

lowing terms: sleep architecture and the proportion of time spent in the different stages of sleep, sleep latency, Epworth Sleepiness Scale, Multiple Sleep Latency Test, Maintenance of Wakefulness Test, and periodic limb movements in sleep. A section organized in that manner would serve as a reference for primary care physicians interpreting polysomnogram reports. In addition, even though there is a lack of consensus among sleep specialists as to what apnea-hypopnea index parameters define mild, moderate, and severe OSA, it is nonetheless necessary that generalist physicians have some guidelines to clarify what it means when the respiratory disturbance index is, say, 4, 17, 32, or 55.

All in all, **Primary Care Sleep Medicine** is a useful introductory textbook that will serve as a handy reference for generalist physicians, and it will assist physicians in the recognition, evaluation, and management of patients who have sleep abnormalities.

**Robert P Blankfield MD MSc**  
Department of Family Medicine  
Case Western Reserve University  
School of Medicine  
Cleveland, Ohio

The author of this review reports no conflict of interest.

**Clinician's Guide to Pediatric Sleep Disorders.** Mark A Richardson and Norman R Friedman, editors. New York: Informa Healthcare. 2007. Hard cover, illustrated, 348 pages, \$169.95,

Sleep problems are extremely common during childhood, from infancy to adolescence. Unfortunately, despite the prevalence of sleep problems, childhood sleep disorders are often under-recognized and undiagnosed, despite being either preventable or treatable. According to information gathered from the National Sleep Foundation's *Sleep in America* polls, two thirds of young children experience at least one sleep problem at least a few nights per week, and greater than half of all adolescents report feeling sleepy during the day.

Children experience the same broad range of sleep disorders encountered in adults, including sleep apnea, insomnia, parasomnias, delayed sleep phase disorder, narcolepsy, and restless leg syndrome, but the clinical presentation, evaluation, and management may differ. Although snoring and sleep ap-

nea are common indications for referral to a sleep specialist, many children also have behavioral or nonrespiratory sleep disorders, either as a second comorbid diagnosis or as a primary sleep disorder.

The editors state in the preface that the primary aim of a **Clinician's Guide to Pediatric Sleep Disorders** is to "educate primary care practitioners so that they may accurately diagnose and treat pediatric sleep disorders." This is a laudable goal. And in an attempt to do that they have recruited a wide variety of pediatric sleep specialists—pulmonologists, otolaryngologists, neurologists, psychiatrists, anesthesiologists—to share their knowledge. Unfortunately, the overall result is an inconsistent book with overemphasis on obstructive sleep apnea (OSA), illogical arrangement of chapters, and numerous typographical and other editing errors. Having said that, however, there are a few chapters that deserve to be highlighted.

Eleven of the 20 chapters deal with the evaluation, management, and consequences of OSA, because the editors believe that the most common pediatric sleep disorder is OSA. Though that is not necessarily correct (ie, only 1–2% of children have OSA, versus up to one third of children having behavioral insomnia of childhood, and 35% of people reporting onset of restless leg syndrome before age 20 years), several of the chapters are interesting and on subjects that are often not given as much prominence in general pediatric texts. Specifically, Chapter 6 provides information on diagnostic testing for children with OSA, including a comprehensive summary of 2 newer diagnostic techniques, peripheral arterial tonometry and pulse transit time, which are being investigated to determine their usefulness in detecting sleep disruption as it pertains to obstructive breathing. The chapter also addresses the conflicts or points of discrepancy with polysomnography criteria of OSA and the relation to clinical outcomes. Chapters 8 and 9 provide a surgeon's perspective on the available surgical interventions to treat children with OSA. The authors provide a detailed description of the various types of adenotonsillectomy, including electrocautery, coblation, harmonic scalpel, intracapsular tonsillectomy/tonsillotomy, and radiofrequency volume reduction.

Rarely heard from are the anesthesiologists, and Chapter 14 provides insight into the anesthetic considerations that pertain to

children with OSA, both in the perioperative and postoperative periods.

Chapters 12 and 15 are well written and provide up-to-date references on the neurobehavioral and cardiovascular complications of OSA. Chapter 13 takes an evidence-based approach to therapy. The authors identify 3 subjects of interest, including efficacy of adenotonsillectomy for the treatment of OSA, impact of adenotonsillectomy on neurobehavioral outcomes, and impact of adenotonsillectomy on quality of life, and they summarize the results of over 40 studies into 3 large tables, which list the study design, number of subjects, instruments used, outcomes measured, and level of evidence, per the criteria of the Centre for Evidence-Based Medicine in Oxford ([http://www.cebm.net/levels\\_of\\_evidence.asp](http://www.cebm.net/levels_of_evidence.asp)).

