

Sleep Review[®]

THE JOURNAL FOR SLEEP SPECIALISTS

Our annual profile of some of the industry's top sleep doctors and facilities

BEST *of* 2012

SLEEP DOCTORS AND FACILITIES

A national directory of sleep doctors committed to excellence.



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Inventing the Future of Sleep Medicine

BY TINA PAGE

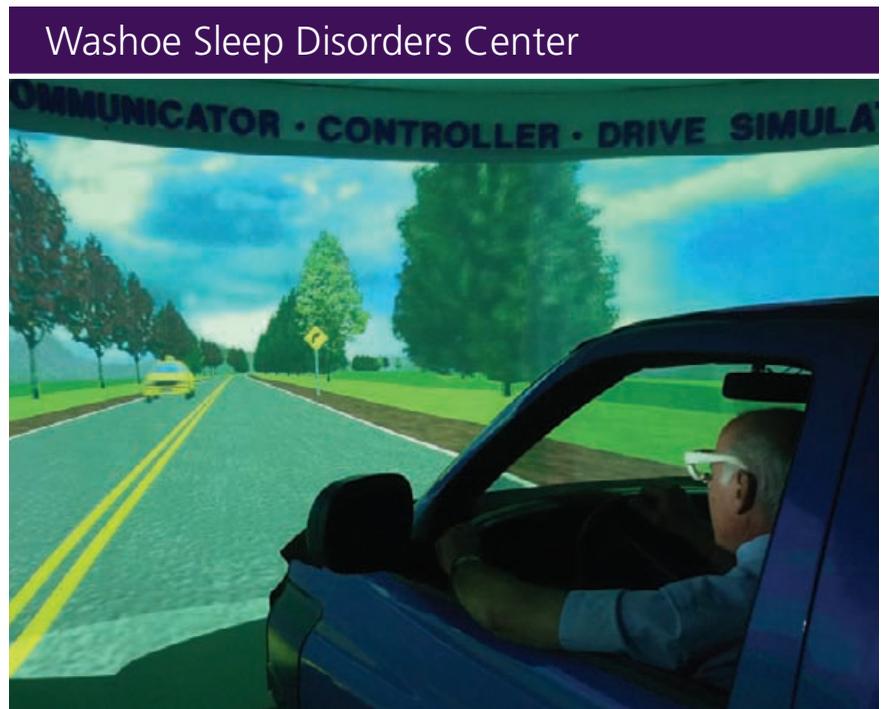
Sleep professionals at Washoe Sleep Disorders Center are exploring how sleep deprivation affects cognitive abilities and neurological disorders. Using the Eye-Com™ Biosensor, Communicator and Controller eye-tracking system, developed by William Torch, MD, researchers are gaining insights into yet another fertile area of sleep research.

Heart and lung specialists have increasingly focused on the consequences of poor sleep, but what about brain researchers? For neurologist William Torch, MD, the sleep/brain connection is a chief area of concern, and that interest has simmered since the early days of sleep medicine.

When Torch came from New York City to Nevada in 1979 to join the Pediatrics Department at the University of Nevada School of Medicine in Reno, he became the Silver State's first pediatric neurologist. In addition to his MD from the University of Rochester School of Medicine, he brought credentials as a researcher with an MS degree in biochemistry.

EVOLUTION OF A SLEEP DOCTOR

During his neurology residency in 1974, Torch met Dr Elliott Weitzman, chairman of neurology at the Albert Einstein College of Medicine, sparking a lifelong dedication to sleep medicine research. Torch had always been intrigued with the curious EEG brain waves associated with pediatric and adult sleep states, especially Weitzman's pioneering research on rapid eye movement (REM) and the mysteries of sleep neurophysiology, also being explored by Dr William Dement at



Stanford University.

At the time, sleep medicine was a "dark science" and few doctors recognized the importance of sleep in daytime functions. From that point on, Torch and sleep medicine would unwittingly cross paths, resulting in many research innovations. Once settled in Nevada, Torch started the Neuro-Developmental & Neuro-Diagnostic Center (NDC) as a multidisciplinary clinic treating neurological disorders, and performing regular and 24-hour ambulatory and quantitative EEGs on children and adults with attention deficit disorder (ADD), epilepsy, sleep, and other neuropsychiatric disturbances, while also serving as the medical director of the Northern Nevada Muscular Dystrophy Association clinic.

Torch and sleep medicine began traveling the same path after a fortuitous 1984 meeting with experimental psychologist Dr John Zimmerman, who had previously worked in a Colorado sleep lab. When Zimmerman offered to start the first sleep disorders clinic in Reno, Torch agreed, and the Washoe Sleep Disorders Center (WSDC) was born. The venture brought sleep medicine and neurology under one roof, while laying the groundwork for Eye-Com Corporation (ECC) in 1998.

HUMBLE BEGINNINGS

Torch and Zimmerman started the WSDC from scratch with the support of the Washoe Medical Center, which provided space for a one-bed sleep lab. Together, they built their own primitive sleep recording polysomnographic equipment, attaching a camera to a makeshift paper tracing EEG machine that they lugged around the hospital, while performing less than five inpatient polysomnograms (PSGs) each month. "It was an expensive joke," Torch says, and "when we started a sleep medicine grand rounds teaching program, we also found that no one believed in sleep medicine as a discipline, and only a few would come."

Nevertheless, after 3 years the lab was performing about five to 10 inpatient sleep studies per month. By 1994, the WSDC had grown into a two-bed lab performing 20 to 30 inpatient and outpatient sleep studies each month.

Soon afterwards, it received its first 5-year accreditation from the American Academy of Sleep Medicine (AASM), with three more 5-year reaccreditations to come. Torch finally moved the NDC/WSDC into its new four-bed facility in the Renown Center for Advanced Medicine, while gradually

expanding its staff of two to 12, including the Lab Director, Dr Paul Saskin, six board-certified sleep and EEG technicians, and two nurse practitioners. The NDC/WSDC now accommodates more than 400 patient visits and performs 70 to 90 sleep studies each month, with expectations of doubling in size over the next 2 years. In recognition of his Nevada accomplishments, Torch was elected as the first president of the AASM-sponsored Nevada Sleep Society.

EVOLUTION OF AN INVENTOR

Torch wears three hats as a clinician, researcher, and inventor, and he has dreamed up a number of sleep-related inventions during his own REM sleep. This included the Sleep Manager™—a hardware and software calculating system (soon to become an Apple App), which can help prevent jet lag and shift work fatigue, and the Eye-Com™ Biosensor, Communicator and Controller.

Torch's goal has always been to deploy new technologies to help neurologically disabled children and adults with progressive neuromuscular disorders such as muscular dystrophy or ALS, as well as more static conditions like cerebral palsy, stroke, and traumatic spinal cord or brain injury, to achieve independence and freedom of movement.

Torch's vision to help such victims materialized in 1998, when asked to consult on a young man named Glen, who awoke from a coma on a ventilator in an ICU, following a

stroke to his cervical spinal cord—the result of viral encephalomyelitis. The condition left him totally quadriplegic. “The only way he could communicate was to move his eyes and blink once or twice in response to yes/no questions ... and cry,” Torch says. “The patient was in a near locked-in-state.

“I went down to Radio Shack and bought about \$2.50 worth of IR emitter-detectors and electronic components and built a blink detector, now known as Eye-Com 1 (EC-1). I figured that if I could capture the short and long blinks of this unfortunate fellow, convert them into computerized Morse code dots and dashes, and then into text on a computer, this would give him the gift of communication with loved ones and caretakers. Thus, the passion to develop the Eye-Com as a Biosensor, Communicator and Controller stepped out of my neurology practice.”

After creating the EC-1 “blinkometer,” Torch realized that the simple device that helped Glen could be modified to help other paralyzed individuals with different degrees of disability as well, and at the same time it could be used to identify the long and short blinks and other oculometrics associated with drowsiness and microsleeps for use in transportation and industrial safety applications.

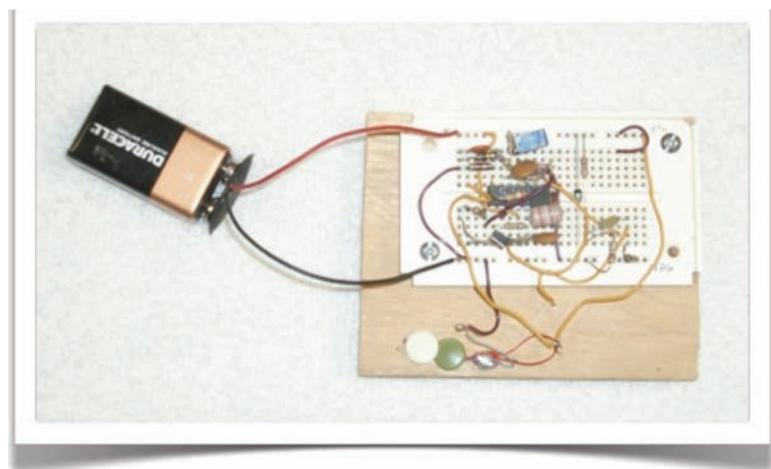
REINVENTING SAFETY BEHIND THE WHEEL

EC-1 incrementally evolved through a series of progressive EC-2 through EC-7/8 iterations, as a Biosensor, Communication and Controller

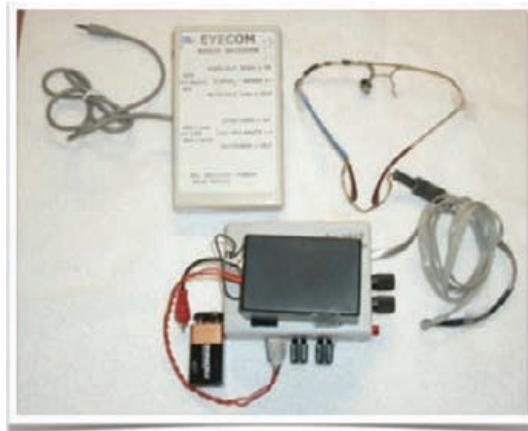
device and technology, to its current to-be-commercialized EC-8 HawkEye Model. Torch's passion for invention, and love for teaching, won the respect of his colleagues in the Nevada Inventors Association (NIA), and he was soon elected as NIA vice president, and then president.

While NIA president, his EC-4 system was featured in *Forbes ASAP*, in an article titled “The Inventor Next Door.” Because of the Eye-Com research he had been doing, he was then invited to a “New Technologies in Driver Vigilance Conference” sponsored by the American Trucking Association (ATA) and US Department of Transportation (USDOT) in Washington, DC. By that time, EC-4 had evolved to the point that it could transmit drowsy blink signals through walls by RF telephonic and satellite connections, trigger local audible alarms for emergency responses, as well as connect by wired or wireless connection with EEG and PSG machines in the vicinity, or to remote receiving or monitoring stations 3,000 miles away, as it did in Cambridge, Mass, by setting off eye-blink triggered Lifeline alarms at that site. Operating as a drowsiness detector that could alert a sleepy driver, EC-4 could also, as a communication-controller device, be used to type messages on a computer screen by purposeful eye blinks.

