensive list of abbreviations on the inside front cover and frequently used formulae and values on the inside back cover. The book begins with a detailed table of contents, making it easy for the reader to navigate all 15 chapters and quickly find specific information.

Chapter 1 provides a nice review of the basic physics involved in the practice of respiratory care. Chapters 2 and 3 deal with all aspects of medical gases, from manufacturing and storage to devices for proper administration. Specialized and mixed gases are also included. Chapter 2 has a very useful, organized appendix, outlining National Fire Protection Association and Compressed Gas Association recommendations and regulations for the safe storage, transportation, and use of medical gas systems. This information is valuable to all practitioners, including managers and administrators living in an environment of increased scrutiny from state, federal, and independent regulating agencies.

Chapter 4 discusses humidity and aerosol therapy, utilizing several tables to illustrate important points. Chapter 5, "Principles of Infection Control," is a concise discussion of an extremely important aspect of health care. This chapter would be a nice review for any practitioner involved in direct patient care.

Chapter 6 is a nicely organized chapter that discusses and demonstrates aspects of airway management and includes many helpful, accurate illustrations and photographs to assist the reader in understanding the available airway management tools.

Chapter 7 reviews lung-expansion devices. I question the value of giving nearly 10 pages of attention to intermittent positive-pressure breathing. To my knowledge, positive-airway-pressure devices, along with other techniques, have become much more popular and have been studied more recently as an adjunct to bronchial-hygiene therapy.

Chapters 8, 9, and 10 detail the various diagnostic tests related to the practice of respiratory care, including pulmonary function testing, cardiovascular testing, and blood gas monitoring. Each of these chapters provides up-to-date, accurate information for practitioners who routinely order these diagnostic tests.

Chapters 11 and 12 may be the best chapters in this text. Cairo and Pilbeam have captured the essence of mechanical ventilators, from the most basic concepts to the most complex of today's ventilator modes. They provide key information about 22 different ventilators. Yes, 22 ventilators were included in Chapter 12 alone. This is the most comprehensive chapter I have seen on the ventilators available today, and the authors organized the information in a readable, understandable, and useful way. The attention to detail, including the figures and photographs of each ventilator, is remarkable.

Chapter 13 follows in line with Chapters 11 and 12 by providing key information on numerous infant and pediatric ventilators, including continuous-positive-airway-pressure systems, jet ventilators, and high-frequency oscillatory ventilators. Once again, the attention to detail and the ventilator photographs are wonderful additions.

Chapter 14 is a particularly timely chapter, as transport and home-care ventilators have become more popular. Included in this chapter are descriptions of several transport ventilators, home-care ventilators, devices to provide noninvasive ventilation, and negative-pressure ventilators. The text concludes with a chapter on sleep diagnostics.

This chapter is concise and nicely written, so the reader will have a basic understanding of sleep disorders, their pathophysiology, and physiologic consequences.

The text begins each chapter with a clear set of learning objectives and key terms. The body of each chapter contains subtitles, clear and readable text, and tables, figures, and photographs that complement the surrounding text. Each chapter also includes "clinical rounds," a problem-solving, critical-thinking section to test the reader's understanding of the topic being presented. Each chapter ends with a summary and a set of review questions that challenge the reader. There are also references, a bibliography, and a list of Internet resources. Since the Internet is such a worldwide wealth of information, I believe this is a useful tool. Although I did not visit each Web site, I trust the authors and others involved in the writing of this text have done so and verified the credibility and accuracy of the information at each site.

Mosby's Respiratory Care Equipment, 7th edition, is a comprehensive, well-written text that makes good use of tables, illustrations, figures, and photographs to complement the text. This text is a "must-have" for respiratory care departments and respiratory care schools. It would also be a welcome addition to any health-care professional's personal library. This book is a bargain at \$72.95. I thoroughly enjoyed reviewing this text and will use it in my practice on a regular basis.

Daniel G Mazzolini Jr RRT

Department of Respiratory Care
Advocate Lutheran General Hospital
Park Ridge, Illinois

Therapy for Mucus-Clearance Disorders.

