Medical MARIJUANA’S Effect on Sleep

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Medical Marijuana’s Effect on Sleep
By Joseph Anderson, RPSGT, CCSH, RST, RPFT, CRT-NPS

Many states are adopting the use of marijuana for medical purposes even though federal law does not yet support marijuana to be used in this context. This article discusses its medical use, as well as its use in society historically and today.

Attention Deficit Hyperactivity Disorder and Delayed Sleep Phase Syndrome May Be Linked
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Circadian Rhythm Sleep Disorders: An Overview
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The AAST 2019 Annual Meeting is almost here! Secure your spot to join us in September and take your skills, knowledge and expertise to the next level, gaining insights into the evolving field of sleep. This year’s meeting features a variety of educational sessions, innovative industry keynotes, more dedicated time with exhibitors and the chance to connect with more than 300 fellow sleep professionals.

**Leading Education**

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As we continue to expand our horizons and define who we are and our roles as sleep professionals, continued learning is essential. As predicted way back in 2013 at the AAST Summit, we are now commonly seeing more complicated patients in our sleep centers for testing and more complicated treatments, both of which require more knowledge and skill.

I believe our roles will only continue to expand, and that as new knowledge becomes available, we will be able to leverage it to assist our patients.

In addition, more and more we are moving into clinical education roles and specialty roles in physician practices and hospital-based inpatient programs. This wide range of new horizons has led to a recent update of our Sleep Educator job description to encompass some additional areas of expertise. I believe our roles will only continue to expand, and that as new knowledge becomes available, we will be able to leverage it to assist our patients. As professionals, we must remain current in our knowledge and provide education to our patients that is up to date and applicable. AAST is working hard to keep up with all of the new pertinent information that is coming out daily and provide excellence in education for our members.

AAST’s foundation is education; our focus is on providing high-quality current educational offerings on an ongoing basis. As A2Zzz editor, I have the pleasure of seeing these new offerings before they are disseminated, and I am always surprised at the diversity of the new information becoming available that is useful for our members and readers. A2Zzz strives to include information that is applicable to the night technologist facing more complicated patients in the sleep center as well as the sleep educator and those in other new and exciting roles.

This issue of A2Zzz offers a variety of information on new findings, including a possible connection between ADHD and delayed sleep phase syndrome (DSPS) and the possible benefits of medical marijuana for sleep disorders. The Trends article in this issue explores the transition we are seeing from a “trade” to a “profession” and the education needs to get us there, and explores some of the new competencies required in the sleep center. These topics and more provide opportunity for continued learning that assists us to grow and to keep up with the latest information in our field.

The AAST Program Committee has prepared an excellent lineup for our AAST 2019 Annual Meeting. This year’s meeting in St. Louis is scheduled for Sept. 6-8 and there is still time to register. Numerous vendors are supporting this year’s meeting, including our faithful prestige partners and several new vendors with interesting offerings.

The program includes cutting-edge topics that are sure to interest attendees, including a pre-conference session, CCHS Workshop: AAST CCHS Designated Education Program. Upon completion of this full-day workshop and receiving a passing score on the online post-test, RPSGT credential holders who have recertified at least once will be eligible for the CCHS credential under a newly created BRPT pathway.

I look forward to seeing you at the meeting in St. Louis.

Wishing you all a happy healthy summer.

Sleep well! ☔️

Rita
Instructions for Earning Credit

AAST members who read A₂Zzz and claim their credits online by the deadline can earn 2.00 AAST Continuing Education Credits (CECs) per issue, for up to 8.00 AAST CECs per year. AAST CECs are accepted by the Board of Registered Polysomnographic Technologists (BRPT) and the American Board of Sleep Medicine (ABSM).

To earn AAST CECs, carefully read the four designated CEC articles listed below and claim your credits online. You must go online to claim your credits by the deadline of **Nov. 14, 2019**.

After the successful completion of this educational activity, your certificates will be available in the My CEC Portal acknowledging the credits earned.

