

**Evidence-Based Emergency Care. Diagnostic Testing and Clinical Decision Rules.** Jesse M Pines MD MBA MSCE and Worth W Everett MD. Hoboken, New Jersey: Blackwell Publishing. 2008. Soft cover, 283 pages, \$79.95.

Physicians must be adept and accurate at diagnosis. Yet, with such a vast array of laboratory and radiologic tests available at their disposal, physicians can embark in many different directions during the diagnostic process. So this prompts the question, is there one diagnostic pathway for each emergency illness that can lead to the best result for the patient while maximizing timeliness and accuracy and limiting cost? This is the key question that clinical decision rules seek to answer, and thus the development of reliable clinical decision rules is incredibly important for the advancement of modern emergency medicine. Clinical decision rules are a research-derived set of criteria that may include historical elements, physical examination findings, and diagnostic test results, which provide the physician a framework for increasing or decreasing his/her pretest probability for a particular patient and disease process.

**Evidence-Based Emergency Care** is geared toward resident and attending physicians, but its straightforward nature and inclusion of many useful, evidence-based clinical decision rules will give nurses and medical students involved with patient care valuable insight into the diagnostic process. The stated aims of this book are 3-fold: to show the reader how to evaluate a diagnostic test using an evidence-based-medicine approach; to explain clinical decision rules; and to provide the methods that will assess both the strength and applicability of a clinical decision rule.

The book is divided into 8 sections that encompass major areas in emergency medicine, and is further divided into 40 chapters, each dedicated to one specific illness. The first section of the book, entitled "The Science of Diagnostic Testing and Clinical Decision Rules," provides an excellent review of basic concepts in statistics and epidemiology that are critical to analyzing research studies. The first 4 chapters also review how to assess studies involving di-

agnostic tests and clinical decision rules by using evidence-based medicine and the patient/intervention/comparison/outcome (PICO) model.

The following 36 chapters are each dedicated to one specific disease. Each chapter begins with a "highlights" box that contains a concise summary of the chapter. Next, the "background" section provides valuable epidemiologic and pathophysiologic information on the disease, characteristic physical-examination findings, diagnostic challenges of the disease, and current diagnostic practices. This is followed by the "clinical question" section, where the authors detail the clinical-decision-rule criteria and the literature that supports their accuracy and validity. Then, the "comment" section provides recommendations for the diagnostic process, based on the best available evidence in current literature. Finally, each chapter ends with a list of references.

The authors are clear and consistent in informing the reader which clinical decision rules are the most reliable. This is most often determined by the reproducibility of the results and external validation of the rules. Clinical decision rules that lack external validation are still discussed, but the reader is cautioned against relying heavily on these rules for diagnosis.

Most chapters provide extensive coverage on the available radiological modalities for diagnosis, for example, pitting an ultrasound versus a computed tomography (CT) scan in acute appendicitis, and a dobutamine stress echo versus a stress nuclear scintigraphy in coronary artery disease. The authors make recommendations based on the combined results from multiple research studies, and also take into consideration other key factors, such as the higher cost and greater radiation associated with CT scans.

In illnesses for which multiple clinical decision rules or multiple diagnostic modalities have been developed, comparison studies are reviewed to find the superior rule or modality. In several instances the authors use tables that compare the clinical decision rules or diagnostic tool side by side, such as in cervical spine injury, where the National Emergency X-Radiography Utilization Study (NEXUS) criteria and the Canadian

CT rule were compared in one table, and also in the chapter for blunt abdominal trauma, where CT, diagnostic peritoneal lavage, and ultrasound are compared side by side.

The arguments regarding accuracy and validity of clinical decision rules are well supported with statistical evidence throughout the book, and the authors carefully evaluate multiple studies to come up with the best diagnostic strategies. Importantly, as noted in the foreword, the authors recognize that their recommendations are educated opinions. Furthermore, they note that their recommendation is not a "one size fits all" model, for that is impossible with such large differences that exist in hospital resources and populations. Keeping in mind that not all physicians have access to the authors' recommended diagnostic modalities, they offer advice to physicians as to what the next best alternative would be.