Bruce K Rubin MEng MD and Cees P van der Schans PT PhD (*Lung Biology in Health and Disease* series, volume 188, Claude Lenfant, executive editor). New York: Marcel Dekker. 2004. Hard cover, illustrated, 597 pages, \$195.

This book is a welcome addition to the excellent *Lung Biology in Health and Disease* series of textbooks published by Marcel Dekker. It provides wide-ranging coverage of the physiology of mucus clearance,

the pathology of acute and chronic mucus-clearance disorders, physical and pharmacologic therapies for those disorders, and issues specific to mucus-clearance research.

Although not explicitly stated, the implication from the preface and introduction is that clinicians and researchers in the subject are the intended audience. The content is consistent with this, reflecting a high degree of specialization. The editors were wise not to attempt to have the book function as an introductory text for undergraduate students as well.

The 20 chapters are organized into 3 parts. Part One serves as an introduction to the subject, covering the anatomy and physiology of mucus clearance, the properties of mucus, and the regulation of mucus secretion. The contrast between health and mucus-clearance disorders is presented with examples judiciously chosen from chronic obstructive pulmonary disease, asthma, and cystic fibrosis.

Part Two consists of Chapters 6 through 15 and covers mucoactive medications. A welcome chapter devoted to the taxonomy of mucoactive agents is logically presented first, followed by issues of drug delivery. Subsequent chapters each examine one class of mucoactive medication in detail: expectorants, mucolytics, mucokinetics, and so on. The concluding chapter discusses issues of regulatory approval of mucoactive medications. Part Three explores physical interventions to promote mucus clearance, including manual techniques, mechanical devices, and independent strategies such as autogenic drainage and exercise.

Overall, this organization is logical and helpful. The editors found appropriate places to include some specialist chapters such as "Mucoactive Agents and the Upper Airway" in Part Two, and "Postoperative Mucus Clearance" and "Management of Airway Secretions in Patients with Severe Respiratory Muscle Dysfunction" in Part Three. These are often overlooked in review articles on mucus clearance. Hopefully, their inclusion here will lead to some "crosspollination" of ideas. Two excellent chapters, however, did seem misplaced. Chapter 4, "Outcomes for Trials of Mucoactive Therapy," refers to the different classes of mucoactive medications and might therefore have been better placed after Chapter 6, "Taxonomy of Mucoactive Medications." Chapter 5, "Adherence with the Use of Clearance Techniques," by the accomplished team of Abbott, Dodd, and Webb, tackles the often overlooked issues

of adherence. While this important topic deserves a prominent position, it would seem logical to leave discussion of adherence with physical therapies until after the techniques themselves have been described.

I found some inconsistencies between chapters. In Chapter 4, pulmonary function tests are recommended as a suitable outcome measure for long-term but not short-term trials, while the converse is recommended in Chapter 5. Also, the definitions of the various classes of drugs introduced in the taxonomy of mucoactive medications in Chapter 6 are not adopted consistently throughout the other chapters.

In making these criticisms, I should acknowledge that I had purchased a copy of this book before being asked to review it and I had not noted these issues during day-to-day use. They were only apparent to me on a sequential reading of the entire text. I think most users of this book would use it as I had—reading a paragraph, passage, or chapter of interest at a time—so the impact of the inconsistencies is likely to be small.

An evidence-based approach was generally adopted, with each chapter providing a coherent, concise, and accurate presentation of the available research for one subject. The selection of cited studies was unbiased and comprehensive. A rare exception was the discussion of a randomized trial that found a significant benefit from positive expiratory pressure over conventional physiotherapy, whereas other randomized trials (including one with twice the duration and twice the sample size) with nonsignificant results were ignored. Another was the omission of studies of hypertonic saline's effect on human mucociliary clearance from Table 1 in Chapter 10, although they do appear in the text. Future editions may have the opportunity to make more frequent reference to published systematic reviews as the number of those documents grows. Alternatively, authors may be able to supplement their systematic approach to reviewing the literature with greater use of meta-analysis. Conclusions were well justified, with the usual overstated claims about what is proven, particularly in relation to physical therapies, being conspicuously and refreshingly absent. Where evidence was limited, this was clearly acknowledged before turning to recommendations based on physiologic principles and logical argument.