Torch brought his EC-4 to the conference where he was first introduced to the term “PERCLOS,” an acronym for the percentage of time one's eyes are closed over a period



EC-1



EC-4



of time. Torch instantly realized that he had, without awareness, already created a wearable, wireless PERCLOS-monitoring eye-blink Biosensor, Communicator and Controller. The PERCLOS algorithm had been developed by other researchers in the sleep and transportation safety field, out of video analysis of a sleepy driver's eyes in a research driving simulator. Soon thereafter, the PERCLOS metric was announced by the USDOT as the best bio-physiological measure of drowsiness available, even over EEG, Torch says.

At the conference, Torch met colleague Col Michael Russo, MD, a neurologist who was to become a section chair of the AASM Sleep Deprivation Committee. Russo immediately recognized that Eye-Com technology could contribute to solving the problem of soldier and military truck drivers falling asleep on long truck convoys, as had occurred during Desert Storm operations, or of army helicopter pilots falling asleep at the controls of a multimillion-dollar Black Hawk or Apache helicopter.

After attending the conference, Torch realized that there were other ocular manifestations relating to sleepiness and arousal, where, for example, slow downward lid movements might indicate gradual falling asleep, while a sudden upward eyelid movement might signify an arousal or startled response. He also realized that the rate and diameter size change of a pupil was important as a predictor of progressive drowsiness where, as shown in experimental pupillometry studies, the sleepier you become, the smaller and less reactive your pupil gets over time.

Based on these realizations, Torch went on to develop the EC-5, which could measure PERCLOS and upward and downward lid velocities. Next, by attaching two Eye-Com "micro-endocameras" to an eye-frame, one below and aimed at each eye, and a single "exo-camera" aimed forward from the nasal bridge just above the nose, he could monitor pupils, eyeball movements, and



William Torch, MD, wearing EC-7/8



EC-7

gaze characteristics as well. These were the oculometrics that might be associated with microsleep intrusions, brain fog, and tunnel vision.

One year later, Torch was invited to another USDOT-sponsored conference on driver vigilance that spurred him to create the "ideal sleep detection and safety response device." During that 1-year interval, the USDOT had realized the importance of eye movement and gaze, announcing a second follow-up conference called "New Ocular Technologies in Driving

Vigilance." This time the NDC/WSDC and Eye-Com Corporation came, not as a spectator, but as a participant, displaying its ground-breaking technology in a booth next to that of another company, Real Time Technology, which was looking for a device that could trigger their proprietary tactile race-car seat to vibrate a person awake. The match "made in heaven," Torch says, resulted in an EC-6 vibrating seat that was eventually installed into a Dodge-Ram Eye-Com truck simulator that was built over the next year in the WSDC.

FUNDING THE FUTURE OF SAFETY

While Torch was serving as NIA president, he also was told of an upcoming Phase I Small Business Innovation Research (SBIR) Solicitation Grant sponsored by the Centers for Disease Control and Prevention (CDC) Division of Accident and Injury Protection. The solicitation called for new technology that could: 1) identify drowsiness; 2) call for emergency assistance for elderly individuals; and 3) assist in the neuro-rehabilitation process of those injured in an accident.

Realizing the “hand-in-glove” fit of EC-6, he applied for the grant, and on what Torch calls a “magical day,” September 10, 2001, he was awarded the \$100,000 grant to further develop and validate the Eye-Com 6 for the defined SBIR Tasks. ECC successfully completed the CDC SBIR Phase I Grant within a year, demonstrating that a wired or wireless EC-6 could clearly identify and respond to the drowsy oculometrics of sleep-deprived subjects with sleep apnea or narcolepsy, and normal controls, in a simple desktop computer drive simulator program called Steer Clear.

In that CDC study, it was shown that the PERCLOS measurements of sleepy subjects tested in that 24-hour sleep deprivation study had the same eye characteristics as patients previously diagnosed with ADD and attention-deficit hyperactivity disorder (ADHD). This led to Torch’s conviction that ADD/ADHD may, in many cases, be the “functional expression” of underlying states of sleepiness associated with the growing epidemic of insufficient sleep in the United States—in both the civilian and military worlds. According to military professionals, long hours on duty, and missions associated with sleep deprivation, are the rule—and frequently the cause of irritable or aggressive behavior, road rage, and human factors-related performance-vigilance failures leading to the unwanted consequences of friendly fire and collateral damage, Torch says. With these considerations in mind, the Department of Defense (USDOD) invited the WSDC and ECC to apply for a US Army-sponsored 2003 Phase I \$75,000 SBIR Grant, and as before, the two were once again awarded.

During the Phase I study conducted in 2004, ECC refined the EC-6 and developed Eye-Com Eye-See™ oculometric software that could be used to study the eyes of drivers and pilots in a more advanced desk-top STISIM Drive simulator installed in the WSDC/NDC. It was demonstrated that Eye-See™ had the potential of tracking more than 30 different eyelid, eyeball, and pupil movements, including PERCLOS, in real time as well as from previously recorded video of an EC-6 wearer’s eyes. During the Army Phase I study, EC-6 was deployed within a full immersion UH-60 Black Hawk helicopter flight simulator at Ft Rucker, Ala, and the US Army Aeromedical Research Laboratory Engineering Directorate approved its use in further real and simulated helicopter studies.

Upon completion of Phase I study, Torch, as principal investigator, was invited to apply for a follow-up \$750,000 US Army Phase II SBIR Grant to further develop the EC-6 as a Soldier-Mounted Eye-Gaze tracking technology, which could be incorporated into glasses worn under pull-down masks and visors, as well as attached to night-vision scopes and goggles, or physically incorporated into head-mounted displays and scuba masks.

Upon receipt of the award, the WSDC and ECC began to take center stage with a full immersion Eye-Com Drive Simulator within the WSDC. “I brought in a Dodge Ram

truck,” Torch says, “sliced it in half, took out the guts, brought the two halves up in an elevator to the seventh floor facility, put it on a wooden frame, built a wrap-around screen around it with three projectors, and integrated the EC-6-Com with other biophysiological recorders, including EEG, into the Eye-Com Truck Drive Simulator to monitor drowsiness and effects of sleep deprivation on patients with sleep apnea, narcolepsy, and ADD, and normal controls with no sleep disorder.”

During this Institutional Review Board-approved 24- to 36-hour sleep deprivation EC-6 Drive Simulator study, all subjects demonstrated worsening performance in six successive testing sessions, administered every 6 hours, over the 36-hour sleep deprivation period. In each of the six successive sessions, there were progressive increases in EC-6 generated Eye Blink Frequency, Eye Blink Duration, and PERCLOS oculometrics, which correlated with increasing drowsiness and micro-sleeps, along with decreasing attentiveness, increased numbers of errors of omission and commission, and slower reaction times to stimuli, all consistent with ADD/ADHD symptomatology. As in real life, untreated narcoleptic subjects were the most impaired of the four groups, also showing the worst ADD scores.



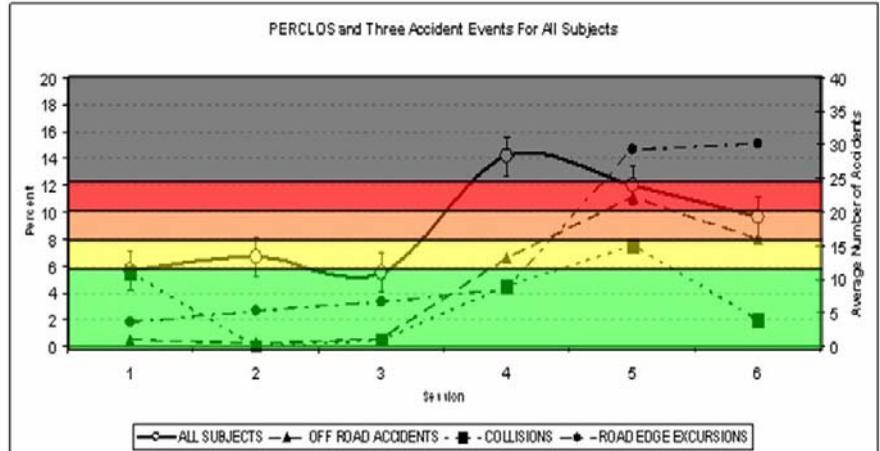
Artistic rendition of EC-9



For all groups, EC-6 drowsiness oculometrics were linearly correlated with progressive performance-vigilance decline as documented by proportional increase in drive simulator crashes, center line and road edge excursions, and erratic braking and driving. Circadian changes also were noted, with "second wind" recovery on the sixth testing session for all groups. The findings were consistent with police-reported transportation accident statistics and observations, where most of the simulator accidents occurred in the early morning hours, when driving performance is most impaired in real world driving. Because of its successes under the Federal CDC and US Army's SBIR Program, ECC and Torch were awarded the coveted National Tibbetts Award in 2006, with further acclaim in the September 2006 Congressional Record. This was followed by receipt of a 2008 Nevada Entrepreneurship Award for Medium Sized Business.

Another EC-6 study funded by the National Highway Traffic Safety Administration Heavy Truck Division of the USDOT and the USDOD included a head-to-head comparison of the wearable EC-6's PERCLOS-measuring capabilities with Co-Pilot, a dashboard-mounted eye-tracker. The comparative study performed in the Eye-Com Dodge Ram simulator conclusively demonstrated EC-6's superiority as an unobtrusive wearable eye-frame, which was capable of operating in very demanding environments, as, for example, where the movement of the trucker in a cab might confound a fixed, dashboard-mounted eye-tracker as it loses contact with the driver's face and eyes, or when the driver is looking away from the dashboard-mounted camera, or wearing obtrusive glasses causing unwanted glints, Torch says.

One of the many innovations to come out of the combined USDOD/USDOT-sponsored study was a new mathematically derived Eye-Com Composite Oculometric Fatigue Index (COFI) and an Eye-Com COFI Safety Response Algorithm, which could trigger



The Eye-Com COFI™ Safety Response Algorithm showing drive simulator accidents as a function of Eye-Com generated PERCLOS oculometrics in subjects with OSA, narcolepsy, and ADD and normal controls, who were tested every 6 hours over a 36-hour sleep deprivation period.

audible or tactile alarms of increasing intensity dependent on the degree of sleepiness (eg, mild, moderate, severe) as measured by increasing PERCLOS and longer eye-blink durations associated with drowsiness-impaired driving. The Eye-Com COFI Safety Response now has the potential to be used in the real world to alert a sleepy operator or passengers in the vehicle, to alert surrounding vehicles in danger, or, for that matter, a dispatcher or air controller at a remote monitoring site, to prevent a fatal accident.

A VISION TAKES SHAPE

The EC-6 has evolved into the EC-7 and a futuristic EC-8 to be released this year for Augmentative and Alternative Communication (AAC) applications to help any individual with any degree of disability, whether totally or partially paralyzed. Making all of this possible is EC-7 and EC-8's newest eye-gaze capabilities, integrating binocular Eye-Com endo-camera eye movement with Eye-Com exo-camera head-pose coordinates, allowing the wearer to control a computer cursor by "point and drag" Eye-Mouse™ as well as purposeful eye-blink or eye-dwell functions, which can be used in combination with scalable "click activation" by any functional body part (eg, finger, hand, foot, face, or mouth, etc).

As has already been demonstrated, the EC-7 and future HawkEye EC-8 model, designed to help ALS-afflicted individuals

such as Professor Stephen Hawking, will allow users to virtually control any off-the-shelf or specially designed AAC software programs using typing, text, and speech generating keyboards, and an infinite number of software programs.