**COST**
The A₂Zzz continuing education credit offering is an exclusive learning opportunity for AAST members only and is a free benefit of membership.

**STATEMENT OF APPROVAL**
This activity has been planned and implemented by the AAST Board of Directors to meet the educational needs of sleep technologists. AAST CECs are accepted by the Board of Registered Polysomnographic Technologists (BRPT) and the American Board of Sleep Medicine (ABSM). Individuals should only claim credit for the articles that they actually read and evaluate for this educational activity.

**READ AND EVALUATE THE FOUR FOLLOWING ARTICLES TO EARN 2.0 AAST CECs:**

**Medical Marijuana's Effect on Sleep**
**Objective**: Readers should understand the history of the medical use of cannabis and the varying outcomes it can have on individuals.

**Attention Deficit Hyperactivity Disorder and Delayed Sleep Phase Syndrome May Be Linked**
**Objective**: Readers should understand how ADHD and delayed sleep phase syndrome may be linked, and how this association could impact ADHD treatment.

**Circadian Rhythm Sleep Disorders: An Overview**
**Objective**: Readers should understand how the primary circadian rhythm sleep disorders disrupt people's lives and how the diagnosis and treatment of these disorders should focus on personal fit.

**Caffeine and Sleep**
**Objective**: Readers should understand that there are various opinions about how caffeine affects sleep.

**STATEMENT OF EDUCATIONAL PURPOSE & OVERALL EDUCATIONAL OBJECTIVES**
A₂Zzz provides current sleep-related information that is relevant to sleep technologists. The magazine also informs readers about recent and upcoming activities of the AAST. CEC articles should benefit readers in their practice of sleep technology or in their management and administration of a sleep disorders center.

**READERS OF A₂ZZZ SHOULD BE ABLE TO DO THE FOLLOWING:**
- Analyze articles for information that improves their understanding of sleep, sleep disorders, sleep studies and treatment options
- Interpret this information to determine how it relates to the practice of sleep technology
- Decide how this information can improve the techniques and procedures that are used to evaluate sleep disorders patients and treatments
- Apply this knowledge in the practice of sleep technology

You must go online to claim your CECs by the deadline of **Nov. 14, 2019**.
AAST has recently released the third edition of “Fundamentals of Sleep Technology.” This newly updated textbook provides comprehensive, up-to-date coverage of polysomnography and other technologies in the evaluation and management of sleep disorders in adults and children.

Authored by Teofilo Lee-Chiong Jr., MD, Cynthia Mattice, MS, RPSGT, RST, and Rita Brooks, MEd, REEG/EPT, this edition has been extensively updated and expanded to reflect current practice, the latest technology, and the broader roles and responsibilities of the sleep technologist.

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AAST members receive a 10% discount to purchase the book!
Medical MARIJUANA’S EFFECT ON SLEEP

By Joseph Anderson, RPSGT, CCSH, RST, RPFT, CRT-NPS
Many states are adopting the use of marijuana for medical purposes even though federal law does not yet support marijuana to be used in this context. Before we discuss its medical use, let’s discuss its use in society historically and today.

For centuries, the plant we commonly call “marijuana” has been used for a variety of reasons, including relaxation or fun, medical purposes, pain management, as a sleeping aid and social interactions.

**Historical Use**

Ancient Hindus in India were against the use of alcohol but accepted social cannabis use. In ancient Rome, wealthy people finished banquets with a cannabis seed dessert that was known for the “good feeling” it caused. At ancient Indian weddings, cannabis (bhang) was served for good luck and as a sign of hospitality. Today, people often use cannabis for specific activities and occasions as well as perceived medical purposes.

