REVIEWS OF EDUCATIONAL MATERIAL

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Atlas of Anesthesia, Volume I—Critical Care. Volume edited by Robert R. Kirby. Philadelphia, Current Medicine, 1997. Pages: 256. Price: $135.00; **Volume II—Scientific Principles of Anesthesia.** Volume edited by Debra A. Schwinn. Philadelphia, Current Medicine, 1997. Pages: 256. Price: $135.00; **Volume III—Preoperative Preparation and Intraoperative Monitoring.** Volume edited by J. Lance Lichtor. Philadelphia, Current Medicine, 1997. Pages: 256. Price: $135.00. Series edited by Ronald D. Miller. Philadelphia, Current Medicine, 1997.

This multivolume series *Atlas of Anesthesia (Volume I–III)* organizes all areas discussed by the specialty of anesthesiology. It is the first edition of a multiauthor book presenting collected comprehensive teaching material from 18 (volume I), 28 (volume II), and 21 contributors (volume III), all well-recognized specialists in their field of expertise. The series concentrates on the most prominent topics with text that is clear and precise. Each chapter starts with a brief summary describing its relevance to anesthesiology. Each chapter is divided into subchapters using tables, flow charts, and graphs similar to atlases for other specialties. A reference list at the conclusion of each chapter identifies related literature. This series is therefore not a conventional anesthesiology textbook series to be read chapter by chapter, rather, it should be reviewed when material or information is needed. Especially in combination with the slide version (each table and graph of the series is reproduced on slides), each volume becomes a beneficial tool for anesthesiologists in academic and nonacademic teaching positions. It allows one to briefly and effectively review important aspects of the specialty, such as physiology, pharmacology, or basic science methods. The content of each volume is described in more detail in the following paragraphs.

Volume I consists of 12 chapters written by 18 contributors. The chapters are ordered in an unusual manner, beginning with the chapter "Outcome." The series is not meant to be read from beginning to end, so this is not a great detractor. The second and third chapters, "Respiratory Care" and "Pharmacologic Support of Patients during Ventilation" have practical and clinically relevant tables and colored graphics to explain respiratory physiology with particular attention to mechanical ventilation in the context of disease states and pharmacologic interventions. Chapter 5, "In-Hospital Cardiopulmonary Resuscitation: Emphasis on ICUs," gives the necessary introduction to adult cardiopulmonary resuscitation, the guidelines recommended by the American Heart Association, and airway management (including the difficult airway). "Nutritional Support of ICU Patients" is an excellent chapter that uses clear tables and graphics to explain metabolic adaptations, changes and effects of pathologic stress, nutrient recommendations, routes of application, and nutritional monitoring. It may have been appropriate, if not helpful, to combine this chapter with "Fluids, Electrolytes, and Colloid Therapy in Critical Care," in which tables are used to explain water, sodium chloride, potassium, calcium, magnesium and phosphorus balance, and the treatment of abnormalities. These topics often are considered in conjunction with nutrition in the intensive care unit setting. I personally liked the section "Pediatric Critical Care" most. It focused on problems limited to pediatrics, such as congenital heart failure and its surgical correction. The authors specifically described common accidents in this age group, neurologic problems, infectious and respiratory diseases (*e.g.*, obstruction to foreign bodies), and congenital genetic disease. It is of particular benefit that the authors separated the chapter "Neonatal Critical Care" from pediatrics because resuscitation guidelines, cardiopulmonary physiology, and illnesses are different from those of adults and older children. For this age, respiratory distress syndrome, abnormal acid base status, and congenital diseases are discussed (surfactant deficiency, diaphragmatic hernia, omphalocele, gastroschisis, tracheoesophageal fistula). The most well-organized chapter, "Neurological Critical Care," is thoroughly divided into five subchapters that briefly mention risks, clinical presentation, grading, surgical and critical care management, outcome, and complications for common neurosurgical disease states. The last chapter of this volumes discusses the main intensive care unit techniques and procedures. It uses colored graphics with explanatory legends to describe many important procedures, including thoracentesis, thoracotomy, open- and closed-diagnostic peritoneal lavage, cannulation techniques of veins and arteries, pericardiocentesis, and airway management.