"Perhaps by reversing the sleep deprivation epidemic that is universal in scope," Torch says, "we can reverse the unnecessary dependence on stimulants and sleep medications and also drastically reduce the number of near-fatal accidents—the cause of millions of disabling injuries world-wide."

If you or your company is interested in integrating the Eye-Com technology in your own research applications, or have interest in becoming a beta test site for the new Eye-Com or Sleep Manager technologies, please contact Eye-Com Corporation or William Torch at (775) 329-2006. For more information, please visit the ECC Web site: www.eyecomworld.com.

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Prabhat Soni, MD, FCCP, DABSM

Sleeping Giants

BY RENEE DIJULIO

Prabhat Soni, MD, FCCP, DABSM, tackles issues of awareness and screening in sleep medicine in the United States and India.

Sleep physicians like Prabhat Soni, MD, FCCP, DABSM, a top doctor in sleep medicine today, are well aware of the importance of sleep. "Poor sleep can lead to a higher risk of disease, including diabetes, high blood pressure, and obesity," Soni emphasizes whenever asked. Unfortunately, however, many primary care physicians and even more patients are unaware of the many health problems associated with poor sleep—and may not even think to ask.

"Patients don't know about sleep apnea, and if they do know about it, they don't want to go to the doctor. But even if they do go to the doctor, many primary care physicians are not aware of the seriousness of sleep apnea," Soni says.

Soni has made it a mission to turn this situation around, not only here in the United States, but also in his native country of India. Recognition for his work has landed him among *Sleep Review's* honorees 2 years in a row and garnered accolades from the NRI (Non-Resident Indian) Society of India. On a recent trip to India, Soni was honored by the NRI Welfare Society of India with a Hind Ratan Award and NRI of the Year 2012.

The attention is useful in generating and maintaining momentum for his mission. On that same trip, while in New Delhi, Soni's hometown (and the country's capital), he met with the core team of President Smt Pratibha Devisingh Patil to discuss the issues surrounding sleep and how to expand the



field of sleep medicine within the country. His work and interviews were aired during Indian news programs highlighting his efforts to diminish the impact of sleep disorders; additional audiences were captured with online versions.

Soni is driven to help others by a desire that started close to home, with a family history suffering its own impact from sleep disorders. His grandfather had multiple health problems, which Soni now believes were related to sleep apnea. "He snored so much my grandmother would sleep in another room," Soni recalls. But no one associated his sleep problems with his hypertension, diabetes, or strokes.

The connection between sleep and mortality was more evident for another family member who fell asleep behind the wheel and crashed. The accident occurred while Soni was studying medicine, and he gravitated to the still growing field.

Today, Soni loses sleep trying to fix the slumber of others. His methods reflect some growing trends in the industry (eg, one-stop shopping and a modernized sleep lab) as well as new directions (a broader focus and team approach). And his efforts spare no one: whether a patient is rich or poor in New York City or New Delhi, Soni will find a way to get everybody a good night's sleep.

WORKING TOWARD A FIFTH BOARD

Soni has been practicing medicine in the United States for more than 20 years. After obtaining his MD from Sardar Patel Medical College in Bikaner, India, he completed his board certifications in chest and TB at the VP Chest Institute and in diagnostic radiology at Safdarjung Hospital in New Delhi.

He relocated to New York in 1989, completing residencies in pediatrics/medicine at Lincoln Medical Center in the Bronx and internal medicine at Kingsbrook Jewish Medical Center in Brooklyn. Fellowships followed: one in pulmonary medicine at Cabrini Medical Center in New York and one in critical care medicine at Maimonides Medical Center in Brooklyn.

Today, he is quadruple board certified by the American Board of Internal Medicine in sleep, pulmonary, critical care, and internal medicine and is working toward a fifth board certification in bariatrics. He expects to take the exam in November and is currently completing a fellowship in bariatric medicine. His goal is to expand his understanding regarding obesity and sleep apnea.

Just as he has multiple boards, Soni also has multiple roles. He is chief of the pulmonary department and co-chair of the intensive care unit at New York Community Hospital (NYCH) of Brooklyn; he is affiliated

with Beth Israel Medical Center in New York City and New York Methodist Hospital in Brooklyn; and he is an assistant clinical professor at Weill Cornell Medical College in New York. He directs four sleep centers, including his own sleep and pulmonary practice, which is located just outside of NYCH of Brooklyn and has been in business since 2000.

EXPANDING PRACTICE PARAMETERS

In the past year, Soni has not just expanded the number of sleep clinics he manages but also the scope of his practice. A main focus remains on drowsy drivers, but he has extended his services to the pediatric patient population, typically 8 years of age and older. "A lot of pediatric sleep apnea is related to large tonsils, and my excellent ENT team knows how to take good care of them," Soni says.

In fact, Soni has a multidisciplinary team he can call on whenever a specific need arises. The group includes an ENT, a bariatric surgeon, cardiologist, neurologist, pediatrician, psychiatrist, sleep dentist, translators (Chinese, Hindi, Spanish, and Russian), and a psychologist, who can offer cognitive behavioral therapy. "They are all available if somebody has a problem, so we can address the issue right away," Soni says, noting each one is an expert in their field.

If, however, the team lacks a certain expertise, Soni's clinic is located next to NYCH of Brooklyn with its wealth of resources nearby. Of course, Soni's four board certifications make him a unique asset as well. "In the management of sleep apnea, comprehensive and total care is important. When somebody comes in with sleep apnea, I look at everything from head to toe," Soni says.

Soni prefers to supervise patients himself when possible and typically stops by nightly during sleep studies after finishing up at the hospital. "If I can find the problem right then, we can begin treatment sooner," Soni says.

State-of-the-art equipment helps to diagnose sleep disorders, including employing home-testing devices. Once a patient is diagnosed, Soni will work to

create a plan that is effective for the patient from all perspectives: diagnosis, compliance, and budget. For instance, when appropriate, dental appliances are prescribed and made. Soni also has created a weekly insomnia clinic that helps to target this large but niche population, while weight loss programs have been developed to help obese patients slim down.

DEVELOPING EXPERTISE IN BARIATRICS

Soni's focus on sleep-related bariatric

disorders has grown with his knowledge of bariatric medicine. His Web site (www.sleepstobeslim.com) notes that patients enjoying fewer than 10 hours of restorative, deep sleep a week could see a weight gain of almost 20 pounds over the course of a year. To properly diagnose overweight patients, Soni will review diet and medications as well as check thyroid function, endocrine function, and metabolic rate along with the sleep study.

Treatment can include a medically supervised weight loss program that will





[facing sleep medicine today] is that sleep apnea is becoming epidemic because of the increase in obesity," Soni says.

CREATING AWARENESS ABOUT SLEEP

One solution, he strongly believes, is awareness, so Soni reaches out on multiple levels.

He conducts seminars regularly within the community, for both primary care physicians and patients. His PowerPoint presentation has seen the insides of physician offices, community centers, and churches.

Soni continues to run newspaper and television advertisements, although he is currently updating his on-air commercials. His shocking drowsy driver commercial has run its course. In 2011, he ran it just twice a month. The new version will be modified to allow it to run during daytime hours, while two new commercials with different angles will be added to the roster.

A new Web site showcases Soni's embrace of bariatric medicine: www.sleep Tobeslim.com blends obesity concerns with education on sleep disorders in general. Topics include sleep disorders (including sleep apnea) and their impact along with statistics and tips. Videos and bullet points deliver short but effective messages.

The home page features a questionnaire designed to quickly identify whether a person may have a sleep disorder; the television commercials and newspaper advertisements also provide a quick quiz and call to action. Internet responses or phone queries receive an immediate follow-up from Soni or a member of his team.

The goal is to determine who is at high risk for a sleep disorder and then to properly evaluate those patients who fall into this category. "We can quickly set up an appointment for a sleep screening. If it's mild, they can be home tested. If it seems more serious, they can come into the sleep clinic. Awareness and screening—these two things are important right now," Soni says.

be backed by a guarantee. Pending patient preferences, components can include meal supplements, replacements, and/or diet regimens. Patients who follow their programs and complete their check-ins (where they meet with a bariatric specialist on the team) will have their money refunded if they do not lose weight within the first 6 months.

Soni feels the growing numbers of obese people are contributing to the rising incidence of sleep apnea. He is currently undertaking a 6-month study that will look at the relationship between metabolic syndrome and sleep in morbidly obese patients. "One of the biggest challenges



TAKING THE MESSAGE ABROAD

Awareness and screening are also two issues Soni would like to tackle in his native India. The population in the United States numbers more than 313 million people; Soni estimates 50 to 70 million are affected by a sleep disorder. More than one sleep association has been established, including the American Academy of Sleep Medicine (AASM), founded in 1975 (as the Association of Sleep Disorder Centers).

Compare these numbers to India, where the population numbers more than 1 billion. Although no clear statistics exist on the prevalence of sleep disorders in the country, a similar ratio would indicate 159 to 224 million people could be impacted. Today, however, this population is not likely to be treated.

Sleep medicine is still relatively new to the nation. Two of the field's prominent associations were founded in the 1990s; the Indian Sleep Disorders Association (established in 1995) boasts more than 200 members, a healthy number for a new organization but allowing room for growth.

During his meeting with the Indian president's team, Soni discussed how the growing sleep epidemic, which is aggravated by obesity, comes at a high economic cost and with serious public health concerns.

"Diagnosing and treating sleep problems will save money and lives and create a huge market for new jobs in India," Soni says.

Soni aims to increase awareness in the Indian patient population and medical community through education, with a focus on distance learning for physicians and technicians. Soni believes the method can be designed to work internationally as well as domestically. He has opened a school, called New York Sleep School International, to offer both Internet education and hands-on training to help sleep professionals improve their skills.

The school is expected to begin A-STEP classes in the second quarter of 2012 (likely April). Members of the faculty include Satyasagar Morisetty, MD, board certified in sleep medicine, and Robby Williams, RRT, RPSGT. Soni's wife, Rita Carpenter Soni, PhD, RPSGT, who is currently finishing a post-master certification in sleep disorders at the University of Massachusetts Boston, is the school's director.

The institution will train overseas students on sleep technology, including physicians who want to learn the specialty. "Students can come to New York for 2 to 6 weeks to get an introduction and expert hands-on sleep tech experience through webinars, books, and videos," Soni says. He believes

the growing knowledge base in sleep technology along with its implementation in the screening, diagnosis, and treatment of patients not only will improve patient health but also will create a new job market. "I prepared an abstract for the President of India on the potential that the sleep medicine market has to help reduce unemployment while improving population health," Soni says.

It answered questions the average patient wouldn't think to ask and helped to deliver a positive message regarding the importance of sleep. The attention is welcome for a physician dedicated to increasing awareness about a little understood field that matters to everyone, everywhere.

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Academic Profile: East Carolina University

The Team Approach

BY GREG THOMPSON

Under the leadership of Sunil Sharma, MD, DABSM, the East Carolina University Sleep Disorders and Research Center is taking a truly multidisciplinary approach to sleep disorder treatment.

Patient demand is sky high these days at the East Carolina University (ECU) Sleep Disorders and Research Center, Greenville, NC. Thanks to the facility's growing reputation for excellence, much of it fueled by the leadership of Sunil Sharma, MD, DABSM, director of the center, existing space will be used for two additional beds.