This book is relatively concise and easy to read. Most chapters are 5 pages or less. Each research study is neatly summarized in one or two paragraphs, and the comment section at the end of each chapter gives direct, frank opinions based on the best evidence available.

All works have limitations, but there are not many serious ones here. There is some slight disorganization in Chapter 3, "The Epidemiology and Statistics of Diagnostic Testing," where the authors calculate a post-test probability for a clinical scenario but do not explain to the reader how to do this until 4 pages later. Additional clarification of statistical terms could have been helpful in Chapter 4, "Clinical Decision Rules," where terms such as recursive partitioning and logistic regression analysis are hastily defined and do not really further reader understanding of these principles. Another limitation occurs when, in several instances, instead of reading text about a study's findings, the reader is referred to a table. This doesn't make much sense, for one would think that if the study's findings were important, then some text should be devoted to it. On the other hand, if the study was not very relevant, then perhaps it was not necessary to even include a table. In several instances the clinical decision rules themselves need to have higher visibility within the text. Most

of the time their criteria are listed in a bulleted-points format. However, sometimes the criteria are listed in long sentences, which get buried in the rest of the text.

Clearly, the field of emergency medicine contains more topics than this handbook can address. However, additional discussion would have been appropriate in Chapter 31, "Acute Appendicitis," where the pediatric population is left out of the discussion, except to state that ultrasound is not sufficient for diagnosis. Perhaps the authors could have delved more deeply into diagnostic strategies in children, since they compose a substantial portion of the population that suffers from the disease. In a few instances within the comment section the authors fail to present the numerical data to support their statements, such as in Chapter 36, "Acute Stroke," where they state that historically CT has been better than magnetic resonance imaging (MRI) in diagnosing acute intracranial hemorrhage, but give no numbers to corroborate. Given that MRIs are more expensive and could take more time, perhaps knowing the statistical difference between CT and MRI could help physicians decide between the 2 diagnostic modalities.

The book is a light and easily portable handbook, which makes it very convenient as a reference guide for physicians. The wording on the back cover is dry and technical, unfortunately, making the book seem duller and less relevant than it actually reads. Overall, the illustrations are quite useful and appropriate, at times showing radiological representation of a disease via radiograph, ultrasound, or MRI. Other times, figures illustrate a clinical decision rule, such as the Ottawa ankle rule, with arrows indicating key pain findings on lateral and medial ankle views.

The vast majority of references are from the past decade, with many of them published in the last 5 years. They come from a great variety of reputable research journals in the United States and from abroad. The index is easy to use and appears complete.

**Evidence-based Emergency Care** has a strong place in current practice. The authors review a large number of clinical decision rules and studies comparing diagnostic modalities. The diagnostic recommendations are well supported. A physician or other health-care provider who reads and reviews this book can feel more confident in his or her diagnostic skills. In addition, the reader is encouraged to independently analyze fu-

ture research studies, having seen how the authors do this chapter after chapter.

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**Sleep Medicine: Essentials and Review.**

Teofilo Lee-Chiong Jr. New York: Oxford University Press. 2008. Soft cover, illustrated, 720 pages, \$59.50.

Sleep medicine is a relatively new field, and sleep disorders are just beginning to be recognized by primary-care and subspecialty clinicians. Furthermore, there has been an explosion of both basic and clinical research in sleep in the past decade, particularly in associating sleep-disordered breathing with a number of highly prevalent diseases in our society, including systemic hypertension, cardiovascular and cerebrovascular diseases, and abnormalities in glucose metabolism. Importantly, most sleep disorders can be effectively treated, thereby increasing the urgency and need for more widespread recognition of their clinical presentations by physicians, nurses, and respiratory therapists.

**Sleep Medicine: Essentials and Review**

(2008), by Teofilo Lee-Chiong, is intended to provide the user "enough know-how about Sleep Medicine to care for your patients...and pass its Board." Unlike the standard reference in this field (*Principles and Practice of Sleep Medicine*, edited by Kryger, Roth, and Dement), it does not purport to be exhaustively comprehensive or cover the basic science aspects of sleep in detail. However, for its intended purpose, this book is superbly organized and written. Actually, the author is also the editor of another excellent and more expansive one-volume textbook, *Sleep: A Comprehensive Handbook*, that I found extremely useful during my fellowship training, and I recognized many similarities between these 2 texts.