In summary, this volume approaches common critical care topics for all patient age groups in a thorough yet concise manner.

Volume II consists of 17 chapters written by 28 contributors. It deals with many subjects of great relevance to the academic/research anesthesiologist, but contains clinically relevant information as well. The first chapter, "Cellular Signal Transduction," describes multiple receptor types, signaling pathways, ion channels, and the nitric oxide pathway. Chapter 2, "Physics Principles Important in Anesthesiology," briefly explains physical laws important for the clinical anesthesiologist (pressure, fluid flow, work and energy, gas laws, waves and electricity, radiation, and safety) using colored graphs and tables. The next chapter, "Pharmacokinetics and Pharmacodynamics for the Anesthesiologist," is the most useful to the clinical anesthesiologist. The authors explain the need for mathematical models and discuss effects sites and therapeutic windows, variability of drug concentrations, drug interactions, and dosing nomograms. Unfortunately, this chapter is arranged in a confusing manner, necessitating a footnote to guide the reader through the figures. Chapter 4, "The Autonomic Nervous System," is one of the best and most organized chapters in this volume. It approaches the functional organization, control of the cardiovascular system, and autonomic ganglionic, cholinergic, and sympathetic neuroeffector transmission. The chapter "Neuromuscular Transmission" is of particular interest for anesthesiologists. It briefly describes the anatomy of the motor nerve and motor unit and the formation and release of acetylcholine and its receptor. It is unfortunate that the authors do not repeat at least some information about depolarizing and nondepolarizing drugs. The chapter "Pain Processing" explains the details of pain pathways. The most interesting subchapter deals with mechanisms of action of analgesics. The chapter "Principles of Molecular Biology" is of major interest for academic and research anesthesiologists. It begins with the basics (gene expression and basic molecular biology techniques, diagnosis, DNA sequencing, vectors) and describes the *in vitro* preparation of nucleic acid. The authors describe in colored graphics and flow charts localization and purification of cloned DNA, the theory behind polymerase chain reaction, expression of cloned sequences in mammalian and amphibian cells, and cloning and mutagenesis studies. Chapter 13, "Mechanism of Anesthetic Action," is, in the opinion of this reviewer, too short. The authors briefly describe physical chemical observations (Meyer-Overton rule) and discuss more specific interactions of anesthetics with receptor-channel sites and

give some future directions (chimeric mouse, knockout mouse). The last three chapters of this volume deal with inhalation, intravenous, and local anesthetics, respectively, in a thorough and well-organized manner.

Volume III consists of 15 chapters written by 21 contributors. Chapter 1, "The Anesthesia Workstation," briefly explains the concept of the anesthesia workstation, its development, and problems of current anesthesia workstations. Chapter 2, "Anesthesia Risk," analyzes outcome studies and risk factors. The chapter "Preoperative Evaluation" starts with various classification and risk-assessment scales (ASA, Goldman Cardiac Risk Index, Canadian Cardiovascular Society Classification) and discusses specific risk factors (hypertension, coronary artery disease, diabetes) and an airway classification system and talks briefly about the sense and nonsense of preoperative laboratory testing. In the opinion of this reviewer, the next chapter, "Concurrent Disease," is one of the more important chapters in this volume. Here the authors provide an overview about diseases of relevance to anesthesiologists, described in more detail in subsequent chapters. Chapter 5 discusses preoperative medication and its relevance to anesthesiologists, thoroughly including all commonly used medications. Chapter 6 discusses cardiovascular monitoring, describing noninvasive and invasive monitoring with a particularly useful subchapter about transesophageal echocardiography. Chapter 7, "Electrocardiographic Monitoring," provides physiologic basics, different types and characteristics of electrocardiography monitors for ischemia and intraoperative dysrhythmia, and some common arrhythmia chart recordings. The chapter "Monitoring Respiration" if also of particular interest. It explains basics (inspection, auscultation, airway, airway obstruction, capnography, airway mechanics) and is very useful for anesthesiologists. The next several chapters continue similarly with neurologic and renal function and neuromuscular blockade monitoring. The chapter "Depth of Anesthesia" provides a fascinating anecdote about awareness during anesthesia. A more and more important issue of anesthesiology is described in the chapter "Temperature Monitoring." The authors explain thermoregulatory mechanisms and control during anesthesia, different monitoring techniques, the effects of temperature on outcome and techniques of perioperative rewarming. The last chapter of this volume, "Coagulation Function and Monitoring," does not mention any congenital or drug-induced, clinically relevant coagulopathy, which makes this very important chapter less useful for anesthesiologists.