Sleep apnea sufferers are hearing about the center primarily due to a steady stream of enthusiastic area physicians who appreciate Sharma's efforts to create a state-of-the-art sleep center that provides comprehensive care in all aspects of sleep medicine. Considering that the center opened its doors just a little more than 3 years ago, the rise has been consistently fast with no signs of slowing down.

With the new beds still not quite in use as of press time, the existing six-bed, full-service unit is located on the first floor of the new ECU Moye Building. The sleep center is equipped with advanced in-house diagnostic and home monitoring devices (Cadwell Laboratories Inc). A multidisciplinary team composed of sleep physicians from various disciplines manages all types of sleep disorders.

As part of the Brody School of Medicine, the center serves as a training site for medical staff interested in sleep disorders. The list of specialties seems to grow each year as medical professionals discover ever more maladies that are made worse—or perhaps even caused by—sleep apnea. "We are pushing the envelope in all directions of sleep medicine, which I think should be the true nature of academic sleep medicine," says Sharma, also director of the Vidant Sleep Center. "We don't focus on just one agenda, and we don't just focus on the



elements that are paying. We are educating and training young doctors and technicians to become certified at national levels, and doing research."

As one example of that research, Sharma and his team recently published that the prevalence of sleep disorders is high in patients undergoing cardiac rehab. "And that is important because the burden of a comorbid condition like OSA may slow down recovery during rehabilitation," he says. "Our sleep center program is among the first to find out and establish that there is lung inflammation involved in patients who have sleep-disordered breathing. This has never been reported in the past."

Yet another study with Medical University of South Carolina, Charleston, examined whether those who have sleep apnea have more blockages in their coronary arteries, and thus more heart disease. "We found these patients had seven times higher odds of having a blood vessel blockage (soft plaque) in the heart as compared to people who did not have sleep apnea," Sharma says. "This has not been shown before. This is the type of original research that helps us understand the impact of sleep apnea on our community."

According to Sharma, who also serves as an assistant professor of medicine at the Brody School of Medicine, the center's overarching mission is clinical, research, teaching, and training. "A vast majority of private sleep disorders centers are clinically oriented," he says. "As an academic center, our mission is above and beyond to educate our entire community about sleep, and train young physicians and sleep technologists about sleep medicine and continue to push the limits of understanding sleep disorders and their impact on

our society. We have a training school for sleep technicians in eastern North Carolina, and our sleep disorder center is a training ground for those sleep technicians before they finish their training. We are involved in a much broader manner than just patient care."

The ever-widening tentacles of sleep apnea can be seen at ECU's sleep clinic among people who have high blood pressure, diabetes, and congestive heart failure and have been referred due to daytime sleepiness. One such patient came to Sharma after several years of symptoms.

The man's physicians attributed his symptoms to underlying heart failure, but a chicken-or-egg scenario increasingly emerges where apnea may worsen, or even cause, many ailments. "In this patient, we had severe sleep apnea," Sharma says. "It's remarkable that these patients have dramatic improvement in a matter of months after putting them on treatment. Their blood pressure gets controlled, heart failure symptoms resolve, and daytime tiredness resolves."

PROBLEMS DOWN SOUTH

In eastern North Carolina, stroke is the fourth leading cause of death. It's part of a "stroke belt" that also includes a high burden of congestive heart failure, hypertension, and diabetes in eastern North Carolina—and in much of the South.

Sleep disorders are strongly associated with these comorbidities, and ECU's multidisciplinary sleep center is an increasingly important tool in the fight against cardiovascular disease. "Sleep apnea could very well be the driving engine for many of these cardiovascular disorders," Sharma muses. "We

don't know now because this sector of medicine is still relatively new. Fixing sleep-disordered breathing may slow down the progress of many of these other cardiovascular diseases—and in the process may improve survival."

Spreading the Word

Tracking down Sunil Sharma, MD, DABSM, director, East Carolina University Sleep Disorders Center, on an average day is no easy task. Factor in the extra duties of Sleep Awareness Week, plus preparations for a day-long symposium, and it becomes almost impossible.

The hours are long, but Sharma has a passion that he is determined to bring to the center, and by extension to patients. In recognition of ECU's



outstanding results, the Sleep Disorders and Research Center recently received program accreditation from the American Academy of Sleep Medicine (AASM).

At press time, Sharma's symposium at the Hilton Hotel in Greenville, NC, will be over, and hundreds will be wiser. After a wide range of sleep, pulmonary, and critical care programs, attendees learned just how far sleep has penetrated into the general medical realm.

Offered by the Division of Pulmonary, Critical Care and Sleep Medicine, the conference provided the most current, practical, and concise information available on recent advances in clinical sleep and pulmonary medicine.

Sharma and his colleagues offered lectures and discussion periods for both formal and informal exchanges between faculty and participants. Targeted for internists, family medicine and emergency medicine physicians, PAs, and NPs providing primary care management, those who completed the course got continuing education credits and knowledge of strategies to identify sleep disorders.

—G.T.

As director, Sharma embraces community involvement through his yearly symposium (see sidebar) and multiple talks to diabetic groups and heart health forums. With the help of three board-certified pulmonary (and sleep boarded) physicians, one pediatric (sleep board certified) physician, and three neurology-based (sleep board certified) physicians, he uses the multidisciplinary approach to educate patients and physicians alike.

He is currently working on his vision of a multidisciplinary team providing care under one roof, an approach that aims to step away from the current reality of fragmented care. "Different specialties tend to operate as independent silos, but the best care will come together when the patient can get all his sleep care under one roof," Sharma says. "The multidisciplinary approach involves several different specialties—pulmonologist, psychologist/psychiatrist, dentist, neurologist, and ENT physician. This is even more true as more treatment options from surgery to dental devices are available to the patient. If they are not in close proximity with us, or working with us, care can get disrupted."

CPAP AND ORAL APPLIANCES (MULTIFACETED MANAGEMENT OF SLEEP-DISORDERED BREATHING)

When ECU opened its first school of dentistry last year, Sharma took his multidisciplinary approach to the burgeoning field of dental sleep medicine. Unlike more established dental schools around the country, ECU's students will not be ignoring sleep medicine.

Refusing to indulge in rigid therapy preferences, Sharma believes oral appliances can definitely be beneficial for those who do not tolerate conventional CPAP therapy. "I am engaging our dentists to our sleep disorders center," Sharma enthuses. "I am working closely with the faculty at the dental school of medicine to recruit dentists to come over and treat patients who have failed conventional treatment. This is a new opportunity to engage dentists from the beginning. The dental school faculty is arranging educational sessions and grand rounds and coordinating activities with the sleep disorders center. As director for sleep medicine, my job is to engage these different specialties. In the last year, I have engaged most of these specialties as we move toward a one-roof model."

In addition to ENTs, pulmonologists, cardiologists, and now dentists, pediatricians are part of the mix at ECU. Indeed, teachers who identify students with

attention deficit may yet be seeing the effects of sleep apnea. "In adults, you tend to have sleepiness during the day," Sharma says. "In children, they can get hyper-aroused and lose focus. Falling grades could be a sign of underlying sleep disorders. Involving pediatricians improves the outreach of sleep into the world of children, which is usually swept under the carpet."

Relying on durable medical equipment (DME) companies can be a source of anxiety for many sleep physicians who fear the level of education provided and service may not be adequate. Sharma aims to deal with this familiar problem by asking DME providers to come to his center for setups and education. It may sound like a tall order, but many providers are willing.

"Compliance is an important quality parameter, and is ultimately a reflection of the sleep disorders center," Sharma says. "Now we are setting standards so we know what they are doing and what kind of education and training they are giving. We plan to have them come to the clinic to set those patients up so we can supervise. The DME is still making the sale, but the whole quality aspect is better controlled. It's a bit of a pain for the DME company, but they are getting more accepting."

The center is truly the one place to be, and Sharma believes the one-roof ethic will be a nationwide trend. In addition to a patient sleep mecca of sorts, ECU's center is a training ground for medical students (Brody School of Medicine), residents, fellows, and students of the Pitt County polysomnography school in Greenville, NC. "Many of these bright students have stayed back to serve the community," Sharma says. "The sleep center serves 29 counties, and is the largest academic center in eastern North Carolina. I am helped in this venture by an extremely dedicated and passionate faculty and staff who push the boundaries of excellence every day."

Greg Thompson is a contributing writer for Sleep Review. The author can be reached at sleepeditor@allied360.com.

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Mansoor Ahmed, MD, FCCP, FABSM



The Broad Approach: Patient Care, Education, Research

BY ALISON WERNER

The Cleveland Sleep Centers: Improving sleep health care from every angle

In 1998, Mansoor Ahmed, MD, FCCP, FABSM founded the Cleveland Sleep Centers, a coordinated network of community-based sleep programs, to provide clinical care and promote sleep education and research in the field of sleep medicine. The Sleep Centers also developed a collaborative sleep program with University Hospitals system at Bedford and Lutheran Hospital (Cleveland Clinic Health System).

"We are the only health care entity in the history of Cleveland that enjoys a true bilateral relationship with the two competing academic giants," quipped Ahmed.

In the 1990s, sleep medicine was primarily confined to the large academic and teaching hospitals. There were virtually no community-based sleep health care programs and education initiatives in the Greater Cleveland Metropolitan Area. Having served on the faculty of medicine at Case Western Reserve University, Ahmed felt that the rapid developments in sleep medicine that were taking place within academia were not being translated in a timely fashion into community practices.

"How is an academic center defined? Look at the Mayo Clinic. They have three levels: patient care, education, and research," Ahmed says. The sleep program at Cleveland Sleep Centers, developed by Ahmed and his team, was modeled on these best academic attributes.

COMPREHENSIVE CARE

As Ahmed points out, sleep medicine is a true multidisciplinary specialty. There is hardly any medical, mental, or psychiatric condition that doesn't affect sleep and there is hardly any system physiology that is not affected by sleep disorders.

"Improving sleep health is not all about sleep apnea and CPAP," says Ahmed. "Most of the patients do

not present with a single disease process. You can't just give them CPAP or an insomnia pill and be done. A large number of patients have a complex sleep pathology that requires an integrative approach."

To effectively treat a patient, and improve sleep health, sleep professionals need to look at underlying or comorbid conditions, Ahmed says. From the psychological factors—including mood disorders like bipolar disorder and depression—to medical conditions like chronic fibromyalgia and Alzheimer's disease: all these conditions have profound implications for sleep.

"In order to practice sleep medicine in a real sense, you have to look at it more broadly," says Ahmed, who has been frustrated by the focus on sleep apnea as the defining condition of sleep medicine in recent years—a focus that has led some sleep centers to ignore other health issues, and, thus, prevented patients from getting a good night's sleep. "Even sleep apnea is not a homogenous disorder. It requires more in-depth pathophysiological analysis and subsequent therapeutic interventions."

The Cleveland Sleep Centers, which have been recognized by the American Association for Respiratory Care as one of the top three community sleep centers in the United States, make it their mission to always look at the whole patient and to integrate disciplines outside of sleep medicine into patient care to most effectively treat the patient. That includes a staff orthodontist consultant and other trained dentists in the community who can work with patients for whom CPAP has failed and who would be better treated with an oral appliance,

and close working relationships with area psychiatric specialists who may need to be brought in to discuss any underlying psychiatric conditions affecting a patient's sleep. According to Ahmed, this in-depth, integrative approach, which is often found in academic-based sleep centers, was missing at the community level when he first opened the Cleveland Sleep Centers' doors.