**Spiritual Use**

Cannabis has a rich history of spiritual use. It is listed as one of the five holy plants in the “Atharvaveda,” a sacred Indian text from the second millennium BCE. The Scythians, who lived in what is now Eastern Europe, used cannabis at funerals to pay respect to departed leaders. Ancient Chinese texts say that cannabis can lighten a person’s body and allow them to communicate with spirits. They actually have been credited with “cannabis” and would throw hemp seeds on hot rocks inside enclosed tents and inhale the smoke. The Persian prophet Zoroaster (7 BCE) relied on the intoxicating effects of bhang, a cannabis drink, to bridge heaven and earth. Some researchers believe that kannabosm, a plant mentioned in the Old Testament as an ingredient in the sacred anointing oil, was an ancient name for cannabis.

**Social Use**

Though social use of marijuana has been occurring for centuries, it was during the 1960s and 1970s when the social use of the plant experienced an explosion in modern culture popularity. This popularity increase is partly attributed to music and social acceptance among the younger population of those decades.

Its use continued through the next several decades but seemed to slow in popularity when employers began drug screening potential employees and with the increasing popularity of other widely used substances such as cocaine. Cocaine’s water solubility made it less likely to remain in the human system and thereby harder to detect its casual use than marijuana. In the current decade, the use of marijuana has shown a dramatic increase. This might be contributed to more social acceptance, increased availability, decreased criminalization, medical use and recreational use legalization in some states.

**Medical Use**

Cannabis has been used medically for thousands of years. In 2700 BCE, Shen Neng, Chinese Emperor and father of Chinese medicine, used cannabis as a remedy for a variety of ailments. The Ebers Papyrus, an ancient Egyptian medical text, also mentions cannabis. It was written in 1500 BCE and is one of the oldest pharmaceutical works known.

Over the past decade, research has focused more on the use of cannabis for medical purposes. Individuals with insomnia tend to use medical cannabis for sleep at a high rate. Use for sleep is particularly common in individuals with PTSD and chronic pain.

When we ask what marijuana, or cannabis, does to our sleep, we are combining two vast unknowns: an insufficiently studied drug and a biological enigma. It is a universally acknowledged truth that marijuana can make you sleepy. Smokers everywhere have long sought to learn exactly why. But this ignores a larger question; namely, how does it alter sleep itself?

We know from studies on alcohol that falling asleep faster doesn’t necessarily correlate to better overall sleep. In fact, the opposite is true: Alcohol tends to disrupt our slumber, as it can cause breathing problems or sleepwalking. So, before we can assume using marijuana is a way to get some shut-eye, let’s consider what it can do to your body and brain after it causes sleep.

The effects of cannabis vary widely depending on the user, the strain, the dose and environmental factors. But the mechanism of its influence is always the same. Common research says marijuana influences the body’s endocannabinoid system, a complex network of receptors sensitive to chemical compounds found in the drug.

Researchers believe the endocannabinoid system plays a role in many of our daily biological functions, from hormonal and immune function to the regulation of appetite and pain. It also mitigates our stress and anxiety responses. You may have noticed that it’s hard to fall asleep...
if you’re not relaxed. New research suggests that cannabinoid signaling can directly promote sleep.

All this gives scientists hope that we will eventually develop therapeutic drugs that rely on the endocannabinoid system to deliver their physiological benefits. For now, though, marijuana makes use of this fascinating part of our anatomy. And we are just beginning to understand the subtleties of how its cannabinoids can modify our nightly rest.

The first thing to know about marijuana’s impact on sleep is that different cannabinoids have varying effects. The two main chemicals we are concerned with are THC, or tetrahydrocannabinol: the psychoactive ingredient that accounts for the marijuana “high”, and CBD, or cannabidiol: a non-psychoactive substance increasingly valued for its therapeutic applications.

THC reportedly promotes sleep by activating the endocannabinoid system’s CB1 receptors. It has also been widely reported that THC shortens the period of sleep latency and causes the users to sleep longer. Research also connects THC to an increase in slow-wave sleep, an essential aspect of cerebral restoration and recovery.

Other studies, meanwhile, show that CBD may keep us awake. One study found this cannabinoid to be “wake inducing.” Another concluded that although THC appears to be sedative, CBD appears to have “alerting properties,” as it increased awake activity during sleep and even counteracted the sedative effects of THC.