In summary, the topics approached in this volume are of great relevance to all anesthesiologists and are well represented in the visual format. The practical approach here may have specific appeal to the anesthesiologist in training.

Summary

The three volumes of the series *Atlas of Anesthesia*, although not all in logical order according to this reviewer, were individually well organized. They compress critical care, scientific principles of anesthesia and preoperative preparation, and intraoperative monitoring topics in tables, flow charts, and colored graphs and give sufficient material to review subjects in a short amount of time. In combination with the available slide collection, it is an excellent tool for anesthesiologists in teaching positions. In addition, this volume is a useful book for all anesthesiologists who are focused on visual and graphical learning. The price ($135 per volume), although a fair reflection of their value, may be too high for anesthesiologists in training.

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Cardiopulmonary Critical Care, 3rd Edition. Edited by David R. Dantzker, M.D., and Steven M. Scharf, M.D., Ph.D. Philadelphia, W.B. Saunders Company, 1998. Pages: 704. Price: $125.00.

This is the third edition of a popular resource that concentrates exclusively on the cardiac, circulatory, and respiratory organ systems in critically ill patients. Unlike other texts in critical care, this book does not attempt to be all encompassing and comprehensive. Instead, this book provides brief detailed discussions of common physiologic problems encountered in the intensive care unit. This text represents a terrific blend of scientific facts and comprehensible discussion that allows for rapid retrieval of information necessary to care for critically ill patients. Each contributing author abided by the editors' premise of concise, detailed information about the selected topics.

The book is divided into three sections: pathophysiology, principles of treatment, and specific disorders. To me the best section of the book is pathophysiology. Within this section are specific chapters reviewing acute lung injury, gas exchange, pulmonary circulation, cardiac function, oxygen transport and utilization, and pulmonary mechanics. Each chapter reviews the basic physiology and then succinctly reviews the pathologic changes in this physiology that occurs in critical illness. The discussions are brief enough to maintain the reader's interest yet detailed enough to provide a framework adequate to allow a physician to care for patients within the intensive care unit. Photographs, diagrams, and tables are dispersed throughout the text to further enhance the educational value of each topic. Each chapter is laced with references to allow the reader to further research the specific topic; but it is my opinion that each chapter is detailed enough to provide an excellent review of each topic within cardiopulmonary critical care.

The authors do not hesitate to provide opinions confirmed by the medical literature. Within the section "Specific Disorders," the book provides specific treatment algorithms based on the best available medical evidence, again providing references to confirm these opinions. This is best highlighted in the chapter regarding deep venous thrombosis and pulmonary embolism, in which the text includes discussions of diagnostic techniques, interpretation difficulties, and treatment modalities, both conservative and invasive. Included in the discussion are vena cava filters, thrombolytic therapy, embolectomy, and an excellent discussion of heparin and heparin-related compounds. Finally, there is an encompassing algorithm that provides the reader with a "checklist" of considerations for patients with thromboembolic disorders.

In summary, the third edition of *Cardiopulmonary Critical Care* represents one of the best texts available for the clinical application of critical care medicine. Its $125-suggested price is an excellent value, considering the depth and range of topics discussed within its pages. If you have ever said to yourself, "I wish there was a 5-min reference