The book is in paperback, approximately 700 pages long, and reasonably priced at about \$60 (although I got mine for free). It is divided into 16 chapters, 3 appendixes, and is comprehensively indexed. An added bonus is the inclusion of 600 board-type

questions with detailed (and occasionally referenced) explanations that alone would probably be worth the price. The book begins with a brief chapter on the basic scientific foundation of sleep, but quickly proceeds to systematically cover all major categories of sleep disorders. Especially attractive is the detailed coverage of sleep in medical, neurological, and psychiatric disorders, and dedicated chapters on sleep in the elderly and women. Pediatric sleep is also covered in a separate chapter. The final chapter, which is mostly in tabular form, lists and briefly discusses the effects of many classes of medications on sleep, and is a useful reference for the busy clinician.

The overall format of the chapters is a bit choppy and organized in a somewhat checklist manner, occasionally hindering a smooth reading flow. Frequent inclusion of large tables (often covering entire pages) adds to this problem. However, this format is consistently maintained through the book and is intended to expedite focused searching on specific topics. Furthermore, most disorders are covered in a logical manner: definition, clinical features, demographics, pathophysiology, differential diagnosis, and therapy. The length of these sections can vary substantially, depending on the importance and prevalence of the disorder (eg, therapy for obstructive sleep apnea covers 25 pages and is very comprehensive and well written).

The useful appendixes summarize the original Rechtschaffen definitions and terminologies for sleep staging and the 2007 American Academy of Sleep Medicine manual for sleep scoring. It would have been helpful to also include a summary of the latest International Classification of Sleep Disorders as an appendix.

So are there any major weaknesses in this book? No. However, in addition to the relatively minor points raised earlier, I have a few suggestions to help improve future editions. First, although most chapters are heavily referenced, very few if any of the cited original research papers date beyond 2005. Also, rarely, important references are omitted. An example is the absence of any mention of the (controversial) report on treating central sleep apnea in patients with heart failure using continuous positive airway pressure.<sup>1</sup> More generally, a more evidence-based discussion (pro and con) of available therapies for various sleep disorders would be welcome. A final issue regarding the format of this book is the lack of any figures

within the chapters. A few epochs of common polysomnographic findings are shown in Appendix C, but incorporating more figures in the body of the text would be more effective and helpful.

In summary, **Sleep Medicine: Essentials and Review** is an extremely well written textbook covering all major aspects of sleep disorders in an easy-to-use and accessible manner. It is ideally suited for use in the busy clinics of primary-care providers and medical specialists, and is an excellent source for all health and respiratory care providers who are interested in learning more about sleep medicine.

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#### REFERENCE

1. Bradley TD, Logan AG, Kimoff RJ, Series F, Morrison D, Ferguson K, Belenkie I, Pfeifer M, Fleetham J, Hanly P, Smilovitch M, Tomlinson G, Floras JS. Continuous positive airway pressure for central sleep apnea and heart failure. *N Engl J Med* 2005; 353(19):2025–2033.

**Lung Cancer**, 3rd edition. Jack A Roth MD, James D Cox MD, and Waun Ki Hong MD DMSc. Malden, Massachusetts: Wiley-Blackwell. 2008. Hard cover, illustrated, 480 pages, \$179.95.

The modern medical textbook editor faces a special challenge in attempting to comprehensively describe the current science and therapy of lung cancer. For several decades medicine has made incremental improvements in patient care while outcomes (survival) have remained dismal. We now find ourselves on the threshold of new scientific advances with the promise of dramatic improvements in the care of patients with lung cancer. The editors and contributors of **Lung Cancer**, 3rd edition, have succeeded in creating, as they intended, a concise yet thorough review of the field, which will prove very useful to clinicians providing multidisciplinary lung cancer care. The editors represent the 3 major disciplines of thoracic oncology (thoracic surgery, radiation oncology, and medical oncology), and this provides the book with a helpful balance. The editors also reveal their

bias about the future in the book's preface: "We are optimistic that progress will continue at a rapid pace and that deaths from lung cancer will continue to decrease."

