Reviews of Books and Other Media. Note to publishers: Send review copies of books, films, tapes, and software to RESPIRATORY CARE, 600 Ninth Avenue, Suite 702, Seattle WA 98104.

Books, Films, Tapes, & Software

Principles and Practice of Mechanical Ventilation, 2nd edition. Martin J Tobin, editor. New York: McGraw Hill. 2006. Hard cover, illustrated, 1,442 page, $189.95.

After the publication of the first edition of **Principles and Practice of Mechanical Ventilation** in 1994, this book quickly became the established reference text for mechanical ventilation. In the eyes of many critical care physicians and respiratory therapists, this book became a classic. In both academic and clinical circles, this was the text that was first consulted in matters of mechanical ventilation. It is commonly referred to by the name of its editor. When one prefaced a statement with, "According to Tobin. . . ," everyone knew that it referred to this text. It is against this background that I eagerly accepted the invitation to review the second edition of this highly regarded text. The editor explains the long hiatus between the first and second editions as an attempt not to burden the reader with a second and third edition, and asks us to consider the text representative of the fourth edition.

So how does the second edition differ from the first? When I first opened the book, I noted that the first chapter, for all intents and purposes, was not different than the first chapter of the previous edition. But that is where the similarities end. The new edition contains 24 completely new chapters. Moreover, 17 of the previously included chapters have new authors. A quick review of the contributor list reveals a worldwide "who's who" in mechanical ventilation.

The book has 1,442 pages, compared to 1,330 in the first edition. Despite the addition of over 100 pages, the dimensions (ie, shelf space) of the second edition are essentially identical to the first edition. It appears that this was achieved by decreasing the paper quality in the second edition. This results in some diminution of the quality of reproduction. Although the effect is minor for line drawings, the loss of quality is clearly apparent in grayscale images such as radiographs. Increasingly in this day and age, books of this caliber are printed in more that one color and figures are redrawn with color to emphasize points of interest. The quality of the figures is improved when all are drawn with the same style and font. Redrawing the figures, rather than lifting directly from the original source, also allows removal of extraneous information, because usually when a figure is reproduced the emphasis is at least slightly different than the emphasis in the original publication. This is a minor criticism, but increasingly the reader is expecting a production that surpasses the textbooks of a previous generation. In the case of this text, I suspect that many readers will look past this, given the quality of the printed information.

This textbook represents a collection of 70 state-of-the-art reviews of topics related to mechanical ventilation. The quality of the reviews is at a very high level. It is clear that the authors and the editor put considerable effort into each chapter. I am impressed by the large number of figures and tables that embellish each chapter. In particular, I am impressed by the large number of original figures.

This may be the most referenced text of any I've seen. The median number of references per chapter is 110. There are 747 references in the chapter on positive end-expiratory pressure. The sum total number of references in the book is 10,498! While recognizing that some of these are repeated in more than one chapter, this is nevertheless an impressive display of scholarship. Much of the value of the book is this extensive channel to the worldwide literature on mechanical ventilation.

The focus of the book is primarily adult mechanical ventilation, and the preponderance of the authors' expertise is care of adults. That said, there is one well-done chapter that specifically addresses neonatal and pediatric mechanical ventilation. In addition, some chapters relate to topics that are more commonly used in neonates and children than in adults. Examples include chapters on high-frequency ventilation, extracorporeal life support, inhaled nitric oxide, and surfactant therapy. I was surprised that the chapter on surfactant says little about its use in neonates, the patient population from which came the preponderance of current evidence about surfactant use.

Near the beginning of the book (Chapter 2), Chatburn does his usual masterful job of presenting an updated classification of ventilator modes. I logically expected that this would set the framework for terminology regarding ventilator modes throughout the remainder of the book. However, that does not occur. It appears that either it was the decision of the editor to ignore Chatburn's chapter or to allow authors of individual chapters to use whatever terminology they wished. This is unfortunate, as it propagates the misuse of terminology that has confused students and clinicians for years. For example, there is a chapter titled "Assist-Control Ventilation." The chapter content is excellent, but the chapter title is misleading. The chapter is all about "volume-controlled ventilation," which would have been a more accurate chapter title. Assist-control ventilation, which is more accurately termed "continuous mandatory ventilation," is a mode in which all breaths delivered from the ventilator are mandatory and can be mandatory volume-controlled breaths or mandatory pressure-controlled breaths.

Some of the organization of the book seems a bit unusual to me. For example, there are separate chapters on negative-pressure ventilation, noninvasive respiratory aids and noninvasive positive-pressure ventilation, and noninvasive ventilation on a general care ward. In addition, ventilators to provide noninvasive ventilation are covered in the chapter on equipment required for home mechanical ventilation. Along the same lines, there are separate chapters on extracorporeal life support and extracorporeal carbon dioxide removal.

Some of the new chapters added to this edition are most welcome and contemporary. Examples include the chapters on sleep in the mechanically ventilated patient, ventilator-supported speech, and respiratory discomfort in the ventilated patient. Some of the new chapters, such as the one on ventilator-induced diaphragm dysfunction, are novel. The chapter on inhaled nitric oxide is necessary, given the increased use of this therapy in mechanically ventilated patients. Some of the other new chapters are less useful. For example, there is a superbly written chapter on tracheal gas insufflation.

However, there is no commercially available system to apply this therapy in the United States, so the clinical relevance of this chapter will be obscure to most readers. The same can be said for the chapter on partial liquid ventilation. It is also hard to know what to do with the chapter on inhaled antibiotic therapy, given the paucity of the evidence in support of this therapy (as pointed out by the authors of that chapter).

