

Chapter 8 discusses several vascular lung disorders, including causes, pathophysiology, recognition, diagnosis, and treatment. I particularly liked the illustrations in this chapter.

Chapter 9 covers the characteristics of several traumatic respiratory injuries, their potential causes, recognition, diagnosis, and treatment. There should have been some emphasis on the inaccuracy of pulse oximetry with inhalation injuries.

Chapter 10 covers characteristics of laryngeal and lung cancers, their potential causes, diagnosis, treatment, and staging.

Chapter 11 reviews the potential causes of respiratory emergencies, and their diagnosis, recognition, and treatment. The illustrations were clear.

There were several notable omissions in this text. There was virtually no recognition of how respiratory therapists can assist the nurse. There is no discussion of clinical practice guidelines in the administration of respiratory therapy. There were no references cited in the body of the text; including references could have made it more convenient for the reader to find evidence for or against the views this book puts forth. The discussions on treatment of pediatric/neonatal patients is so limited, I doubt it would adequately prepare a nurse for routine care, let alone any specialty certification examination. Though there is material directly related to critical care, it is limited and offers no discussion of hemodynamic monitoring. There is also no discussion of organ donation or the ethics of end-of-life care.

In summary, **Respiratory Care Made Incredibly Easy!** is a reasonably complete and concise reference guide on the fundamentals of respiratory care. I think this text would be most appropriate for a medical-surgical nurse. A critical care, emergency department, or pediatric nurse preparing for a specialty certification would find this text useful, but it falls short of the details necessary to provide expertise in the care of a complex respiratory patient. Overall, I did enjoy reviewing this text from a nursing perspective.

Leslie C Patzwahl RRT-NPS
Respiratory Therapy Section
Pulmonary, Allergy, and
Critical Care Medicine
The Cleveland Clinic Foundation
Cleveland, Ohio

Capnography: Clinical Aspects. Carbon Dioxide Over Time and Volume. JS Gravenstein MD DrhC, Michael B Jaffe PhD, and David A Paulus MD, editors. Cambridge, United Kingdom: Cambridge University Press. 2004. Hard cover, illustrated, 441 pages, \$120.

With contributions by 59 authors, **Capnography: Clinical Aspects. Carbon Dioxide Over Time and Volume** is an excellent addition to a reference library. Written mostly by physicians (with contributions by 2 respiratory therapists), this book would be useful for anyone interested in the traditional and emerging applications of capnography. The editors point out in the preface that this book is written as a series of essays rather than as a textbook. Each author incorporates conclusions from published studies and examples of first-hand clinical experience in each of the chapters.

I found the format in the first part of the book easy to read, in that each chapter provided a different viewpoint on the same capnography sub-topic, and the examples presented made this truly a Clinical Aspects book. The book is laid out in 4 parts: "Clinical Perspectives," "Physiological Perspectives," "Historical Perspectives," and "Technological Perspectives." Each section has a distinct style, and the information in each section is true to its heading. Twenty-six of the 42 chapters are in the "Clinical Perspectives" section, which is divided into 5 subsections on capnography applications for ventilation: adequacy of breathing, airway management, monitoring of ventilation, and weaning.

The remainder of the "Clinical Perspectives" section covers "Special Situations," which is a large section on circulation, transport of carbon dioxide, pulmonary flow, and carbon dioxide production.

The opening chapter, written by Gravenstein and Paulus, who are two of the editors, gives a good overview of capnography applications and normal and abnormal capnograms. This chapter establishes the reader's interest and provides essentials of capnography, which are developed throughout the book.

The following chapters cover various applications of capnography in all types of settings. Included are uses during anesthesia, in intensive care, and during pre-hospital admission. The contributing authors cite specific studies that illustrate capnography applications, and they include many anecdotal clinical scenarios that have been reported in the literature.

Basic key concepts are introduced, including verification of artificial airway placement and American Society of Anesthesiologists (ASA) standards. An interesting clinical application described is the use of capnography to determine correct placement of a nasogastric tube; Chapter 4, by Betadpur and Truwit, gives a detailed description of the technique.

The book's largest section is "Clinical Perspectives," which is on the use of capnography during mechanical ventilation. While these chapters are sometimes repetitious in describing basic aspects and application, each author provides his or her own insight into capnography as a clinical tool. The authors describe many unusual clinical scenarios where capnography was used, including during cardiopulmonary resuscitation, for determining airway placement and the adequacy of chest compressions, and as a tool for predicting survival. The ventilation section also includes chapters on capnography in noninvasive ventilation, sleep studies, and during procedural sedation. The sedation chapter provides a good review of the ASA definitions of the levels of sedation and the standards and recommendations from the ASA and the American Academy of Pediatrics for monitoring during sedation.

Several chapters introduce the emerging volumetric capnography techniques and show applications with neonates and in optimizing mechanical ventilation. There is a good explanation of the differences between time-based and volume-based capnography, and the subtle aspects of the angles and slopes of portions of the capnogram. Included in the section on optimizing mechanical ventilation is the evaluation of the phases of the capnogram to adjust ventilator settings, such as positive end-expiratory pressure to reduce dead space, and to see changes in pulmonary perfusion.

Chapters 20–24 explore the use of capnography to make determinations regarding circulation. Here, again, some of the material is repetitious from previous chapters, but each chapter stands alone on its merits. Chapter 21 extensively covers the use of capnography for detecting embolism and reviews capnography for dead-space determination. There is further information on the use of volume-based capnography for dead-space calculation, and there is an entire chapter on volumetric capnography that provides additional explanations of dead-space-ver-

sus-tidal-volume calculations. Chapter 22 introduces capnography in the indirect determination of cardiac output, utilizing a modified Fick equation and partial rebreathing technique. Clinical scenarios include evaluation of hypotension, steady pulse, hypovolemia, and using capnography to determine intra-operative bleeding.