Tables were clear and used appropriately to present systematic or collated information. Photographic illustrations were of good

quality. Diagrams were simple and put to effective use. Tables and figures were almost always understandable without reference to the text. A few diagrams needed legends, such as Figure 1 of Chapter 13, where the distinction between the bold, solid, and dashed arrows was unclear. Nevertheless, most were excellent examples of how to summarize information pictorially, such as the pressure and flow waveforms of positive-airway-pressure devices in Chapter 17.

Chapter introductions and summaries were well written and helpful. Errors of spelling, grammar, punctuation, abbreviation, and referencing were rare; I found about one per chapter. All were minor, never preventing me from interpreting the intended meaning. The index was quite comprehensive, especially when used in conjunction with the table of contents.

In this rapidly expanding field, this textbook should appear in updated editions. Speculating on the next edition, a Part Four could contain the current chapter "Adherence With the Use of Clearance Techniques" and a corresponding chapter on adherence with the use of mucus-clearance medications. A suitable final chapter could examine structuring mucus-clearance treatments, including the order in which pharmacologic and physical therapies might best be applied, and the timing that would maximize the clinical efficacy. In Part Two, consideration might also be given to splitting Chapter 10, "Modulation of Mucociliary Function by Drugs and Other Agents," into two. Although it is an excellent and comprehensive chapter and an outstanding source of references, it is almost 3 times longer than the average chapter and more than 30 pages longer than the next largest. The first 5 pages include some repetition of material presented earlier in the book. This could be reduced with reference to the earlier sections. The remainder is really worthy of 2 chapters, which might be "Ciliary Function and its Measurement" and "Drug Effects on Mammalian Cilia."

My impression has always been that editors of textbooks in the *Lung Biology in Health and Disease* series identify a comprehensive set of topics within a specialized respiratory field and gather together contributors of the highest caliber to review each topic. Rubin and van der Schans have achieved exactly that. **Therapy for Mucus-Clearance Disorders** is a worthy addition to the series. It is a valuable reference tool for clinicians and

researchers in the field of mucus-clearance disorders.

Mark R Elkins BPhy MHS
Department of Respiratory Medicine,
Royal Prince Alfred Hospital
Sydney, Australia

Recent Advances in the Pathophysiology of COPD. Trevor T Hansel and Peter J Barnes, editors. (*Progress in Inflammation Research* series, Michael J Parnham, series editor). Basel: Birkhäuser Verlag. 2004. Hard cover, illustrated, 231 pages, \$169.

Until recently, research into chronic obstructive pulmonary disease (COPD) had been neglected, as compared to the efforts expended to address issues in asthma. This small multi-author text, edited by Trevor Hansel and Peter Barnes, is another welcome sign that COPD is beginning to receive research attention appropriate to its growing public health importance. The book is a compilation of 12 chapters that cover a broad range of COPD issues, each prepared by an expert or experts in the field. Topics range from the genetics of COPD, in the first chapter, to the new drugs for COPD, based on advances in pathophysiology, in the last. The information presented is suitable for a small audience of respiratory-interested readers; the information is somewhat removed from the clinical setting, despite its chapters on "Lung Function in COPD" and "Computed Tomography Scans in COPD," and would seem to target researchers and research students in the subject. As part of the *Progress in Inflammation Research* series, it has a place in every COPD researcher's library.

Each chapter provides an overview rather than an exhaustive review of its subject, with chapters averaging 20 pages, including references (approximately 50 references in most instances). Chapter 1 offers a review of COPD phenotypes, approaches to identify susceptibility genes, candidate genes studied in COPD, and the future of genetics of COPD. In other words, it explains the basics, states our current knowledge, and gives us perspectives—the approach taken throughout the book. The chapters on pathology, lung function, and computed tomography cover a more general view of the issue.

