Books, Films, Tapes, & Software

Monitoring of Respiration and Circulation. JA Blom. Boca Raton, Florida: CRC Press. 2004. Hard cover, illustrated, 188 pages, $84.95.

The objective of this book is to provide an introduction to the principles of monitoring respiratory and circulatory variables. It is written primarily for science and engineering students and is based on the author's experience in teaching electrical engineering students.

The first chapter introduces basic concepts of anatomy, physiology, and medicine, and is directed to readers who do not have a medical or biology background. The author has a very efficient writing style and is able to convey key concepts very concisely; this first section provides a very nice overview, although specific applications would require more details. I especially liked the author's very conceptual approach.

The second chapter develops the physics of fluid transport in tubes. This section includes basic equations and electrical models that should be understood by most students with basic university-level mathematics, but I think it could also be easily followed without understanding all the equations. The rigorous approach, though, should be well appreciated by engineering students, who are the majority of the book's audience.

Chapters 3 through 7 deal with specific issues in monitoring pressure, flow, blood and gas composition, respiratory function, and cardiovascular function. As the author notes in the foreword, monitoring is more than just obtaining measurements; it also means using those measurements to control something. For that purpose, Chapter 8 deals with principles of therapeutic devices, and Chapter 9 deals with patient monitoring. I especially liked how the author succinctly laid out the basic principles of patient monitoring.

An excellent component of this book is that throughout the book and at the end of each chapter the author included numerous questions to challenge the reader. These will be very helpful for course instructors. However, I believe it would have been desirable to provide answers, to allow self-guided learning.

A weakness of the book is that the pathology descriptions are very limited and at times overly simplistic, but this is not a major problem, because this book is not meant to be a text for medical problems. There were, however, places where I disagreed with the anatomy and physiology descriptions. For example, I was surprised by the distribution of volumes given in Table 1.3.4. In the section on acid-base balance it would have been worthwhile to note that, in addition to ventilatory mechanisms, metabolic factors regulate acid-base balance. The section on atherosclerotic disease and cardiac electrical abnormities is perhaps too thin for such an important health problem. I also did not agree with the discussion about flow in collapsible tubes (Chapter 2). Usually a collapse pressure is considered to produce flow limitation, not to stop flow, as this book indicates. Finally, the clinical reasoning is simplistic, but this is not inappropriate for a small book that is dedicated to monitoring.

Overall, I liked this book and found that, by and large, it met its objectives. I especially liked the author's "philosophical" approach and attempts at explaining basic principles. This book provides a nice, concise introduction to monitoring and is an excellent choice for an introductory course on monitoring. Although the medical discussion is very elementary, the physiologic and physical discussions are not, and I think this book would also be very useful for physicians who regularly work with technologies that require monitoring.

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Handhelds in Medicine: A Practical Guide for Clinicians. Scott M Strayer MD MPH, Peter L Reynolds MD, Mark H Ebell MD, editors. New York: Springer. 2005. Soft cover, illustrated. Includes CD-ROM, 463 pages. $49.95.

Success or failure as a clinician is determined in large part by how effectively one manages the large amount of information presented to the average clinician on a daily, hourly, and even minute-by-minute basis. In **Handhelds in Medicine: A Practical Guide for Clinicians**, Strayer, Reynolds, Ebell, and their contributing authors make an excellent case for the use of portable technology for managing clinical information. Because of their utility and the fact that computing power and cost continue to be relatively inexpensive, handheld computers (popularly known as personal digital assistants or PDAs), continue to see gains in use and popularity.

The book is intended primarily for physicians, but does contain 2 chapters written specifically for nonphysician practitioners. Interestingly, the respiratory care profession is not mentioned, despite its longstanding reputation for technological innovation. At any rate, the book contains a wealth of information for nonusers, novices, and advanced users. The book is written in a style reminiscent of the popular "*For Dummies*" series of instructional texts. Such a style is a valuable literary tool in capturing and retaining the interest of nonusers and novice users. It also allows intermediate and advanced users to learn new concepts faster. The book is organized according to various uses, or applications, of the technology, beginning with a generic introduction to handheld computing.

As with most technology, choices must be made and the consequences of those choices dealt with. The authors present and explain some of the choices about handhelds in a practical way that allows for intelligent decision making when in the market for a new or replacement handheld. The discussion is generic enough to allow for technological innovation that may not have been available at press time, yet is specific enough to permit informed product comparison. Following purchase-decision assistance, the reader is introduced to unique handheld computing features that make handhelds the useful devices they are.