Part 2, "Physiological Perspectives," has chapters that blend the clinical perspective with abnormal physiologies and how they manifest capnographically. There is a review of CO₂ transport, ventilation/perfusion abnormalities, and acid-base balance. Included are discussions on rarely considered clinical situations, such as inherited mitochondrial disorders, and clinically relevant situations such as cyanide poisoning and calcium disorders. There is also an excellent discussion on the effects of bicarbonate administration on CO₂ and other unusual acid-base presentations where capnography might be a beneficial tool.

Chapter 31 is very detailed. It provides extensive information about the theoretical basis of capnography and compares ideal and pathologic capnograms. There is a detailed explanation of volumetric capnography, with references and numerous abnormal capnograms.

The final chapter of the "Physiological Perspectives" section covers the "single-path model," which is the true theoretical basis for volumetric capnography. The author provides the inquisitive reader with specific calculations used in today's instruments. The original published studies that validated the single-path model concept are referenced and discussed, giving a thorough understanding of the inferences.

Part 3, "Historical Perspective," has 5 chapters, which describe the development of time-based and volumetric capnography and how instruments were created to meet research and clinical needs as the understanding of respiratory physiology was increasing. Smallhout and Fletcher, who were early pioneers of capnography, are contributing authors of this section. An interview with Liston, who built the first instruments, is also included.

The final section, "Technological Perspectives," departs from the rest of the book's clinical approach, but this is necessary for a thorough understanding of capnography. These chapters address the technical specifications, standards, and design considerations of the instrumentation. Chapter 40 details the measurement techniques—

infrared, acoustic, colorimetric, and mass-spectrometric—used in today's instruments. Jaffe does an excellent job of presenting instrument technology, design, and function at the component level. A comparison of mainstream and sidestream measurement techniques includes a pro's and con's table. The final chapter is devoted to flow-measurement technology. Included are excellent descriptions of the designs and styles of pneumotachographs used clinically today. The chapter discusses how flow is integrated and matched with the capnography signal for the volumetric capnography application.

I found this book very informative, and the format made it easy to read in multiple sessions. Each chapter is a select body of information that stands alone, and the cumulative information gives the reader the entire scope of capnography. The illustrations and tables appropriately supplemented the text rather than just restating the same information. Since capnography is a graphical portrayal, the figures were invaluable in understanding the subtle difference in clinical applications. This book would be useful to physicians, nurses, and respiratory therapists, both as a reference and as a teaching aid to enhance the clinical application of capnography.

Kenneth D Hargett RRT

Respiratory Care Services
The Methodist Hospital
Houston, Texas

Supportive Care in Respiratory Disease.

Sam H Ahmedzai and Martin F Muers, editors. (*Supportive Care* series, Sam H Ahmedzai and Declan Walsh, series editors). Oxford, United Kingdom: Oxford University Press. 2005. Hard cover, illustrated, 540 pages, \$135.

Supportive care is a comprehensive, concentrated, and interdisciplinary approach to the care of individuals with chronic illness. Supportive care attempts to ameliorate symptoms and improve the quality of life throughout a patient's course of illness, from curative and life-prolonging interventions through dying and death. In 2002, over 10% of people over the age of 65 died from chronic obstructive pulmonary disease, lung cancer, and other respiratory disorders.¹ The cumulative burden of chronic progressive respiratory disorders is increasing in concert with the increase in the percentage of

aged people and the increasing prevalence of tobacco- and occupation-associated lung disorders.² The vast majority of patients with late-stage chronic obstructive pulmonary disease or lung cancer experience troublesome shortness of breath, and this symptom is prevalent across progressive terminal diseases.³⁻⁴ **Supportive Care in Respiratory Disease** is part of a new series from an international cadre addressing supportive care, and it is unique in its focus on the comprehensive care of patients with diseases that affect respiration. The text fills a sorely needed gap in the care of the chronically ill, beyond pain and end-of-life needs.

Although the authors of this book's 32 chapters come from more than 10 countries, the book has a British flavor and a strength for those practicing in the British National Health Service, reflecting its primary origin in the United Kingdom. However, the text's strength is its strong grounding in theoretical models and primary research from an international perspective, and thus it has applicability wherever medicine is practiced. Its approach is contemporary and reflects the trends in health services toward disease management, interdisciplinary team approaches, and earlier combined palliative and curative therapies.

The material is well selected and organized, reflecting a comprehensive approach from both a scientific basis and a holistic focus on patient-centered and family-centered outcomes, such as a full chapter on health-related quality of life and another on complementary and alternative medical approaches. The book is useful as a comprehensive synopsis of supportive respiratory care for health-care practitioners, including respiratory therapists, nurses, and physicians, and as a sufficient reference manual in a subject where there had been none. It provides overviews on specific clinical issues with sufficient detail in the art and science of medical practice to aid in practice and provide contemporary and classic references for further information.

Supportive Care in Respiratory Disease is organized into 7 parts. Part I provides an excellent introduction into supportive and palliative care theory as it relates to pulmonary disorders and symptoms, and provides sufficient anatomic and physiologic background.

Part II provides one of the best synopses yet assembled of mechanisms of dyspnea and its assessment in clinical practice and