In a different experiment, rats that received doses of CBD took longer to fall asleep in the daytime but slept more overall and had a slight increase in slow-wave sleep — however, not enough to be statistically significant. Since one consumes both these competing cannabinoids when marijuana is smoked, this could certainly account for mixed results in its confused reputation as a sleep aid.

Whether marijuana ruins your sleep is a subject of more dispute than whether it makes it easier to fall asleep on the couch. What’s less debatable is that both CBD and THC inhibit rapid-eye movement and the duration of REM sleep. Lack of REM sleep can lead to health conditions like migraines, and, as experts, we know REM sleep is crucial for proper rest.

If you speak to someone who has suffered from insomnia at all as an adult, chances are good that person has either tried using marijuana for sleep or has thought about it. This is reflected in the many variations of cannabinoid or cannabis-based medicines available to improve sleep such as Nabilone, Dronabinol and Marinol. Researchers seeking to learn how cannabis affects the sleeping brain have studied volunteers in the sleep laboratory and measured sleep stages and sleep continuity.

It’s also a common reason for many cannabis users to seek medical marijuana cards. While there are still many questions to be answered, existing research suggests the effects of cannabis on sleep may depend on many factors, including individual differences, cannabis concentrations and frequency of use. Marijuana is the most common form of cannabis available in the United States and can vary widely in potency.

Some studies showed that users’ ability to fall and stay asleep improves with cannabis use. A small number of subjects also had a slight increase in slow-wave sleep. However, once nightly cannabis use stops, sleep clearly worsens across the withdrawal period. This research suggests that while motivation to use cannabis for sleep is high, and might initially be beneficial to sleep, these improvements might wane with chronic use over time.

Interestingly, when controlling for the presence of anxiety and depression, the differences disappeared. This suggests that cannabis’ effect on sleep may differ depending on whether you have depression or anxiety. In other words, if you have depression, cannabis may help you sleep, but if you don’t, cannabis may hurt. One recent study showed...
the frequency of use seems to be an important factor as it relates to the effects on sleep. Thirty-nine percent of daily users complained of clinically significant insomnia. Meanwhile, only 10% of occasional users had insomnia complaints.

Cannabis is still a Schedule I substance, meaning that the government does not consider cannabis to be medically therapeutic due to lack of research to support its benefits. This creates a barrier to research. Few universities in the country are permitted by the National Institute of Drug Abuse to grow marijuana for research. One university that is approved is the University of Mississippi. This is expected to change.

New areas for exploration in the field of cannabis research might examine how various cannabis subspecies influence sleep and how this may differ among individuals. Research groups have been exploring cannabis types or cannabinoid concentrations that are preferable depending on one’s sleep disturbance. For example, one strain might relieve insomnia, while another can affect nightmares. Other studies suggest that medical cannabis users with insomnia tend to prefer higher concentrations of cannabidiol, a non-intoxicating ingredient in cannabis.

This raises an important question: Should the medical community communicate these findings to patients with insomnia who inquire about medical cannabis? Some health professionals (and some of you reading this article) may not feel comfortable due to the fluctuating legal status, a lack of confidence in the state of the science or personal opinion. At this point, cannabis’ effect on sleep seems highly variable, depending on the person, the timing of use, the cannabis type and concentration, mode of ingestion and other factors. Perhaps the future will yield more fruitful discoveries.

While many people do swear by marijuana as a way to get a good night’s sleep, they may not be getting the kind of rest they need.

RSleepWorld Vendor News on June 21, 2018, reported: “Melbourne, Australia-based nasal respiratory company Rhinomed is pleased to advise investors that it has signed a non-binding term sheet with Columbia Care LLC (“Columbia Care”) to license Rhinomed’s nasal platform for the delivery of medical cannabis and cannabinoid compounds, analogs and derivatives.”