"After my transition from a teaching hospital to a community practice, my challenge was to integrate other disciplines to help these patients who have multiple pathologies for their sleep disturbances. An integrated approach wasn't there, and it's still largely not there. There are hardly any sleep centers at the community level, where other disciplines have been integrated to evaluate and manage patients," Ahmed says. "This [approach] is specific to our program."

While the facility's bedrooms feature home-like décor, including paintings, decorative window treatments, and high-quality mattresses, and are designed for patient comfort, the Cleveland Sleep Centers pride themselves on being more than just nice labs. It is a facility that makes patient comfort, treatment compliance, and long-term patient health equally important elements.

"What is the point of having a beautiful sleep center, or how many studies a center is performing, when at the end of the day, the outcomes of these patients are terrible because people are not using their treatment," says Ahmed.

As is the case with many other medical disciplines, compliance is also a problem in sleep medicine.

Yet, unlike most other disciplines, patient follow-up for patients suffering from sleep-related problems is not always a consistent component of patient care. The Cleveland Sleep Centers, however, have made compliance and patient follow-up a part of their clinical protocol. The facility has a respiratory therapist on staff who is specialized in sleep and who works with patients following diagnosis to not only make sure that their mask fits, but that they are educated about their disorder and the risks of not following through with treatment. The sleep staff even makes a point of including a patient's spouse in this education to further stress the importance of CPAP compliance. Many sleep disorders, including sleep apnea, are chronic conditions like hypertension or diabetes that don't disappear following diagnosis. They require follow-up and every effort to encourage and improve patient compliance with treatment.

"Just like with someone with a heart condition, you don't give them Lipitor and then say, 'Goodbye. You're done,'" Ahmed points out. "[Sleep patients] are not completely done after you have made the diagnosis and given them CPAP." The Cleveland Sleep Centers maintain regular contact with patients, typically seeing CPAP patients for a follow-up visit 6 weeks after their titration study and compliant patients at least every 6 months thereafter.

AWARENESS THROUGH EDUCATION

But the reality is that this attention to comprehensive patient care can be effective only if people are aware of the effects of sleep disorders on general health. Sleep disorders often receive short shrift outside the sleep community, making diagnosis and treatment, and, more importantly, better health elusive for many patients. As Ahmed puts it, the impact of sleep disorders on overall health and their role in other conditions often are not appreciated by both the medical community and the general public. This, in large part, stems from a lack of education. Since their inception, Cleveland Sleep Centers have seen themselves as first and foremost a community-based program, and have made public and physician education beyond their doors a fundamental component of their patient care and commitment to sleep health.

At the general public level, the staff has undertaken a robust public education program aimed at improving the understanding of sleep health in the community, in a variety of settings, including presentations on insomnia to nursing homes and assisted living facilities, and on shift work to nursing

and police departments and major corporations, such as Goodyear Tire and Nestlé. In addition, the Centers have launched various educational initiatives aimed at the Hispanic community in Cleveland, a segment of the population with a higher prevalence of sleep apnea, hypertension, and diabetes. Efforts have included training Spanish-speaking interpreters and translation of patient literature into Spanish.

Within the medical community, Cleveland Sleep Centers make an effort to share their knowledge and keep non-sleep medicine specialists, especially referring physicians, up-to-date on the current research trends in sleep.

"Within academia, we have great research going on—for example, in narcolepsy at Stanford. But the knowledge being put out by those academic centers does not translate into the community practices in a timely fashion. It takes years and years before [non-sleep specialists] start to realize what is going on at the academic level," Ahmed says. He adds that for many physicians practicing at the community level today, there was no sleep curriculum during their education 5 to 10 years ago. This has led to situations where non-sleep specialists often underestimate or overlook the impact of sleep on a patient's underlying disease process. For example, Ahmed points out, rheumatologists and pain specialists often don't appreciate the negative impact pain and chronic fibromyalgia can have on a patient's sleep. If a patient's sleep problems are not addressed, neither condition will improve. This knowledge vacuum keeps patients from receiving effective care. Education programs can improve this situation.

"If we don't improve the knowledge of the physicians in the community, we won't be able to serve the bigger picture of sleep medicine and meet the needs of the large number of patients who are served within communities outside academic walls. So we focus on education," says Ahmed, adding that Cleveland Sleep Centers have put on hundreds of sleep symposiums, roundtable meetings, and conferences in their 14-year history to better educate community physicians. In addition, Ahmed and his staff invite primary care physicians to come and work with them for a half day as part of a preceptorship program so they can get a better feel for what sleep medicine is all about, why it is important, and better serve the needs of their own communities when they return home.

And the Cleveland Sleep Centers' educational efforts aren't limited to the local community. As a former chair of the international affairs committee for

the AASM, Ahmed and his colleagues developed a 6-week mini-fellowship sleep training program that invites physicians from around the world to spend time training at Harvard, the University of Pennsylvania, Stanford University, the Cleveland Clinic, and the Mayo Clinic. In addition, Ahmed and his staff welcome an international fellow to spend time at the Cleveland Sleep Centers to see how their facility works and to learn more about sleep medicine. The goal, Ahmed says, is for these fellows to take their new knowledge back to their home countries and start similar sleep programs there. For more direct impact, Ahmed, who is currently serving as an honorary advisor to India's King George Medical College as they develop their own sleep program, hopes to soon take his team to that country to help the medical college establish an integrated program modeled after the Cleveland Sleep Centers. The Centers take pride in the fact that the first sleep program in one of the oldest cities in the world—Aleppo, Syria—was started by a fellow who received his training at the center.

RESEARCH AND DEVELOPMENT

But as important as educating the community is, the staff at the Cleveland Sleep Centers also recognize that they need to educate themselves to best serve the sleep patients and the larger community. To do this, Ahmed and his staff stay actively involved in research and development in the sleep field. Through the Cleveland Sleep Research Center, an affiliate of Cleveland Sleep Centers, they participate in a number of short- and long-term research studies, including those looking at restless leg syndrome, shift work, insomnia in children with attention deficit hyperactivity disorder, and sleep disturbances in fibromyalgia. Some of these research projects are funded by investigator-initiated grants.

Throughout their work, the Cleveland Sleep Centers maintain a commitment to excellence and to serving the community. In doing so, they hope to serve as a model for other sleep centers everywhere and to bring their brand of academic sleep care to everyone in the community.

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Douglas Livornese, MD, FACP, FCCP, FAASM

Continuity of Care

BY TINA PAGE

Douglas Livornese, MD, FACP, FCCP, FAASM, designed a resourceful CPAP compliance program that makes it difficult for patients not to adhere with therapy.

Sleep medicine fascinated Douglas Livornese, MD, FACP, FCCP, FAASM, from the very start of his medical career. But in his words, the path to becoming the director of the comprehensive sleep disorder center, Comfort Sleep, is a "backwards story."

"When I was in high school, I started snow skiing, and I hated waiting in line at the lifts," Livornese says. "Then I saw these people skiing by and getting right on the lifts and I said, 'Who are those people?'"

After discovering that ski patrolmen do not need to wait in line at the lifts, Livornese became an emergency medical technician while still in high school in hopes of someday becoming a ski patrolman.

"And it kind of snowballed from there," Livornese says. He worked as a paramedic during college and then decided pursuing a career in medicine was what he was meant to do.

Livornese's relaxed and conversational manner belies his status as a chronic overachiever. While most kids were happy to ski in high school, he served on the rescue squad and got to leave class when an EMT was needed for a rescue.

FROM THE GROUND UP

Livornese, who spends half of his time working in his primary practice as a pulmonologist, became interested in sleep medicine when he was doing his residency training in the early '90s at the Medical College of Pennsylvania, which had one of the few sleep medicine fellowships at the time.



"Sleep was interesting," Livornese says. "Also, it was kind of an emerging field. It was somewhat unique to get involved in something that wasn't 1,000 years old. I sat and had conversations with the fathers of sleep medicine. The guys who wrote the original books in sleep medicine, I've actually met and heard lecture. I thought that was kind of a unique thing—to be involved in something from the ground floor up really had an appeal to me."

Livornese went on to be board certified in sleep medicine by both the American Board of Sleep Medicine and the American Board of Internal Medicine, receiving his first board in 1997.

PATIENT-CENTERED

Livornese refers to his two practices as his "dual personalities." At his main practice, Monmouth Pulmonary Consultants at Monmouth Medical Center where he has been since 1997, he is one of two doctors who are truly trained in sleep.

In 2006, Livornese was able to help build the novel, patient-centered program that makes his other practice at Comfort Sleep Lab so successful.

"Our Comfort Sleep Lab is really a turnkey program," Livornese says. "For our area, we have a pretty unique process where people get referred from their primary care physicians and we take care of everything else."

And the unique program literally does. While many sleep medicine patients end up running around from one office to another for doctors' visits, sleep studies, and picking up CPAP equipment, Comfort Sleep provides patients with the continuity of care they deserve by providing all aspects of sleep medicine in one building.

"Patients have their first sleep study, then they decide if they want to go the CPAP route, and if they don't, then we have a dentist whose practice is limited to sleep dentistry," Livornese says. "I can tell patients, 'If you're not happy with your CPAP, then if you have half an hour, you can go next store and meet our dentist.' He's literally in the exam room next to me."

The fact that patients can get all aspects of their sleep medicine care addressed in one building makes Comfort Sleep successful with those it treats. Livornese points out that not only can patients physically access all their care in one place, they also have only one phone number to remember.

"Whether they want to talk to me, or they have a question about their CPAP or their bill, it's all one phone number," Livornese says. "This [program] is what I wanted to do, and it has taken a long time to really get it working this way. My bosses have given me a lot of support and latitude to do what I want to do. I've got an exceptional support team and a great group of doctors working next to me."

And not only are all of Comfort Sleep Lab's patients' needs met in one place, the program is meant to make the internist's life easier as well.

"We make it easy for them," Livornese explains. "We say, 'If you have a hunch that one of your patients has sleep apnea, we will do the rest.' We help with all the insurance work from the sleep study to the CPAP or oral appliance. We don't have insurance problems, and I think for physicians and patients one of the biggest problems nowadays is getting everything approved by insurance."

A GAME CHANGER

For patients who have been suffering from sleep disorders, receiving successful treatment is a "game changer."

"Since sleep apnea is somewhat of a chronic disease, people don't realize how tired they are," Livornese explains. "They come in and say, 'I'm a little tired during the day'; that's just because they've been severely tired for many years, and they've modified their life. All of a sudden, when we really correct the sleep apnea, they have a new life."

Patients who have been treated by Livornese are often surprised by the improvement in attentiveness and cognitive function they experience after treatment.

As part of the sleep lab's multidimensional approach to sleep medicine, the program offers behavioral therapy with a clinical psychologist whose specialty is sleep disorders. This aspect of the treatment is meant to support patients who may be less likely to be dedicated to using their CPAP because they are struggling with problems like depression.

"A lot of times someone who is sleep deprived is depressed," Livornese says. "More often than not, when you fix their sleep apnea, their depression goes away. I've had a lot of patients who have been carrying around a diagnosis of depression for many years; we treat their sleep

apnea, and all of a sudden they are no longer depressed."

BUILDING A BETTER MOUSETRAP

Comfort Sleep's CPAP compliance program is built to be patient centered. Livornese makes it clear that "no treatment works if the patient does not use it." The team's goal is to find the correct treatment for each individual patient and to make it difficult for them not to use it.