Chapter 3 is supposed to cover nonobstructive sleep patterns in children. The chapter covers periodic breathing and central apnea, but does not mention hypoventilation as it relates to obesity, neuromuscular weakness, or scoliosis or other restrictive lung diseases. The use of bi-level ventilation for management of hypoventilation is not discussed. Considerable space is devoted to the presenting symptoms and surgical management of children with Chiari malformations, but does not include how sleep physicians can be involved with the use of noninvasive ventilation and does not include 3 key references from Robert Brouillette and the Montreal group, who looked at this issue within their own clinic population and conducted a multi-site review.

Also included in the book are chapters on infants with apparent life-threatening events or sudden infant death syndrome, as well as children with congenital central hypoventilation syndrome. Though these children are usually managed by pediatric pulmonologists rather than sleep physicians, the authors are well-respected experts, and it is a pleasure to read their comprehensive reviews, with up-to-date references. Chapter 16, on congenital central hypoventilation syndrome, describes in detail the latest information regarding genetic testing, with the polymerase-chain-reaction-based PHOX2B gene testing.

Finally, there are 5 chapters devoted to the nonrespiratory or behavioral sleep disorders, including behavioral insomnia of childhood, adolescent sleepiness, restless leg syndrome and periodic limb movement disorders, and narcolepsy. Chapter 4, on be-

havioral insomnia of childhood, was an absolute delight to read and should be required reading for anyone who sees children with this disorder. It includes the International Classification of Sleep Disorders (ICSD-2) criteria for diagnosis of the sleep-onset-association type of insomnia and the limit-setting type of insomnia. Also included is a comprehensive list of questions to assess a child's sleeping patterns over a 24-hour cycle.

The section on treatment of behavioral insomnia of childhood is also comprehensive, but written in a straightforward and logical progression of the various cognitive-behavioral techniques as they apply to children. Chapter 11 reviews the issues of psychiatric illnesses and sleep in children. It explains how children with a variety of mental health issues have higher rates of sleep problems. Included in the chapter are tables from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) that show the criteria for separation anxiety disorder, generalized anxiety disorder, post-traumatic stress disorder, and depressive and manic episodes.

Chapter 18 deals with adolescent sleepiness. The authors review the common causes of daytime sleepiness, including inadequate sleep hygiene and delayed sleep

phase syndrome. Also included are some of the more controversial issues, including the influence of early school start time on adolescents' performance and the effects of sleepy adolescents while driving or at work.

Chapter 19 reviews pediatric restless leg syndrome and periodic limb movement disorders. Included in the chapter is a one-page table with criteria for the diagnosis of restless leg syndrome in children: definite, probable, and possible.

Chapter 20, on narcolepsy, includes a comprehensive review of clinical manifestations (and how children's symptoms may be similar to or quite different than those of adults), and pathophysiology, with discussion of the hypocretin deficiency and autoimmunity. The references, including those related to medications for treatment, are up to date.

This book is meant to be a review of all pediatric sleep disorders, but there is a predominance of chapters on OSA. The information and references are up to date in most of the chapters. Perhaps what was most frustrating in reading this book was the inconsistency of the editing. For example, the chapters seemed to have a not-so-logical arrangement; the chapters on behavioral insomnia of childhood or psychiatric sleep disorders were randomly inserted among the

chapters on OSA. Second, some of the tables and figures acknowledged the reference or source from which they were adapted, but many did not. Some chapters had excellent illustrations or photographs (eg, tracings from polysomnography studies in the diagnostics chapter, or photographs of the children with congenital central hypoventilation syndrome), whereas other chapters included only text. There was inconsistency in the listing of investigators within the text (eg, John Jones, Jones, or Dr Jones), which at times was distracting and seemed to depend on the author's relationship to the investigator whose work they were describing. Finally, there were many typographical errors. In summary, **Clinician's Guide to Pediatric Sleep Disorders** provides up-to-date information for practitioners caring for children.

**Lynn A D'Andrea MD**

Department of Pediatrics

Division of Pulmonary and

Sleep Medicine

Children's Hospital of Wisconsin

Medical College of Wisconsin

Milwaukee, Wisconsin

The author of this review reports no conflict of interest.