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By Kathryn J. Siranosian, M.S.

Researchers estimate that 50-70 million people nationwide suffer from either chronic or intermittent sleep problems, and the National Sleep Foundation reports that sleep deprivation and disorders cost Americans more than \$100 billion each year in property damage and personal injury.

Despite these statistics, though, the field of sleep medicine has only recently received formal recognition within the United States medical community. The first true scientific exploration of sleep began back in the 1950s, but it was only in 2005 that sleep medicine became recognized as an official medical sub-specialty. Now, larger academic institutions (including Brigham and Women's Hospital, one of the pioneers in the field) offer fellowship programs focused on sleep health, and consequently, starting in 2007, physicians will be able to earn the credentials "board certified in sleep medicine" from the same organization that certifies other specialists.

"The biggest change in the field over the past five years, or so, has been success in getting others to recognize the importance of sleep in overall health and quality of life," says Lawrence J. Epstein, M.D., President of the American Academy of Sleep Medicine, and

the Regional Medical Director for Sleep HealthCenters, a network of specialized sleep clinics located throughout eastern Massachusetts. "Before, sleep medicine was always associated with something else — you were a pulmonologist who was also interested in sleep, or a neurologist who also did sleep, for example.

"Now, though, there's recognition from within the medical community that there is a unique body of knowledge, and a skill set that requires additional training in order to practice sleep medicine. Sleep specialists, like those at Sleep HealthCenters, are the practitioners who are best trained and have the most knowledge to treat people with sleep disorders."

Over the past decade, research has shown that adequate amounts of sleep are fundamental for overall health. For instance, even small amounts of sleep deprivation can cause dramatic changes in metabolism, leading to hormone secretion and glucose utilization remarkably similar to the state of starvation.

"If someone is sleep-deprived, their body is actually stimulated to eat," Dr. Epstein explains. "That could be part of what's going on with the obesity epidemic that we're seeing across the country these days."

In addition, sleep deprivation can also compromise the immune system, diminish learning and memory, increase rates of depression and even reduce life expectancy.

"Several studies have recently come out showing that those people who sleep less actually have shorter life spans, independent of all the other health effects," Dr. Epstein says. "So, it's becoming clear that even just sleep deprivation can definitely affect overall health status."

Of course, for patients with chronic sleep disorders that cause sleep deprivation, these health problems are compounded. For instance, studies link sleep apnea with hypertension, heart attacks and stroke; likewise, insomnia has been shown to correlate with mental health conditions, like depression and anxiety.

"We spend one-third of our lives asleep, and it shouldn't be a surprise that things go wrong during it," Dr. Epstein explains. "Up until recently, people just looked at sleep as a period during which nothing happened, but now we know that's not the case. Sleep is actually a very dynamic state, during which lots of things occur."

Lawrence Epstein, M.D., reviews a sleep study in the Sleep HealthCenter affiliated with Brigham and Women's Hospital, located in Newton.





Sleep Technologist Kada Sun places electrodes on a patient in preparation for a sleep study.

In fact, he continues, sleep researchers have concluded that, rather than two states of being — wakefulness and sleep — there are actually three. A person is either awake, in REM sleep (rapid eye movement, or dream sleep) or in non-REM sleep (restful, slow wave sleep). REM sleep and non-REM sleep are two distinct phases of sleep, as different from each other as they are from wakefulness.

“There is usually a pretty reliable progression when you alternate between these different stages,” Dr. Epstein explains. “Different things happen in terms of body controls, hormone secretions, the status of the body, etc. Sometimes, that progression is interrupted, and then, sleep patterns are disturbed.”

As a longtime member and current President of the American Academy of Sleep Medicine, Dr. Epstein has been involved in the organization’s efforts to promote recognition of the field of sleep medicine, set clinical standards for the field, promote research in sleep science and improve sleep education for medical students, residents, fellows and established practitioners as well as the general public. The AASM is the professional organization for sleep specialists, with more than 5,500 members and 900 sleep centers, and sets the clinical standards for the field through publication of peer-reviewed journals and practice guidelines and accreditation of sleep centers.

Unfortunately, up until recently, sleep problems weren’t usually addressed when patients visited their primary care physicians. Historically, Dr. Epstein says, doctors have not been trained to make inquiries regarding sleep. Plus — adding to the silence, so to speak — patients used to think that sleep problems weren’t important enough to mention.

“But, now, all that’s changing,” he continues. “Today’s general public is becoming more aware that sleep can have a profound impact on health, and doctors are learning to approach sleep like they do any other health measures. We know that sleep is as important as diet and exercise, and doctors need to present it that way.”

It is also important for primary care physicians, and their patients, to understand that now there are effective methods available to treat sleep disorders. In particular, Sleep HealthCenters offers diagnostic testing services, sleep medicine clinics, CPAP management programs (see inset), behavioral sleep medicine programs and dental sleep medicine programs.

Improved CPAP Compliance Achieved Through Counseling, Education and Follow-Up

Obstructive sleep apnea (OSA) is a common sleep disorder characterized by repetitive collapse of the upper airway during sleep, resulting in sleep fragmentation and episodic oxyhemoglobin desaturation. Typically, the clinical consequences of OSA include excessive daytime sleepiness and cognitive impairment. However, recent studies have also linked OSA with more serious health concerns, like hypertension and other forms of cardiovascular disease.

Fortunately, nasal continuous positive airway pressure (CPAP) has been shown to be an effective treatment for OSA, reversing symptoms, and even improving systemic hypertension and cardiac function. The CPAP mask uses air pressure as a pneumatic splint to prevent collapse of the airway during sleep.