Next the reader is introduced to the applications that are included with a new handheld. These are the standard applications found in a desktop computer's personal information management system, including address book, appointment calendar, to-do or task list, and open format memorandum or note writer. Here, as

is true throughout the book, applications are discussed and illustrated by using similar examples from the 2 principal handheld computer operating systems: Palm and Pocket PC. The generous use of images of handheld computer screens helps to illustrate concepts and the stepwise use of applications. Also included in this chapter is an explanation of the 2 methods of information sharing with these devices: synchronizing and beaming. These processes can be especially challenging for the novice, and the authors provide a succinct, clear explanation. The issue of confidentiality of patient information is also mentioned and emphasized here, because of the ease with which information can be shared between handhelds, from handheld to desktop computer, and from desktop to handheld. The issue of information security/confidentiality is still being debated, weighing the benefit of availability of information with the potential for breaches in confidentiality of patient information.

The authors then review the process of acquiring and installing new software. The chapter is devoted to the technical procedures for downloading and installing software. Finding specific software is discussed in later chapters. Included in the chapter is a discussion of the use of the main memory of the device versus use of expansion memory, which can be tricky. This issue is discussed honestly, including the caveat that some software is limited in the ways it can be installed and used, and that technical difficulties are not uncommon.

The remainder of the book introduces the reader to the many potential uses of handheld computers in medicine, highlighting selected software. This part begins with an effective review of Internet sites related to handheld computing. The chapter includes over 80 Web sites devoted to handheld computing in medicine, many of which the authors rate regarding organization, usefulness and timeliness of information, and various intangible features unique to some sites. The rating system resembles movie rating systems that use a number of stars to indicate the movie's quality. Here stethoscopes are used instead of stars, with 5 stethoscopes being the highest rating. In their enthusiasm for the subject, the authors do not mention the potential for excessive time consumption in searching for information or software. Anyone who searches the Internet on a regular basis knows that the search must be focused and as narrow as possible. If not,

one can spend hours hopping around cyberspace.

The first medical application presented is patient tracking. The biggest selling point of these applications is probably the accurate recording of charges. The data entry for the patient tracking programs presented is mostly menu-driven. This technique requires entering certain information before moving on to the next step, which prevents omitting information and guarantees that all appropriate patient information is entered, including charges. Of course, having all the necessary information required for diagnosis and treatment is critical, and this would also be guaranteed with a menu-driven system.

Another invaluable feature of handhelds is that information can be transmitted immediately, as the clinician enters the data, to a central database, where it could be available to other users. The clinician can also receive updated information, such as laboratory results, patient updates, and new consults. This application can be a very useful, time-saving tool.

Clinical calculations can be made easy with appropriate handheld applications, which is reviewed in the next chapter. Calculations such as anion gap, predicted spirometry values, and Glasgow coma scale are preprogrammed. The user has only to enter the relevant data and the calculator produces the results. Several of these programs are free and download information is included in the book.

Another effective exploitation of the size and capacity of handheld computers is handheld-based references. Entire reference texts can be stored and viewed on a handheld computer. The reader programs used to access these texts allow for searching the text, which expedites information retrieval. Referencing peer-reviewed journals is also possible. The authors describe services that provide access to journal citations and, in some cases, abstracts. Although the full text of articles is not widely available for handhelds, many full-text articles will be soon. Articles in some of the popular electronic formats can be read by handhelds, so it is possible to maintain a library of current literature on a handheld.

Another valuable ability of handhelds is developing custom databases. While this is probably not something a novice would be comfortable with, the process is not very difficult with some of the database programs. The authors describe the process in a clear, easily understood, and encouraging way that

I think will help avoid some potential frustrations of developing a database. Because of its clarity and medical specificity, the description is actually more useful than the program manual.

The ability of a handheld computer to transmit, store, and display rich media such as photographs, video, and audio can add a new dimension to the clinician's practice. While the size of the screen limits the usefulness of visual media, it adds a valuable tool to the clinician's repertoire. For example, the video recording of a bronchoscopy could be shared with colleagues at a distance, allowing collaboration from virtually anywhere. The authors discuss several examples of the value of this multi-media capability.

Overall, **Handhelds in Medicine** is an excellent introductory text for nonusers and novices. It is also useful for more experienced clinicians, providing introductions and "how-tos" on more advanced topics. The wealth of information on available resources alone may be worth the book's purchase price. In addition, many of the programs described in the book are available on the included CD-ROM. I would recommend this book to all clinicians as an introduction to the coming widespread use of handheld computers in medicine.

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R.A.L.E Lung Sounds 3.1 Professional Edition. Winnipeg, Manitoba, Canada: PixSoft and Medi-Wave. 2004. Professional edition download $49; CD-ROM $59; institutional edition CD ROM $195; student edition download $19.95.

> The difference between listening to a radio sermon and going to church . . . is almost like the difference between calling your girl on the telephone and spending an evening with her.
> —Dwight L Moody

R.A.L.E. Lung Sounds 3.1 is a multimedia computerized textbook and educational program. It encompasses over 50 recordings of lung sounds, each with color graphics that relate the sounds to pitch, timing within the breathing cycle, and intensity. The program includes 12 teaching case studies and 24 cases in a quiz/self-assessment format. Version 3.0 of this product