All of this is to say: While many people do swear by marijuana as a way to get a good night’s sleep, they may not be getting the kind of rest they need. As with every topic in marijuana science, the matter of its effect on sleep is still up for debate, thanks in part to federal prohibition.

JOSEPH ANDERSON, RPSGT, CCSH, RST, RPFT, CRT-NPS, is an EEG and sleep patient care coordinator at SOVAH Health in Martinsville, Virginia.
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Get started at www.aastweb.org by checking out the latest offerings, including the AAST 2018 Annual Meeting Recordings.
Bright light therapy is the strategic use of strong-intensity light to shift a person's circadian phases earlier or later. The intensity of the light is stronger than that of natural light and can temporarily stop the production of melatonin. Exposure to bright light soon after awakening advances the sleep/wake phases, whereas exposure to bright light soon before going to bed delays the sleep/wake phases. People with DSPS typically undergo morning bright light therapy for several days to advance their sleep/wake phases. Once the phases are shifted to a desired time, the person then maintains bright light exposure at the same time daily to prevent the relapse of DSPS.

The sleep-promoting hormone melatonin is produced in the pineal gland, which receives signals from the eyes about light intensity. During the night, melatonin normally rises to its highest level and, during the daytime, it falls to its lowest level. To prevent sleep-onset insomnia, a person with DSPS takes melatonin a few hours before bedtime to increase the melatonin level and aid the onset of sleep at a desired time.

In chronotherapy, the bedtime and awakening time of a person with DSPS is set one to three hours later each day over several days until the person's sleep/wake phases occur at a desired time. The schedule is then strictly maintained at the desired hours.

The prevalence of certain sleep disorders such as obstructive sleep apnea, insomnia and restless legs syndrome are increased among children and adults with attention deficit hyperactivity disorder (ADHD). In 1991, Dahl and colleagues reported a possible link between ADHD and a circadian disorder in their case report of a 10-year-old girl who had ADHD and delayed sleep phase insomnia. Chronotherapy with behavioral modification significantly improved her ADHD symptoms and increased her sleep time by approximately 29%. In 2000, Gruber and colleagues more objectively corroborated a possible link between ADHD and sleep-onset insomnia, based on actigraphy and sleep diary data. In 2005, Van der Heijden and colleagues suggested that sleep-onset insomnia in children with ADHD was in actuality a symptom of delayed sleep phase syndrome (DSPS), based on the finding that the onset of dim light melatonin production was delayed. Some scientists now believe that ADHD and DSPS are linked and believe that an estimated 73-78% of children and adults with ADHD also have DSPS. In recent years, scientists have begun investigating whether treating DSPS in people with comorbid ADHD and DSPS improves ADHD symptoms.

People with ADHD have difficulty focusing on tasks (i.e., inattention) and may act impulsively. They may behaviorally be disorganized, restless and virtually always in motion (i.e., hyperactive). Symptoms of ADHD often begin in childhood and, in some people, continue into adulthood. Hyperactivity tends to improve by the teen years, whereas problems with inattention, disorganization and poor impulse control often continue into adulthood.

Stimulant medications are the first line of treatment for people with ADHD. Stimulant medications ironically reduce hyperactivity and impulsivity and improve a person's ability to focus, work and learn. The reasons for this effect are unclear. A possible explanation may be that stimulants increase brain levels of the neurotransmitter dopamine, which is involved in thinking and attention.

Antidepressants such as tricyclic drugs (e.g., amitriptyline, desipramine) are sometimes used to treat adults with ADHD, although antidepressants are not approved for treating ADHD. Tricyclic drugs affect brain levels of norepinephrine and dopamine, which may enhance a person's ability to focus and reduce hyperactivity.

Behavioral therapy and psychological counseling can be helpful for people with ADHD. Behavioral therapy can involve maintaining a routine schedule; organizing everyday items; and, for children, using homework and notebook organizers, and giving praise or rewards when rules are followed. A therapist can help adults with ADHD with organizing their life with tools such as maintaining a routine and breaking large tasks into smaller tasks.

