

Shortage of pediatric sleep specialists puts onus on primary care doctors

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“Doctor, my child just won’t go to sleep” or “he is tired all the time” are two of the more common complaints that pediatricians encounter during their career. Despite spending more than one-third of our lives asleep, little formal education about sleep medicine and sleep disorders is offered in medical school or residency.

Sleep medicine is a growing field, with recognition by the American Board of Medical Specialties in 2007. Board certification is offered after completion of a one-year fellowship and passing a comprehensive examination. There are about 5,800 board-certified sleep specialists in the United States, but only about 270 are pediatricians. Therefore, it is vital for pediatricians to have a basic understanding of sleep physiology so they can offer initial assessment and management of common sleep complaints that present to their practice.

How much sleep is needed

In addition to a comprehensive medical history, the pediatrician will need to focus on sleep-related questions. These can be grouped into complaints related to problems with sleep quantity or quality. Understanding what constitutes normal sleep is an important starting point. Infants spend up to 16 hours per day sleeping. Their sleep requirement gradually decreases over the first two decades of life, until the typical eight hours of sleep is reached in adulthood.

The American Academy of Sleep Medicine recently published a consensus statement as to what should be considered a normal amount of sleep (Paruthi S, et al. *J Clin Sleep Med.*2016;12:1549-1561; Paruthi S, et al. *J Clin Sleep Med.* 2016;12:785-786), which was endorsed by the Academy:

- ages 4-12 months: 12-16 hours (including naps)
- ages 1-2 years: 11-14 hours (including naps)
- ages 3-5 years: 10-13 hours (including naps)
- ages 6-12 years: 9-12 hours
- ages 13-18 years: 8-10 hours

Sleep stages

Sleep is divided into non-rapid eye movement (NREM) sleep (about 75% of sleep) and rapid eye movement (REM “dream”) sleep. NREM sleep is further divided into Stages N1 (transitional), N2 (about 50% of sleep time) and N3 (slow wave or “deep sleep,” accounting for about 25% of sleep time).

NREM and REM sleep form a sleep cycle typically lasting from one to two hours, for four to six cycles per night. Between cycles, we awaken for a brief amount of time before entering another cycle. Should something prevent a child from entering the next cycle, he or she might fully awaken and then have difficulty reinitiating sleep.

Determining causes for this abnormal waking (behavioral vs. organic) is instrumental for correcting the problem. Inappropriate awakening from N3 sleep can be associated with confusional arousals, night terrors and/or sleep walking (parasomnias). Recognizing this pattern can lead to parental reassurance and appropriate interventions.

The development of good sleep hygiene (setting a proper sleep environment, consistent bedtime and regular wake time) often is key to treating behavioral sleep problems such as insomnia.

Sleep diaries are useful in supplementing the history provided by the family. Common behavioral sleep problems (sleep onset association disorder, sleep limit-setting disorder or delayed sleep phase syndrome) can be diagnosed with a detailed history and sleep diary, preventing the need for a polysomnogram.

Sleep quality

Once a child's sleep habits and schedule have been assessed, investigating sleep quality is indicated as poor sleep quality can influence wakefulness. This may manifest as daytime sleepiness, behavioral problems or academic difficulties.

The Academy recommends that routine child health screening include assessment for possible sleep-disordered breathing (Marcus CL, et al. *Pediatrics*. 2012;130:576-584). Common symptoms with which obstructive sleep apnea (OSA) can present include snoring, apneic pauses and restless sleep.

Medical history alone cannot distinguish between primary snoring and obstructive sleep apnea, though validated screening tests (such as the Pediatric Sleep Questionnaire: Sleep-Related Breathing Disorder Scale) may be useful. Ultimately, polysomnography is needed to distinguish between these two conditions. Primary snoring is common in children (incidence of 7%-10%), especially when tonsillar hypertrophy is at its peak (2 to 7 years old), while OSA is less frequent (incidence of 2%-4%).

The most common treatment options for OSA include adenotonsillectomy vs. continuous positive airway pressure therapy. In milder cases of OSA, watchful waiting is a reasonable choice (Marcus CL, et al. *N Engl J Med*. 2013;368:2366-2376).

Patients with disruptive sleep should be screened for restless leg syndrome (RLS). Effective treatment for RLS can improve sleep quality.

Excessive sleepiness in the presence of an otherwise benign medical and sleep history raises the concern for possible narcolepsy. While the diagnosis often is not established until a patient is in his or her 20s, historical data suggest that excessive sleepiness can develop in the first decade of life. Pediatricians, therefore, should consider this diagnosis in their differential for children with excessive sleepiness.

Finally, other illnesses that can interfere with sleep (such as poorly controlled asthma, allergic rhinitis or gastroesophageal reflux) should be identified and treated before one pursues further testing.

Given the small number of pediatric sleep specialists available, the primary care physician must be able to take a thorough sleep history and provide initial diagnosis and treatment interventions for children with

potential sleep disorders. Referral to a sleep specialist should be considered for more complex cases and/or if additional testing is indicated.

Dr. Kravitz is a member of the AAP Section on Pediatric Pulmonology and Sleep Medicine Executive Committee.

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