"We make it so that it's less painful to use the CPAP machine than have to tolerate us trying to make you use it," Livornese says. "We have always been trying to figure out how to build a better mousetrap. One of the few things that helps people improve their usage is having support."

And Comfort Sleep's support is like a mousetrap. There is almost no way of escaping the program's support team. After someone gets a CPAP unit, they are set up with an appointment with the doctor or nurse practitioner. Along with face-to-face interaction in the office, patients are also set up with coaching calls each week until it is clear they are committed to using the machine. A technician calls them, and if the technician detects any issues, the patient is passed on to one of the lab's respiratory therapists. Also, when the patient is initially handed the CPAP, the respiratory therapist fits all the equipment on the patient and, according to Livornese, "They are not allowed to leave until they say that they are comfortable with it.

"We have tremendous follow-up," Livornese says. "Now we can download [a patient's] CPAP information through the phone, and we can see if the person is using it, and if not, we will concentrate more work toward them."

The lab has therapists on the road every day stopping by patients' houses to find out why they are not using their CPAP. Thanks to all of the support a sleep lab patient can expect to receive, the compliance rate is very high.

"Many times patients just want to know what they are going through is normal," Livornese says.

SUCCESS

One of the most rewarding parts of working in the field of sleep medicine for Livornese is to actually witness the core improvements his program makes in patients' lives.

From improving cognitive function to relieving depression, Livornese has seen the transformations that have taken place after successfully treating sleep disorder patients. Most notably, two particular cases stand out in his mind. In the first case, he saved a marriage, and in the second, he may be continuing to save lives.

"I saved the marriage of one of my favorite patients," Livornese said. "He came in a grumpy old man. He and his wife actually had a fight in my office because he didn't want to be there. I had to step in between them because I thought it was coming to fists.

"I treated his sleep apnea and he just became a teddy bear afterwards. Every time they came into the office, his wife would hug me and say thank you for giving me my husband back. It's the kind of thing that makes you want to get up in the morning and keep going."

The other case that stands out as a notable success was when Livornese treated a limo driver for sleep apnea after he fell asleep at the wheel and almost crashed. The driver started using a CPAP and has since changed jobs.

"He's so awake now he wanted to get out of [limo driving]; now he's a long haul truck driver, and his CPAP unit sits in his sleeper cab and he uses it every night," Livornese says. "He's an instructor for a trucking school, and he's actually 'diagnosing' people with sleep apnea and sending them to their doctors. He's my advocate in the field."

A TOP DOCTOR

Aside from his pulmonary and sleep medicine practices, Livornese still finds time for fun as a pilot, flying for the Coast Guard Auxiliary in the New York Metropolitan Area. Livornese also still hits the ski slopes, thankful for the inspiration he received that led him to ultimately build a program that makes it almost impossible for people suffering from sleep disorders to fail at improving their quality of life.

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Alexander Villareal, MD



Proactive Patient Care

BY PHYLLIS HANLON

As health care evolves, Alexander Villareal, MD, keeps Geisinger Health Systems, Sleep Disorders Centers, ahead of the curve.

The Centers for Disease Control and Prevention (CDC) reports that an estimated 50 to 70 million American adults suffer with some type of sleep disorder. Moreover, sleep insufficiency has been linked to motor vehicle accidents, industrial disasters, occupational errors, and medical issues, such as diabetes, obesity, hypertension, cardiovascular disease, and depression. CDC statistics also indicate that the alarming increase in pediatric obesity—in 2008, more than one-third of children and adolescents were overweight or obese—can be linked to other medical conditions, including sleep apnea.^{1,2} Fortunately, medical advances have resulted in more accurate testing methods, more effective treatment options, and improved patient outcomes. Leading the way in diagnosing and treating a variety of sleep-related disorders is the Geisinger Health Systems, Sleep Disorders Centers, in Danville, Pa.

One of the first accredited sleep centers in central Pennsylvania, Geisinger Sleep Disorders Center was founded by Andrew P. Matragrano, MD, in 1984. The facility began as a two-bed operation and in the past 4 years has grown to 25 beds with six locations throughout central and northeast Pennsylvania. Accredited by the American Academy of Sleep Medicine (AASM) and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the Centers boast 10 board-certified sleep specialists; advanced practitioners in neurology, psychology, and pulmonary medicine; registered or registry-eligible technicians; and an integrated scheduling team. Geisinger Sleep Disorders Centers also feature an experienced otolaryngologist, oral

surgeons who can deliver surgical solutions, and a dentist with 10 years' experience who can suggest client-specific oral appliances. This multidisciplinary approach enables the Centers to provide their adult and pediatric patients more choices when scheduling appointments and sleep studies, a range of treatment options, and, ultimately, better results.

Through an active community and physician awareness program, Geisinger Sleep Disorders Centers utilize a grassroots approach to increasing mindfulness of sleep-related problems and to fostering collaborative relationships among patients and primary care physicians and/or other practitioners and sleep physicians to determine the presence of an underlying sleep-related issue, which might be affecting daytime performance and well-being.

EXPERTISE DELIVERING COMPREHENSIVE DIAGNOSIS AND TREATMENT

Determining the cause of a sleep disorder requires expertise and experience in the field. The sleep specialists at Geisinger pride themselves on treating all cases, from the most straightforward to the most difficult, including those with comorbid conditions or previously unresolved sleep issues. The Centers offer evaluation, diagnostic and treatment services, behavioral sleep medicine, comprehensive evaluation and

nonpharmacological management of insomnia, and an all-inclusive patient compliance program. The Centers also provide diagnostic and therapeutic services at the Janet Weis Children's Hospital for high-risk children (newborn and up).

Moreover, Geisinger Sleep Disorders Centers offer a full panel of sleep studies, including split studies; out of center sleep testing; nocturnal polysomnography; nasal CPAP (continuous positive airway pressure) titrations; and day sleep studies to accommodate night shift workers. Since on-site studies may be inconvenient for some patients, the Centers offer home testing. All together, the Centers have the capacity to conduct 26 studies per night.

Not only do the Centers offer several comprehensive sleep studies, the facilities also strive to maintain a turnaround time on test results of fewer than 24 hours; the Centers have achieved a 94% success rate.

Follow-up ranks high on the Centers' to-do list. Experienced sleep technicians call all CPAP patients at 72 hours, 30 days, and 6 months to ensure that equipment is in working order and that the patient's condition is stable. This process helps to identify patients who may be experiencing more serious problems or who are in need of supplies or additional help.

Geisinger Sleep Disorders Centers participate in several community events, sponsor sleep disorder support groups, and partake in "meet

and greet" occasions. For the last 3 years, the Centers have organized a sleep medicine conference that offers American Medical Association credits to attendees. This year's conference will be held in May and is designed to educate all medical professionals, regardless of current sleep medicine expertise status.

DEDICATED TO SLEEP MEDICINE

Since 2007, Alexander Villareal, MD, has been an integral part of the multidisciplinary team at the Geisinger Sleep Disorders Centers. He earned his medical degree from Nuestra Señora de La Paz University in Bolivia in 1999. In 2005, he completed a 3-year residency in internal medicine at Henry Ford Hospital in Detroit, followed by a 2-year fellowship in sleep medicine at the same institution.

Board certified in internal medicine and sleep medicine and director of sleep medicine at Geisinger Sleep Disorders Centers, Villareal became interested in this health niche during his pulmonary medicine residency. "I found the topic of sleep apnea fascinating and asked to have an elective in sleep medicine. That [experience] increased my interest and passion in the subject," he says.

Villareal treats adult patients who present with sleep apnea; insomnia; parasomnias, including sleep walking, night terrors, teeth grinding, and other sleep issues; restless legs syndrome; and narcolepsy. Additionally, his patient load includes adolescents and school age children with non-sleep apnea problems, such as narcolepsy, insomnia, and delayed sleep syndrome.

Villareal bases his treatment options on standard medical care and scientific evidence in collaboration with the patient. "I always involve the patient in the decision. I ask them their preference," he says, adding that he attempts to increase the patient's understanding of their particular sleep condition. "I educate them about the diagnosis and treatment options and share the reasons behind my advice. If they understand, they can make better choices, which leads to better compliance."

For many sleep apnea patients, CPAP masks are the first line of defense, but Villareal believes treatment doesn't end with CPAP. "It begins there," he says. For example, all

obese patients are offered a referral to an obesity clinic. "Some patients undergo gastric bypass, which might cure the problem," Villareal says. He points out that with the variety of sleep specialists on staff, patients have the advantage of combination therapy, eg, a dental appliance and surgery, whenever appropriate. "We also pride ourselves on providing therapy that helps patients previously determined to be CPAP-intolerant. In those cases, other specialists may not have worked long enough with the patient. We have an evidence-based technique to help patients adapt to using CPAP," he says. "We identify the specific problem that's not allowing the patient to use the device. For example, patients with severe nasal congestion find it hard to use the CPAP machine or they could be claustrophobic. So we use a nasal pillow or desensitization techniques. These help the patient 'grow into' the CPAP."

Some sleep conditions—sleep apnea and insomnia, for instance—are chronic and require medium to long-term follow-up, depending on response to therapy, according to Villareal. "We partner with the referring physician or PCP. We keep the line of communication open and also relieve the patient from having to do paperwork and calling in prescriptions."

PROFESSIONAL PASSION

Villareal considers Geisinger Sleep Disorders Centers as an institution "a blessing." He says, "We are a nonprofit, multispecialty group committed to raising awareness of sleep disorders and educating non-sleep providers about these issues," he says. "We employ a mature electronic medical records system and practice system-based medicine, which is one of the core competencies recommended by the Accreditation Council for Graduate Medical Education (ACGME)."

Villareal's passion for and commitment to his work is evident. But he prefers to shine the spotlight on his colleagues. "Without that team, we couldn't accomplish a fraction of what we do," he says. "My goal is to make the Centers the best place to provide help for those with sleep issues, contribute to the knowledge in this field, and develop cost-effective ways of treating sleep problems."

MEETING FUTURE CHALLENGES PROACTIVELY

As changes to the existing health system are implemented, every health care discipline will face challenges, and the Centers will also be subject to some of the same challenges. Reimbursement from insurance companies will undergo changes, and the way in which facilities schedule in-laboratory sleep studies is being overhauled to be more cost effective, according to Villareal. "The economy is affecting labs significantly," he says.

Additionally, more attention will be focused on outcomes and proof that quality of care meets or exceeds industry standards. "So we may need to provide more documentation regarding percentage of improvements, medications, cost savings, and other aspects that prove our care is outstanding," Villareal says. "We're working proactively to get ready for the economic challenges and quality projects, so we're ahead of the curve." The Centers have been monitoring outcomes for 3 years and have compiled a significant amount of data.

In the future, Villareal hopes to create more elective internal medicine rotations for pediatric and family medicine residents at the Centers to help educate these practitioners, increase their existing knowledge base, and enhance patient care.

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Glenn Becker, CEO



Putting Care into Health Care

BY TINA PAGE

The International Institute of Sleep has implemented a myriad of programs that support both patients and the sleep profession.

The International Institute of Sleep (IIS) puts patients before profits, a principle that has guided the company well since its founding in 1999. In that time, the company not only has earned a reputation as an industry leader in patient care and professional development but also has grown to include eight locations servicing more than 10,000 patients annually across Florida and a network of hundreds of sleep labs.