In people with DSPS, the sleep/wake phases occur later than normal. Thus, they naturally want to go to sleep in the early morning hours (e.g., one to three hours after midnight) and awaken late in the morning (e.g., 10-11 a.m.).

When trying to follow the societally "normal" schedule, people with DSPS have difficulty initiating sleep at night (i.e., insomnia) and awakening in the morning. When not following a "normal" schedule, the person's sleep duration and quality is normal, but the sleep and wake phases are delayed. The disorder typically manifests during the teen years.

The goal of DSPS treatment is to shift the sleep/wake phases to a more socially "normal" time. This shift can be accomplished by bright light therapy, melatonin therapy and chronotherapy.
Recent research indicates that the pineal gland volume is smaller in people with ADHD than in people without ADHD.

aspects of sleep) and in subcortical regions (e.g., the basal ganglia, a group of specialized neurons at the base of the brain that are involved in a variety of functions such as sleep/wake cycles, the control of voluntary motor movements, procedural learning, habit learning, eye movements, cognition and emotion).

Imeraj and colleagues\(^\text{11}\) suggest that altered circadian rhythms in people with ADHD may result from dysfunction of the locus coeruleus. The locus ceruleus is a blue-tinged area on the back of the brainstem near the cerebellum that is involved in the onset and offset of rapid eye movement sleep and in other aspects of sleep and wake, and in circadian rhythmicity. It is also involved in movement. In people with ADHD, the arousal processes involving the locus ceruleus may be altered.

Alterations in the pineal gland may be involved in the coexistence of ADHD and DSPS. The pineal gland produces melatonin and is involved in circadian rhythms and in circadian preference (i.e., whether a person is a “morning” person or an “evening” person). This gland also has a role in movement. Recent research\(^\text{12}\) indicates that the pineal gland volume is smaller in people with ADHD than in people without ADHD, and that people with ADHD tend to have an “evening” circadian preference, which may be related to the reduced volume.

Such findings are interesting. However, more studies are needed to determine whether ADHD and DSPS have a shared pathophysiology.

It would seem that treating DSPS in people with ADHD would impact ADHD symptoms. To test this possibility, Fargason and colleagues\(^\text{8}\) used bright light therapy to advance the circadian rhythms in people with coexisting ADHD and DSPS. The researchers also assessed whether bright light therapy could reduce ADHD symptoms. The study participants underwent two weeks of morning bright light therapy, after undergoing a one week baseline assessment. All participants wore an actigraphy watch to monitor changes in nocturnal and diurnal activity levels. The baseline and post-treatment onset of dim light melatonin production times were compared. A questionnaire was used to measure ADHD symptoms. Fargason found that bright light therapy significantly advanced the onset of dim light melatonin production. This phase advance was significantly correlated with a decrease in ADHD symptoms and in hyperactivity-impulsivity. Based on these findings, Fargason suggests that bright light therapy could be a complementary treatment for adults with DSPS and ADHD symptoms.

REGINA PATRICK, RPSGT, RST, has been in the sleep field for more than 20 years and works as a sleep technologist at the Wolverine Sleep Disorders Center in Tecumseh, Michigan.
Takeaways

• Not only is the internal clock shifted, but the patient is unable to shift it back.
• These disorders disrupt people's lives and may have other health consequences.
• Treatments are often ineffective.
• When performing a sleep study, the time should be scheduled to conform to the patient’s internal clock.

Introduction

I have delayed sleep phase disorder (DSPD). That means I am unable to fall asleep until very late at night and normally sleep very late in the morning. My sleep doctor sent me to a sleep lab to get a polysomnogram. The lab techs insisted I try to sleep at midnight, and they woke me at 5 a.m. The sleep doctor then informed me that my problem was I wasn’t getting any deep sleep. No, not between midnight and 5 a.m. — I could have told her that.

Definitions

Circadian rhythms are physiological, and behavioral changes in the body that occur on roughly a 24-hour cycle. Examples are sleep, alertness, core body temperature, appetite and many hormones.