I was taken aback by the chapter, "Interpreting Clinical Trials of Mechanical Ventilation: The Importance of Routine Care." To my reading, this chapter is more about a rant against the Acute Respiratory Distress Syndrome Network than about interpreting clinical trials. This chapter seems out of place in a book where the chapters are, for the most part, balanced. There seems to be an underlying bias throughout the book to discredit or minimize the importance of the Acute Respiratory Distress Syndrome Network studies. I do not think that the Acute Respiratory Distress Syndrome Network results are, by any means, the final word on mechanical ventilation of patients with acute lung injury and the acute respiratory distress syndrome, but I think they are the best evidence to date and should not be discarded or ignored while awaiting additional evidence.

Overall, this book contains a wealth of information about mechanical ventilation. I am pleased to have it in my library. There is no other single source where a reader can turn to find so much contemporary information about mechanical ventilation. I consider myself knowledgeable on the subject of mechanical ventilation, but I must admit that I learned a lot studying this book to prepare this review. This book, however, is not for the faint of heart. It is written at a very high level. Those with a working knowledge of mechanical ventilation will find the book more useful than the beginning student of the subject. Given its cost ($189.95), I suspect this book will be out of reach for many to add to their personal libraries. For those with an interest in mechanical ventilation and who have a generous academic allowance, this book is a must-have. I think it should be an essential text in the libraries of hospitals, medical schools, pulmonary medicine departments, anesthesia departments, critical care units, respiratory care departments, and respiratory care schools. This is a book that I'm sure I will refer to over and over for years to come.

Dean R Hess PhD RRT FAARC
Harvard Medical School
and
Department of Respiratory Care
Massachusetts General Hospital
Boston, Massachusetts

Conflict of Interest: Dean Hess is co-author of the textbook *Essentials of Mechanical Ventilation*, 2nd edition. Hess DR, Kacmarek RM. McGraw-Hill. 2002.

Clinical Critical Care Medicine. Richard K Albert MD, Arthur S Slutsky MD, V Marco Ranieri MD, Jukka Takala MD, Antoni Torres MD, editors. Philadelphia: Mosby/Elsevier. 2006. Hard cover, illustrated, 523 pages (with CD-ROM), $105.

Clinical Critical Care Medicine is an excellent distillation of the clinical and scientific breadth of our global critical care community. One hundred and twelve authors from 14 countries combined their efforts to deliver an exceptional one-volume guide on care of the critically ill adult. The editors are from University of Colorado (Albert), University of Toronto (Slutsky), Università di Torino (Ranieri), University Hospital, Bern (Takala), and Universitat de Barcelona (Torres). The text has 10 sections and 64 chapters. Sections 1 and 2 review general aspects of critical care, and the other sections catalog specific organ and system problems and conclude with miscellaneous issues in critical care. All the chapters are well presented, with clear graphics and good visual design. Each chapter begins with a "key points" box that highlights the most important concepts and information. All the graphics are also on an included CD-ROM that is useful for presentations, teaching, and other purposes.

Starting with the basic science behind the specialty (including chapters on inflammation, genetics, stress response, vascular tone, cellular metabolism, and tissue hypoxia), each author provides a thorough review of the current understanding of these important but complex topics. These include strong clinical correlation, a pathophysiological rationale for therapies, and a discussion of relevant outcome-based research.

This is followed by an extensive and well-written section on the practice of critical care, including sedation and analgesia, antibiotics and infection prevention, severity-of-illness scoring systems, hemodynamic monitoring, mechanical ventilation and its complications, nursing issues, nutritional support, and end-of-life care. The chapter on antibiotic therapy emphasizes pharmacology and promotes a pharmacokinetic/pharmacodynamic approach to antibiotic selection and dosing. The section on infection prevention focuses on nosocomial infections, including central line infections and ventilator-associated pneumonia. Despite a detailed description and approach to these issues, the current strategies developed in the United States, such as the "ventilator bundle," "sepsis bundle," and checklists from the Institute for Healthcare Improvement, are not mentioned. There is a comprehensive chapter dedicated to the development, validation, and utility of severity-of-illness measures. The next chapter focuses on hemodynamic monitoring, including the physiologic basis for hemodynamic monitoring, the techniques, equipment, and outcomes associated with various techniques, including the pulmonary artery catheter. The concept of pulse pressure and systolic blood pressure variation related to fluid responsiveness and its difference with preload is discussed in detail. However, this book does not provide a procedure manual, appendix, or chapter on the various hemodynamic monitoring modalities and central venous access techniques.

The next several chapters discuss mechanical ventilation, including ventilation modes, noninvasive ventilation, tracheostomy, monitoring mechanical ventilation, and patient/ventilator interactions. These chapters provide the physiological basis of monitoring mechanically ventilated patients, and they make it clear that mechanical ventilation can cause morbidity. Besides respiratory mechanics and gas exchange, the authors propose continuous monitoring of the "stress index" to ensure a lung-protective ventilation strategy, and they provide a nice flow diagram to troubleshoot increased peak pressure during constant-flow mechanical ventilation. An entire chapter is dedicated to weaning, and the chapter discusses protocols and controversies about various weaning methods.

It is important to recognize the mechanical ventilator as a nonphysiologic but necessary therapeutic tool in the intensive care unit (ICU) and that ventilator-induced lung injury and ventilator-associated pneumonia are common complications. The next chap-