When Glenn Becker, CEO and president of the Florida-based company, set out to create IIS, he was an outsider looking into an industry that he knew he could make better. He was confident that he could raise the bar in patient care for people suffering from sleep disorders.

"As opposed to the traditional way people do sleep medicine, I decided to put my spin on it and create a comprehensive approach to sleep medicine as opposed to the patient-in, patient-out approach to sleep," Becker says. "We like to say we put the 'care' back in health care."

And that approach extends beyond patients to a commitment to nurturing the professional development of sleep medicine practitioners. Relying on a myriad of programs, IIS has set a high bar for itself, but it's a bar the staff seek to surpass in every endeavor they undertake.

SERVING PATIENTS

IIS, always at the forefront of optimizing patient care, utilizes every means available to the industry to ensure patients are treated successfully. The company not only offers traditional in-lab tests any hour of the day or night but also was an early adopter of home sleep testing (HST) and remotely attended sleep studies.

The company's pursuit to optimize care doesn't stop at the diagnostic stage. "I wanted to create a more comprehensive approach and design a disease management program following the patient from start through life," Becker says.

And that's exactly what Becker did. IIS' disease management program for patients with obstructive sleep apnea (OSA) begins with a clinical assessment by a licensed respiratory care practitioner with special training in sleep disorders. This assessment provides the basis for development of an individualized care plan, designed to ensure successful compliance with treatment.

The care plan includes a mask desensitization program for those reluctant to wear a mask, a replacement part program where patients are resupplied with the appropriate disposable parts when needed, and a retitration program, which monitors patient PAP device pressure adequacy and ensures each is adjusted to its optimal and therapeutic levels according to the physical changes that people experience throughout their lives.

In order to guarantee that patients are receiving the level of care that the IIS requires of itself, the company also provides home medical equipment (HME). As an HME/durable medical equipment (DME) provider, IIS can offer alternatives to patients who cannot tolerate CPAP, including oral appliances and new therapies like Provent.

"Not everyone wants to deal with a CPAP machine, which is fine," Becker says. "We have other means to help them, like Provent therapy, a fairly new direction to take, which we've been extremely successful with." Provent fits over both nostrils and uses a MicroValve to keep the airway open.

"It's an alternative that most sleep programs don't offer because it's not in their niche," Rick James, former director of IIS, explains. "[The ability to offer alternatives] is just the reason IIS got into DME. It's something the patients need for that continuum of care. It doesn't just end at doing the sleep study."

The variety of alternatives that IIS offers allows for a truly individualized approach to therapy, where tailored treatments lead to satisfied patients. Becker credits the numerous programs supporting the patient—as well as the lab's caring staff who work for the good of those patients—for IIS' success and its impressive 90% CPAP compliance rate.

"I am very passionate about what I do," Becker says. "I truly care about every single patient. I personally get on the phone with patients who are refusing to come in because they don't want to put a mask on their face. I do what I can to ease their minds about the process and to reinforce the tremendous life-saving benefits of completing the program. I assure them, if it's about money, don't worry about it."

Because of IIS' phenomenal success, Becker has generously been able to provide more than 20% of its services for little or no cost to patients.

NICHE CARE

For Becker and IIS, success is not to be limited to the patient's walking through the doors. IIS has a history of reaching out to those who are at the greatest need, throughout the country. The company boasts a variety of programs aimed at raising awareness and improving treatment of sleep disorders in transportation, occupational, and perioperative settings.

IIS' transportation program targets truckers, pilots, train conductors, and bus drivers. The company creates customized solutions for managing sleep disorder screening, diagnosis, and treatment of any of the more than 80 sleep disorders possibly afflicting such professionals. With more than \$12 billion a year spent on dealing with accidents due to drowsy driving, many large transportation companies have shown a great deal of interest in working with IIS to address this problem.

When an organization partners with IIS to institute a comprehensive wellness program for its employees, results are astounding. Well-rested transportation industry employees not only result in reduced crash rates and severity but exhibit improvements in overall health and cognitive function. Companies also benefit from reduced legal and insurance expenses, and ultimately improve profits because employees become more productive as they become better rested.

In the event that an accident does occur, IIS is there for its clients to answer to insurance companies, investigators, and attorneys, confirming the company's dedication to preventing accidents.

IIS also offers an Occupational Risk Education program. Proving once again that addressing sleep problems is key to improving performance and saving lives, this program is available to public safety workers, high-risk employees, those in the medical fields, and any company looking to combat absenteeism and reduce workplace accidents.

Studies have shown a link between medical mistakes and loss of sleep or poor-quality sleep. Numerous workplace disasters have been associated with preventable sleep deprivation. Companies choosing to employ IIS' Occupational Risk Education program are provided with tools meant to combat injuries, accidents, concentration

loss, moodiness, and health problems related to poor quality and lack of sleep.

Many of the organizations taking advantage of the Occupational Risk Education program are self-insured and so are looking to save millions of dollars on overall health care costs.

"There's been a lot of interest from self-insured employers who offer a comprehensive wellness program to their employees," James explains. "They are so impressed with our outcomes that they are pretty quick to consider our program standard protocol for all employees, not just the ones who are at risk for occupational hazard, but [also] clerical [employees] who may have a number of health claims that suddenly diminish because we uncovered that they were at risk for sleep apnea."

IIS also has a Perioperative Program aimed at implementing measures to ensure the safety of people with undiagnosed sleep apnea receiving anesthesia during surgery. Often these patients do not have enough time to go through a complete sleep study prior to surgery. Instead they are given a home sleep testing device for a quick preoperative assessment.

"The patient can come in that day and get the HST, and the very next day we can have them on an auto PAP machine until after the surgery," Becker explains. "Then, if necessary, we can have them come in for a proper CPAP titration study. But at least they're covered preoperative, throughout surgery, and postoperative."

SERVING THE PROFESSION

While the eclectic range of IIS' programs has helped to save lives, improve performance and productivity, reduce health care costs, and combat disease, IIS aims to do even more. The company wants to further the reach and perfect the administration of sleep medicine. All of its programs are created to serve as road maps for other sleep labs, with the aim of improving patient care and sleep medicine.

Sleep labs have the opportunity to benefit from IIS' credibility and knowledge through its formal sleep school developed in 2007. The Business Training component designs an exclusive program to train sleep center employees to be prepared and enthusiastic about their role in providing patients with a compassionate, productive, and simple sleep lab experience.

IIS believes a well-trained, sympathetic staff means better patient outcomes, less staff turnover,

more effective operations, and an increase in the bottom line.

Education, however, does not stop at the sleep lab. IIS also offers training and webinars to physicians looking to learn more about sleep medicine, which has increased disease awareness and advocacy.

Beyond education, IIS has made itself available to actually manage sleep labs and centers across the country, sharing its training and operations protocols, assisting with accreditation, and leading labs through every step needed to create a strong and profitable program that leaves patients satisfied and confident in their care.

"I'm trying to give these companies that can't do it on their own a leg up and we'll help lead them through what they need to do," Becker says. "There are so many things that we've spent years and years doing that we have it down to a science."

The Consulting program offers all of the expertise IIS has accumulated throughout the process of building itself into a gold standard sleep center operation. As an industry leader in offering turnkey solutions, joint ventures, management services, and consulting services, IIS offers programs customized to each client's particular situation.

How is IIS able to do all these things successfully? The company is willing to step away from the norm for the sake of the patient. Because of their pursuit of new avenues of diagnosis and treatment, it has been able to treat a broad population of patients, from truckers to surgical anesthesia patients, and to educate those involved in the sleep industry, from lab managers to sleep technologists. IIS' two-tiered approach of focusing on professionals and patients has led to successful patient outcomes not only for IIS but also for the many sleep labs IIS has partnered with and educated.

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Rooted in Health Care

BY TINA PAGE

Business acumen and ambition to work in health care led Steve Cela to form Apnix Sleep Diagnostics.

When Steve Cela founded Apnix Sleep Diagnostics in 2000, it was an opportunity to return to his health care roots. Although he'd aspired to be a doctor, life took him in a different direction—business, to be precise. After completing a Master's in Business at the University of Texas, Cela's professional path took him down a road that included private equity and investment work, as well as acquisition and growth of a manufacturing company. Little did he know his background would affect thousands of lives for the better.

In 2000, Cela met a respiratory therapist who helped treat a friend for sleep apnea. Cela was skeptical about the effectiveness of any treatment that involved wearing a mask. He doubted anyone would do it, but soon saw the improvement his friend experienced.

That's when Cela got the offer that brought him back to his health care roots. The same therapist who treated his friend was looking for investors to start a sleep diagnostic company. Cela, seeing first hand how this service transformed his friend, started researching to see if this was a business path he wanted to take. He soon discovered that 70 million people suffered from some sort of sleep disorder and would be more than willing to use CPAP to treat a problem like sleep apnea. He also discovered how this therapy could impact other aspects of health. It was an opportunity to combine his health care ambitions with the business acumen he had developed throughout his professional career, and soon after, Apnix Sleep Diagnostics was born.

"Immediately, I saw patients' lives being changed. I actually saw a guy come in and hug my partner saying that he saved his life, that really had an impact on me personally," Cela recalls.

Apnix Sleep Diagnostics



GROWTH OF A COMMITMENT

Now, after 11 years in business, Apnix Sleep Diagnostics, an American Academy of Sleep Medicine-accredited lab, has grown to nine locations in the greater Houston area. Apnix has gone from conducting 40 sleep studies a month to more than 300 monthly studies, and is still growing. That growth is a direct result of Cela and Apnix's commitment to their patients and a focus on providing a "wow" factor when it comes to customer service.

Apnix sees itself as "a hospitality business in which we provide medical care or diagnostic services to patients," Cela says. This philosophy, coupled with its continued commitment to customer service, has created a company that makes sleep diagnostic testing a more pleasant experience.

"One of the top values we offer that makes us so different is exceptional customer service. We strive to really exceed patients' expectations and satisfaction. That value is pervasive to the whole company," Cela says.

But Apnix is not just about customer service and aesthetics. At its core, it's a sleep diagnostic lab on a mission to help patients overcome sleep disorders through diagnosis and treatment. That mission continues beyond its doors. Apnix is committed to educating people on sleep awareness by advocating the value of good sleep health. This is being done through participation in local events and health fairs, and directly with local primary care physicians by helping educate them about the importance of good sleep health and its effects on other medical issues, making Apnix the first line of defense in combating sleep-related disorders. Plus, Apnix, to further its educational mission, has cultivated relationships with a number of the most nationally recognized

experts in the field of sleep medicine. Some of these authorities are now included as facility medical directors as well as consultants on its clinical advisory board.

Another key practice Cela put in place is a patient satisfaction survey. This ensures that Apnix is living up to the highest of standards and patients are consistently receiving the best service. The final question on that survey: Would you refer a family member or friend to us? "The answer is consistently yes, and they do refer people! I think that is the ultimate question that gives Apnix the seal of approval," Cela says.

The patient's total experience is the company's focus. They don't want the patient's experience to feel like they're in a lab. "We want it to look good, feel good, and even smell good, nonclinical," Cela says. "That's one of the major factors that set us apart."

Apnix's labs are run by devoted professionals and feature luxurious surroundings, spacious patient rooms, flat screen TVs, private baths and showers, and hotel-quality toiletries; according to its patients, coming to Apnix for a sleep test is much like staying in a five-star hotel.