The text contains 28 chapters, appropriately beginning with "Smoking Cessation" and ending with "Natural Agents for Chemoprevention of Lung Cancer." Each chapter has a consistent format, with an introductory paragraph, a succinct description of clinical standards, a discussion of new science (particularly useful), and conclusions. The reference lists are excellent and current. The tables and figures use consistent graphics and are clear and to the point. In the center of the book are high-quality color plates showing common and unusual (eg, fetal adenocarcinoma) histopathology, as well as illustrations supporting new treatment technologies such as intensity modulated radiation therapy.

Several chapters stand out as particularly well written and relevant. "The Molecular Genetics of Lung Cancer" takes the reader from the beginnings of our understanding of cancer genetics to current research on mutations in the tyrosine kinase domain of the endothelial growth factor receptor. "The Role of Mediastinoscopy in the Staging of Nonsmall Cell Lung Cancer" clearly describes the role and technique for this standard surgical procedure, including a comparison with other staging options, such as endoscopic and endobronchial ultrasound. "Targeted Genetic Therapy for Lung Cancer" provides a review of treatment options, such as p53 tumor suppressor gene replacement, with a nice discussion of the relationship between genetic therapy and conventional chemotherapy and radiation therapy.

Are there features of the book that are less useful? I do not detect any important content deficits. Chapters devoted to an overview of lung cancer management, the appropriate use of clinical guidelines, and current practice in palliative care might have been useful for most clinicians, but I suspect their absence is intentional and this does not diminish the value of the book.

This text will be useful for clinicians of all backgrounds, and is particularly well suited to inform lung cancer care in the multidisciplinary setting. In an era of ready access to electronic media and encyclopedic textbooks, this concise volume is remarkably complete in fewer than 500 pages. Perhaps it is most useful in providing a solid foundation of clinical science as a framework for the integration of new knowledge.

In a clinical realm where scientific discovery moves faster than our educational models, this is particularly helpful.

Undoubtedly, sections of **Lung Cancer** will soon be dated. Rather than dwell on this inevitability, we should look forward to the 4th edition.

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The author has disclosed no conflicts of interest.

**Sleep Medicine**. Harold R Smith, Cynthia L Comella, and Birgit Högl, editors. Cambridge, United Kingdom: Cambridge University Press. 2008. Soft cover, 270 pages, \$70.

Sleep disorders have a profound impact on individuals, leading to diminished quality of life, poor daytime functioning, as well as substantial medical costs. Although we spend about one third of our lives sleeping, our understanding of sleep disorders has lagged behind most other medical disciplines. There has been an explosion of interest and understanding of sleep disorders in the past 25 years, and anyone working with patients has been aware that clinical sleep disorders are rampant. Surveys have documented that during a typical year more than 40% of adults experience a sleep problem. Common and well known sleep problems include insomnia, sleep apnea, and excessive daytime sleepiness, but the recent American Academy of Sleep Medicine's International Classification of Sleep Disorders (ICSD-2–2005) includes 70 disorders of sleep in 8 broad categories. As a physician who sees patients with sleep problems, most of my social encounters lead to someone mentioning a concern or question about their own sleep or a sleep problem experienced by a loved one.

In this book, Smith and his co-editors address the wide range of sleep disorders. The book is intended for neurologists, psychiatrists, psychologists, pulmonologists, and internists, as well as health-care professionals in training. The book consists of an introduction and 14 chapters divided into 3 main sections: "Normal Sleep," "Sleep Disorders," and "Sleep in Specialty Areas." There are 28 authors: 16 from the United States, 7 from Germany, 2 each from Canada and Italy, and 1 from France. Most are well recognized international experts in their sleep area of interest, and the quality of the

information presented is reflective of that. Given the wide geographic locations of the authors and editors, the consistency in style and the lack of redundancies in this book is a credit to the editors and makes for easy reading.