“CPAP therapy has proven quite effective in treating sleep apnea,” says Lawrence J. Epstein, M.D., of Sleep HealthCenters. “The problem that we’ve seen, though, has been with follow-through, getting patients to use the therapy reliably.”



As a result, Sleep HealthCenters has developed a unique program designed to improve CPAP compliance. Their multidisciplinary approach involves physicians, nurse practitioners, respiratory therapists and other sleep specialists who offer intensive patient counseling, education, monitoring and follow-up.

“There are a variety of CPAP mask and equipment styles on the market now, and it’s critical that we take the time to best fit the patient with the one that’s most comfortable for them,” Dr. Epstein says.

After the initial set-up, the patient returns for a follow-up visit one week later to review their comfort, compliance and any side effects (typically congestion and rhinorrhea). Then, patients meet with members of their CPAP team at intervals of one month, three months, six months and one year. Additional appointments are scheduled, as needed.

“Some sleep disorders, like sleep apnea, are chronic diseases,” Dr. Epstein says. “Sometimes, they can’t be cured. But, they can be managed. At Sleep HealthCenters we have the expertise and the follow-through to help patients get the good night’s sleep they need.”

Sleep HealthCenters are located throughout eastern Massachusetts in Newton, Boston, Jamaica Plain, Bedford, Malden, Beverly, Weymouth and Worcester, and the network includes affiliations with Brigham and Women's Hospital, Beth Israel Deaconess Medical Center, Faulkner Hospital, McLean Hospital and Hallmark Health.

"Our facilities are staffed by experts in the field of sleep medicine, including physicians, dentists, respiratory therapists and sleep technologists, and we use the most advanced procedures and equipment available to diagnose and treat our patients," Dr. Epstein says.

Once people fall asleep, they don't hear the snoring, they don't see the gasping for air, they don't see the thrashing around that can happen.

— Lawrence J. Epstein, Regional Medical Director, Sleep HealthCenters

At the first appointment, each Sleep HealthCenter patient is seen by a sleep specialist, who conducts a comprehensive preliminary evaluation, including both a physical exam and an extensive history focused on sleep behaviors. For some patients, this initial assessment is sufficient for diagnosis, and treatment can commence immediately. Patients with insomnia, for instance, may benefit from behavioral modifications, like changes to their bed-time routines. Another common sleeping disorder, restless leg syndrome, is also usually recognizable in the initial assessment, and this condition can be effectively treated with prescription medication.

Some other sleep disorders, however, aren't quite as apparent, or may need further characterization. These patients are asked to participate in an overnight physiologic study called a polysomnogram (PSG).

Members of the clinical team at Sleep HealthCenters include, rear (l to r): Elise Franko, M.S., RPSGT, Regional Lab Manager; Paula Martineau, CRT, CPAP Counselor; Paul Urman, CRT, CPAP Counselor; Kada Sun, RPSGT; Larry Lockerman, D.D.S., Oral Appliance Specialist; front (l to r): Anjali Patwardhan, M.D., Staff Physician; Lawrence J. Epstein, M.D., Regional Medical Director; Margaret Trussler, APRN, BC, Nurse Practitioner.



PHOTO BY DEBRA TROYANOS

"When a patient undergoes a sleep study, we're able to accurately diagnose sleep apnea or, perhaps, a movement disorder," Dr. Epstein explains. "A disorder like this can fragment the patient's sleep, but they don't even know it's happening. Once people fall asleep, they don't hear the snoring, they don't see the gasping for air, they don't see the thrashing around that can happen. Usually, it's the bed partner who tells them that something is going on, or that they're not as vital and energetic as they used to be."

The sleep "labs" at a Sleep HealthCenter are actually more like comfortable hotel rooms than clinical-style hospital rooms, so even though patients are outfitted with an array of electrodes, Dr. Epstein says they generally feel relaxed enough to easily fall asleep. Then, their sleep behavior is monitored by both video cameras and the electrodes, each of which is positioned to measure a certain parameter, like brain activity, air flow, eye movement, heart activity, oxygen saturation, vibration of throat (to detect snoring episodes) and limb movement.

The first line of therapy for sleep apnea is nasal continuous positive airway pressure (CPAP), and most sleep apnea patients can get a CPAP mask assessment the same night as their PSG.

"We want to get these patients started on their treatment as soon as we possibly can, and when they can try the CPAP device during the sleep study, our technologists can calibrate it to the correct air pressure," Dr. Epstein says.

Following a comprehensive overnight sleep diagnostic study at Sleep HealthCenters, patients can enjoy a complimentary continental breakfast, and then leave the facility to continue with their normal activities. At a later date, patients return to meet again with their sleep specialists, so that, together, they can review the PSG results and plan a personalized treatment protocol. The specialists at Sleep HealthCenters work with the patient throughout the entire process, providing comprehensive follow-up services that assist with therapy compliance.

"The amount of sleep needed varies from person to person, but the vast majority of people require seven-and-a-half to eight hours of sleep," Dr. Epstein says. "The bottom line is that if you don't meet your individual sleep needs, you'll be sleepy, and you're potentially compromising your health, as well."

It's especially challenging in today's hectic "24/7" world, but people need to respect the human body's fundamental need for sleep, Dr. Epstein concludes.

"People have to recognize the importance of sleep and give it its due," he says. "It's not something you can train yourself not to need. It's a basic biological drive, just like eating and drinking. If you don't eat, you're going to get hungry. If you don't drink, you're going to get thirsty. And, if you don't sleep, you'll be tired." ■