The Apnix mission, Cela says, is "to continually improve our services, exceed customer expectations and the care experience, and ultimately change our patients' lives for the better."

Tina Page is a freelance writer based in Lomita, Calif. She can be reached at sleepeditor@allied360.com.

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Pulmonary Associates of Richmond

A Commitment to Comprehensive Care

BY ALISON WERNER

Pulmonary Associates of Richmond's Sleep Disorder Centers have made a commitment to providing comprehensive and individualized care to local sleep patients.

For over 30 years, Pulmonary Associates of Richmond (PAR) has provided comprehensive and individualized care to Richmond, Va-area pulmonary patients with acute and chronic disorders, including critically ill patients who require more directed and monitored care. It was this commitment to individualized care that led PAR to expand its services into sleep medicine in 2006. Having seen first hand the lack of patient compliance in stand-alone diagnostic facilities in the area, PAR's physicians sought to create a sleep disorder center that offered patients both diagnostic as well as clinical care to improve their lives, their sleep, and their health.

Since PAR's expansion into sleep medicine, its Sleep Disorder Centers have grown to three locations, with four beds each, and seven physicians, who are uniquely board certified in sleep, pulmonary, and critical care medicine, as well as 16 sleep technologists—half of them are registered—and five medical assistants. This team, which conducts more than 250 sleep studies per month, makes a point of being there for patients throughout their experience, according to Ashley Weeks, marketing coordinator at PAR.

"They love sleep medicine and are very involved in patient care. They are there to answer all questions that the patients may have," she says, adding that the staff at PAR makes a point of putting in the extra effort to ease the apprehension or nervousness of hesitant patients.

This commitment to making the patient experience as comfortable and easy as possible



carries into the lab setting itself. All of PAR's Sleep Disorder Centers, which are accredited through the American Academy of Sleep Medicine, feature identical patient bedrooms for testing. Every room, as Weeks describes them, is "comfortable" and features hardwood floors, a queen-sized bed, satellite TV, and a full private restroom. In addition, patients meet with the technician administering their sleep study in advance to go over the testing process and all the equipment involved, including the masks, belts, and sensors, so that the patient understands what is going to happen on the night of their study. This combination of a homey environment and personalized interaction before the study even gets under way goes a long way to making the patient's testing experience, which can often be stressful, as comfortable as possible.

Because PAR's Sleep Disorder Centers are full-service, a sleep physician is available the morning after the patient's sleep study to look over the preliminary results with the patient and discuss diagnosis and treatment options. While PAR is not a provider of durable medical equipment (DME), it works closely with a number of home health care companies in the Richmond area, one of which sends representatives to the facility in the mornings to set patients up with CPAP or other DME equipment if the results of their overnight sleep test warrant it. In other words, "Patients have their results and equipment that very morning after their study," Weeks says.

But once a patient walks out with their CPAP equipment, that's not the end of their experience. The staff follows up with patients in the clinic

about 4 weeks after their study to see how they are doing with their equipment. Because PAR uses "higher models of CPAP and BiPAP that record a patient's AHI, hours of usage, and mask leak," staff is able to effectively look at compliance, according to Weeks.

"[Using these models] helps us to understand where patients are running into problems and get compliance up. We are very aggressive in achieving compliance," Weeks says.

Patients then receive additional follow-up as warranted. And should a patient for some reason end up in one of the area hospitals with sleep or pulmonary-related issues, PAR's physicians are able to provide inpatient care as well since they round at both the hospitals in the HCA Virginia Health System and Bon Secours Richmond Health System.

Throughout the patient experience at PAR, the underlying theme is commitment to the individual patient's care and health—a focus that has been there since the beginning of PAR's expansion into sleep care and will continue on into the future of serving Richmond area sleep patients.

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Ahmad M. Ibrahimbacha, MD



Motivated Drive

BY NINA SILBERSTEIN

Ahmad M. Ibrahimbacha, MD, an inspired physician with Syrian roots, delivers optimal care to a vast network of sleep disorder patients.

As a boy growing up in Syria, Ahmad M. Ibrahimbacha, MD, became interested in medicine while watching his mother give his grandfather insulin shots. Ibrahimbacha's mother picked up on her son's curiosity, and as good parents do, she inspired Ibrahimbacha, telling him she would send him to London or America to be a famous doctor. That inspiration led Ibrahimbacha to study in the United States to become a sleep physician where today he uses the same kind of motivation to help patients achieve optimal sleep health.

After graduating from the Aleppo School of Medicine in Syria in 1982, Ibrahimbacha came to the United States to further his education and focus his scope of practice. "I came to the United States because it is the best place on earth to achieve your dream and goals and the country offers the best education," he says.

In the United States, Ibrahimbacha completed his residency in internal medicine at St. Barnabas Hospital in the Bronx, NY. He finished his fellowship in pulmonary and critical care medicine at New York Medical College in Valhalla, NY.

Practicing sleep medicine since 1995 and achieving board certification in internal, pulmonary, critical care, and sleep medicine, Ibrahimbacha now serves as the director for the Sleep Disorders Center at SkyRidge Medical Center, Cleveland, Tenn, as well as a physician adviser and chairman of the utilization review committee for the SkyRidge Medical Center. In addition, he is director of Sleep Labs of the South, also located in Cleveland. The Sleep Disorders Center at SkyRidge Medical Center

features six beds and is accredited by the American Academy of Sleep Medicine (AASM). The fact that Ibrahimbacha is certified in four subspecialties gives him an edge when delivering high-quality care to his patient base in Cleveland. "It's a one-stop shop for my patients," he says.

Ibrahimbacha sees the full spectrum of sleep disorder patients including sleep-disordered breathing (SDB), insomnia, restless legs syndrome, and a wide variety of other disorders. With SDB being the most commonly treated disorder, Ibrahimbacha has structured an individualized approach to care. SDB patients who are treated with continuous positive airway pressure (CPAP) are carefully managed by Ibrahimbacha. For patients who struggle with the therapy, Ibrahimbacha has established an effective network of physicians that can offer patients alternatives to CPAP treatment. Ibrahimbacha has developed relationships with dentists who specialize in offering oral appliances and ENTs who can offer patients surgical treatments for obstructive sleep apnea. This network will serve the facilities well as health care reform takes place and as proposals like the American Academy of Sleep Medicine's Integrated Delivery Model potentially take shape.

The Integrated Delivery Model starts with a patient referral to a sleep specialist who decides the patient's treatment pathway. Within the context of this model, not only would the sleep specialist provide durable medical equipment (DME), but they would also have a network of dental sleep medicine and surgical specialists to whom to refer patients. Having these established

relationships and direct access to DME would close the treatment loop, creating a more seamless management process that keeps the sleep specialist at the center with the patient.

"We need to figure out how sleep medicine will fit in health care reform, and more specifically, how to deliver a more integrated sleep management model to keep doctors more engaged throughout a patient's care period," Ibrahimbacha says. "Integrated sleep management is important because it creates a patient management system that stays with the patient from beginning to end."

As sleep medicine evolves, Ibrahimbacha looks forward to advancing the facilities where he is based to ensure patients are receiving top-notch treatment. Although keeping up on a rapidly changing health care profession takes time and commitment, Ibrahimbacha has not forgot his roots in Syria. "I visit every 2 to 3 years to do work by giving free consultations to the community and to exchange knowledge and experience with doctors," he says.

Nina Silberstein is a contributing writer for Sleep Review. She can be reached at sleepeditor@allied360.com.

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Weill Cornell Center for Sleep Medicine



Making Things Better

BY RENEE DIULIO

The Weill Cornell Center for Sleep Medicine seeks to advance sleep medicine through comprehensive care, quality processes, and intense research.

At the Weill Cornell Center for Sleep Medicine in New York, NY, the staff is not just dedicated to improving patients' sleep—they are focused on improving patients' overall health, today and tomorrow. This means not just diagnosing and treating patients' sleep disorders, but providing comprehensive care, implementing smart practice processes, and completing research intended to advance the discipline of sleep medicine.

"We try to move the field ahead," Arthur J. Spielman, PhD, co-director of the Center for Sleep Medicine and adjunct clinical professor of psychology in neurology at the Weill Cornell Medical College of Cornell University, also in New York, says of the clinic's philosophy.

The center first opened in 1985 at Weill Cornell Medical College and moved to the Manhattan area in the 1990s. About 2 years ago, the sleep center moved again, into a new facility designed specifically for the sleep team's use. Located in the Upper East Side of the city, it is near the Memorial Sloan-Kettering Cancer Center and The Rockefeller University.

The Weill Cornell Center for Sleep Medicine collaborates with both institutions on research designed to advance sleep science. Currently, it is enrolling patients for two clinical trials in sleep apnea and recently closed enrollment on a third study on sleep bruxism and desensitization in myofascial face pain. "We don't want to just stand on current knowledge. We actively investigate," Spielman says.

CENTER BASICS

The team at the center is comprised of a number of specialists, including Spielman, a clinical

psychologist and a noted expert in insomnia. Ana Krieger, MD, MPH, Spielman's fellow co-director, is a pulmonologist with expertise in sleep apnea. Other team members specialize in neurology, internal medicine, pulmonary medicine, ear, nose, and throat (ENT), pediatrics, psychiatry, bariatric surgery, nutrition, and endocrinology.

A nurse practitioner and technologists round out the clinical staff. With studies running 6 nights a week, there can be up to five technologists working through the night, Spielman notes. A support staff manages the office and proper paperwork, and visiting physicians perform research and hone their sleep medicine skills.

Patients come from neighboring institutions and the associated medical facility, but also from the metropolitan area. Patients may be referred or can come in on their own.

EXPERT TREATMENT

With almost 50 years in the field (Spielman was at the first sleep center certified in the United States), he has seen it all—or nearly. "There is a rare growling sleep disorder that I've never seen," Spielman says.

He is perhaps best known for his work in insomnia and, subsequently, sees many patients with this disorder. "Insomnia is the most prevalent sleep disorder there is, but the health consequences of obstructive sleep apnea, as well as the very effective treatment regimens and management we have for that, bring in many patients with that condition," Spielman says.

Sleep apnea patients are often treated with CPAP. "CPAP is the most reliable treatment for obstructive sleep apnea, but about one-quarter to one-third of patients openly don't use it," Spielman says.

To improve patient compliance, the center offers

an intense adaptation program: patients come into the lab to try on different masks; the staff work with them to test the different pressures, show them how to use the equipment, teach them relaxation techniques, and evaluate what works best for each individual. "It's an extensive number of hours," Spielman says.

Spielman notes compliance is an issue experienced and addressed by many sleep centers, and solutions can be innovative. Spielman has studied hypnosis as a method to help patients adapt to CPAP during the first month, with some success.

QUALITY MEASURES

The adaptation program will likely be modified moving forward. The staff is constantly seeking ways to improve care, and no improvement is too small. The process is evolutionary, and no procedure is static—even the tools are dynamic. The new space has installed state-of-the-art equipment in the 12 sleep rooms and the control center.

"Everybody is concerned with making things absolutely right," Spielman says. And while perfection is a constant objective, while they pursue it, the staff at the Weill Cornell Center for Sleep Medicine are definitely making things better.

Renee Diulio is a freelance writer based in Manhattan Beach, Calif. She can be reached at sleepeditor@allied360.com.

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