The first section of the book contains an introduction and 2 chapters: one on normal sleep and the other on the evaluation and testing of the sleepy patient. The introduction consists of a discussion of basic neurology of sleep—a very complex topic but important for the understanding of sleep disorders and their treatment. Unfortunately this chapter is short (4 pages): certainly not long enough to give a basic understanding of this topic. In addition, no diagrams or figures are used in this introduction. This seems to be an important deficiency for a topic where diagrams can summarize complex interactions in a manner that makes the connections come to life and the clinical implications better understood. Chapter 1 is an excellent summary of normal sleep, and uses diagrams liberally and effectively to demonstrate aspects of normal sleep that are important for any clinician to understand. Chapter 2 reviews the evaluation and testing of the sleepy patient, and does an excellent job but also delves into the evaluation of the patient with insomnia, somewhat overlapping with subsequent chapters. Regardless, it is an excellent review of the clinical approach to the sleepy patient.

The second section of this book contains 6 chapters covering parasomnias, circadian rhythm disorders, excessive somnolence disorders, insomnias, restless-leg syndrome/periodic-limb-movement disorder, and, finally, sleep apnea (central and obstructive). This section of the book is excellent and offers superb reviews of these common and uncommon sleep problems. I was personally very impressed with the chapters on parasomnias and circadian rhythm disorders. Both chapters offered me a new view of

these problems, even after being involved in these sleep problems for many years. The figures (especially figures 4.1 and 4.2) in the circadian rhythm chapter are very instructive and bring difficult concepts to light. The chapter on insomnia is excellent, and has a comprehensive review of the non-pharmacologic management of insomnia—the most important aspect of the treatment for most patients. The chapter on restless-leg syndrome and periodic-limb-movement disorder is comprehensive and has an excellent review of medication management of these patients. The final chapter, on sleep apnea, is excellent, but, frankly, the value of this book is really about all the *other* sleep issues well covered in this book. This book should not be bought based on the expectation that it will be valuable for the practitioner interested in sleep and breathing disorders. Many other texts cover this important topic in much greater detail and in a more comprehensive manner.

The final section of this book contains 6 chapters covering sleep in specialty areas: sleep as it relates to neurologic disorders, psychiatric disorders, medical disorders, pediatrics, geriatrics, and forensic sleep medicine, respectively. The first 3 of these areas are commonly seen in all primary-care practices, and are some of the more difficult sleep problems to manage. These chapters are well written and offer excellent summary advice in many areas of interest to primary-care providers.

There are a few deficiencies I noted in this book. First and foremost, I found the lack of documentation of statements with sources difficult. Although all chapters were followed by a list of further reading, many statements and figures would be strengthened by numbered references. For example, in Chapter 5, on page 88, during a very interesting and informative discussion of idiopathic hypersomnia, there is a statement based on a study looking at subjective clin-

ical data in patients with narcolepsy compared to idiopathic hypersomnia, but the original study is not cited and is not easily found in the further-reading section. In a similar vein, there are figures (eg, figure 8.1, page 130, a section of a polysomnogram) that may be helpful, but without clarification in the legend in regards to abbreviations, the figure is useless to anyone except sleep experts who commonly look at such sleep studies. Finally, some references are not current. In Chapter 6 (page 101) on insomnias, a statement about actigraphy refers to an American Academy of Sleep Medicine statement from 2003. This statement was updated and changed in some important areas in 2007.<sup>1</sup>

Despite my criticisms, this is an excellent and thorough textbook of sleep medicine. It should be very useful to many non-sleep specialists who see diverse patients with sleep disorders. It is not intended for the sleep specialist nor the practitioner interested specifically in sleep and breathing disorders. It is an ideal text to have on the shelf for a quick review of a sleep disorder not commonly seen in practice, or for information about specific aspects of management of commonly seen sleep problems.

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#### REFERENCE

1. Morgenthaler T, Alessi C, Friedman L, Owens J, Kapur V, Boehlcke B, et al. Practice parameters for the use of actigraphy in the assessment of sleep and sleep disorders: an update for 2007. *Sleep* 2007;30(4):519-529.