

# Books, Films, Tapes, & Software

**Fundamentals of Mechanical Ventilation: A Short Course on the Theory and Application of Mechanical Ventilators.** Robert L Chatburn RRT-NPS FAARC. Cleveland Heights, Ohio: Mandu Press. 2003. Soft cover, illustrated, 291 pages, \$59.95.

As perfectly stated by Robert Chatburn in his preface, most textbooks on mechanical ventilation that we educators use devote but a small fraction to how ventilators actually work. **Fundamentals of Mechanical Ventilation** was written with a goal in mind: lead the reader to expertise with the theory and tools of that art called mechanical ventilation. To do this Chatburn presents the concepts of mechanical ventilation from the perspective of the ventilator. He indicates that his book does not say much about how to use ventilators in various clinical situations, but he is overly modest, since the book is full of very useful clinical applications of theoretical concepts.

The contents are divided into 5 chapters plus 3 appendices. A very short "Introduction to Ventilation" (Chapter 1) includes a brief description of how breathing takes place. This is followed by "Introduction to Ventilators" (Chapter 2), "How Ventilators Work" (Chapter 3), "How to Use Modes of Ventilation" (Chapter 4), and "How to Read Graphic Displays" (Chapter 5).

Chapters 1 and 2 devote 16 pages (including key ideas sections and self-assessment questions) to describing breathing. A brief overview of minute ventilation, dead space, and gas exchange serves as an introduction to defining positive- and negative-pressure breathing and to describing the 2 classic types of ventilators: conventional and high-frequency. Chatburn wrote these 2 first chapters to direct the reader to the following chapters as he covers the basic concepts of mechanical ventilation.

In Chapter 3 Chatburn emphasizes the importance of "understanding how ventilators work, not just how to turn the knobs." He describes the 4 mechanical characteristics of ventilators: input power, power conversion, control system, and output. He then directs the reader to respiratory care equipment textbooks for details on ventilator design characteristics. This is also the chapter in which Chatburn first introduces a special

section called "Extra for Experts," which is specifically directed to the professional "who is in a position to teach mechanical ventilation and particularly for those involved with research on the subject." This chapter is of particular importance, because it gives a practical review of the variables of the mechanical breath: control, triggering, limiting, and cycling. Chatburn includes excellent detail and makes the distinctions between various modes very easy to understand. Table 3-1 illustrates the mode classification scheme published in *RESPIRATORY CARE* in 2001.<sup>1</sup> Chatburn uses this table as the backbone for detailed descriptions throughout the rest of the chapter. To wrap this chapter Chatburn classifies the ventilator alarms (Table 3-5) according to the event priority level, alarm characteristics, automatic reset, and the alarm event. This is one of the most comprehensive tables on alarms I have seen in a textbook.

Chapter 4 not only provides the reader with a basic approach to conventional modes of ventilation but also describes newer modes and their indications and clinical examples.

In the last chapter, Chatburn does not limit the presentation to a basic understanding of how to read graphic displays. In the section "How to Detect Problems" he provides critical information on ventilatory changes that clinically impact the patient and how these changes can be detected by reading the graphic displays.

Appendix I, "Answers to Questions," includes definitions, answers to true-or-false questions, multiple choice questions, and key ideas. This appendix is a fine compilation and explanation of all topics covered in the 5 chapters. It is the reader's opportunity to review mechanical ventilation in a very concrete fashion, right to the point. Appendix II contains a glossary. Appendix III, "Mode Concordance," shows the correspondence between the names of common modes and their breathing pattern classifications.

There are very few typographical errors; the most noticeable is on the back cover, under "Features." Although the table of contents carries all the headings in the textbook, it would have helped to use numerals as prompts, since it is sometimes difficult to distinguish headings from subheadings.

Numbers would also make the content look more organized.

The key ideas of each chapter are nicely boxed and hard to miss. However, some of the "Extra for Experts" sections, such as the one in Chapter 4, do not have clear boundaries and it is hard to tell where they stop. A change in the font or size might be a simple solution to consider for future editions. Though all the figures are clear, 3 of the 4 photos used in the book were not of good quality and were probably not necessary.

In Chapter 3 Chatburn repeatedly named a specific ventilator when describing modes. I would recommend against doing that because it can give the impression of favoritism for a particular machine.

I recommend this book to practicing clinicians in respiratory care and especially to faculty and students in respiratory care programs, who would benefit the most from the "Extra for Experts" sections and the self-assessment questions.

**Ruben D Restrepo MD RRT**  
Cardiopulmonary Care Sciences  
Georgia State University  
Atlanta, Georgia

## REFERENCE

1. Chatburn RL, Primiano FP Jr. A new system for understanding modes of mechanical ventilation. *Respir Care* 2001;46(6):604-621.

**Cardiopulmonary Critical Care.** Thomas L Higgins MD MBA, Jay S Steingrub MD, Robert M Kacmarek RRT PhD FAARC, and James K Stoller MD MSc FAARC. Oxford UK: BIOS Scientific Publishers. 2002. Hard cover, illustrated, 411 pages, \$84.95.

Does the world need another critical care textbook? This question is raised by none other than Thomas Higgins himself in his introduction to **Cardiopulmonary Critical Care**, the latest addition to my gaggle of intensive care books. Surveying the crowded shelf, I have to admit I asked the same question upon receiving this book to review. However, as Dr Higgins explains, this book is meant to inhabit a particular "evolution-