The next 3 chapters, "Oxidative Stress in COPD," "Proteinases in COPD," and "Mucus Hypersecretion in COPD," are

specifically related to the role of products released from inflammatory cells, and also enzymes, mediators, and inhibitors in COPD.

The next 2 chapters review 2 research and clinical technologies that are widely used to assess respiratory inflammation: bronchoalveolar lavage and induced sputum collection and examination. There is also a chapter about a more recently developed, noninvasive way to monitor lung inflammation: the assessment of exhaled gases and condensates, including nitric oxide and exhaled breath condensate.

Chapters on systemic features of COPD and pulmonary rehabilitation offer clinically pertinent information, though the former is more closely linked to inflammation issues than the latter. The concept of COPD as a disease not limited to the lung parenchyma but also having systemic features is welcome in a book on inflammatory mechanisms of lung disease.

The last chapter, "New Drugs for COPD Based on Advances in Pathophysiology," describes the need for new drugs and the rationale for them, and, based on the pathophysiology of COPD, identifies potential targets for novel pharmacotherapies. Smoking cessation, immunosuppressants, antioxidants, inducible nitric oxide synthase inhibitors, inhibitors of cell signaling, protease inhibitors, mucoregulators, leukotriene B₄ (LTB₄) inhibitors, adhesion-molecule blockers, anti-fibrotic therapy, and alveolar repair all receive attention. This review of the current alternatives and the future directions is a great conclusion to the book.

Despite its virtues, one limitation of this book should be noted. As good as its text is, the illustrations are minimal and in most chapters limited to simple black-and-white diagrams. This paucity of illustrations is striking in some chapters. The chapter on computed tomography in COPD has just 2 small images. The chapter on pathology has none.

Marcelo Tadday Rodrigues MD
Kenneth R Chapman MD MSc
Asthma Centre and Pulmonary
Rehabilitation Program
Toronto Western Hospital
University Health Network
University of Toronto
Toronto, Ontario, Canada

Essentials of Pediatric Intensive Care. Charles G Stack FRCA and Patrick Dobbs FRCA. London: Greenwich Medical Media/Cambridge University Press. 2004. Soft cover, 241 pages, \$24.99.

The handbook **Essentials of Pediatric Intensive Care**, by Charles Stack and Patrick Dobbs, is described by the authors as a guide for those practitioners who do short-term rotations in caring for critically ill children or who look after children transiently before the children are transferred to a pediatric intensive care unit (PICU). The book is divided into 3 sections, beginning with the section on the basic precepts of pediatric critical care, followed by a section on specific problems encountered in the PICU. The book closes with a guide to medications commonly used in the PICU.

The greatest challenge for a reviewer is to attempt to read the book with the eye of the intended audience. This is made more challenging when the field practiced by the reviewer is reduced to a handy compendium designed for the novice to pull from a white coat and reference. I fear I may have been unable to put aside my fondness for the complexity of the field, and so my review may be biased from that standpoint. However, the perspective of a novice demands that a handbook should guide not simply by reviewing the field, but by encouraging investigation when the handbook may not be a sufficient source.

The first section, on basic concepts in pediatric critical care, includes chapters on the physiologic and anatomical differences between the young and old, neonatal problems in the PICU, resuscitation, trauma, airway and ventilation, circulation and rhythm disturbances, sedation and analgesia, fluids and electrolytes, transportation, and the death of children. These chapters represent a fairly well-rounded introduction to the broad principles encountered in the PICU.

In the first chapter, "Differences Between the Child, the Neonate and the Adult," the authors review respiratory, cardiac, neurologic, and other physiologic and pharmacologic differences between these groups. Although in this short chapter the authors list many of the important differences between the 3 age groups, in the attempt to present these principles as a collection of lists, the inherent summarizing simplifies complex principles and drains controversy and debate from the subject.

The following chapter, on neonatal problems, is brief; it enumerates some of the