Circadian rhythm sleep disorders (CRSDs) are neurological disorders in which the sleep-wake cycle is out of sync with the day-night cycle. We focus on these three: delayed sleep phase disorder, advanced sleep phase disorder and non-24-hour sleep-wake disorder.

Delayed sleep phase disorder (DSPD) is characterized by an inability to fall asleep until very late at night, with the resulting need to sleep late in the morning or into the afternoon.

Advanced sleep phase disorder (ASPD) is the opposite. It is characterized by falling asleep very early in the evening and waking up in the very early morning hours, unable to sleep further.

Non-24-hour sleep-wake disorder (non-24) (also called free running disorder) is a condition in which a person’s day length is significantly longer than 24 hours, so that sleep times get later each day, cycling around the clock in a matter of days or weeks.

Two Factors

There are two factors to these disorders. One is that the body’s internal clock is shifted with respect to the external day-night cycle. The other is that it is difficult or even impossible to shift back to a normal sleep schedule. That is the part that people who have not experienced these disorders find so difficult to understand.

Even when physically tired or sleep deprived, these people often cannot make up for lost sleep outside of their hardwired sleep times.

Most people can adjust their sleep times with sufficient discipline. We cannot.

Prevalence

A careful survey of 10,000 adults concluded that 0.17% had clinically diagnosable DSPD. That’s about one in 600, or half a million Americans. Three times as many as have narcolepsy. Yet it often goes undiagnosed, in part because people, even doctors, are unaware of these disorders.

It is well-known that circadian rhythms often shift later during adolescent years, so DSPD is much more prevalent among teens.

The same survey didn’t find any cases of ASPD. Additionally, ASPD is less frequently diagnosed because it doesn’t cause patients to be late for work or school, so they are less likely to seek medical help.

It is estimated that over half of all totally blind people have non-24. However, some sighted people also suffer from non-24. Sighted non-24 was thought to be extremely rare, but our own survey and discussions on social networks suggest it is more common than previously thought.

Impact

Damned if you do.

Most people with these disorders try to live on a normal schedule. School or work requirements enforce this. These people often get less than six hours of sleep a night and become sleep deprived. Many report sleeping through loud alarm clocks. They are often late for work and often lose their jobs.

Most people can adjust their sleep times with sufficient discipline. We cannot.
These folks drag themselves through one day after another. The struggle with fatigue, day in and day out, is wearing and can lead to depression. At best, these people are not able to function well. Like most sleep-deprived people, they are at greater risk of automobile accidents. In the long term, they are destroying their health. The constant sleep deprivation can lead to cancer, diabetes, fibromyalgia, depression and other illnesses.  

Damned if you don’t.

Some people have been happier and healthier sleeping on their bodies’ preferred schedules. However, they have great difficulty finding regular work. Some manage by doing freelance work if they have marketable skills. But when living on their bodies’ preferred schedules, they also have difficulty scheduling appointments, getting repairs on their homes or even being available to their children when needed.

In addition, they often lack support from family, friends and the medical community, and are called lazy and undisciplined by those who do not understand the severity of these disorders. Patients not only have to deal with their disorder, but they have to fight with the people who should be supporting them.

It has been suggested — without supporting data — that people with circadian rhythm sleep disorders who sleep on their bodies’ preferred schedule sleep well, wake up refreshed and feel alert during their awake time. Anecdotal evidence and our own survey data contradict that. Many of us wake up groggy, struggle for hours to wake up fully and are still not at peak alertness.

Personal Experiences

Back when I was attending college, and later working a daytime job, I was always slightly depressed, and twice had major depressive episodes lasting many months, with suicidal feelings. After my DSPD was diagnosed and I started living on my body’s preferred schedule, the depression lifted. My mood is now quite normal, and I have a positive outlook.

Once, when I had to get up very early for an important meeting, I drove to work, and in my sleepy fog, I drove onto a highway using the off ramp. If you’ve never faced a stream of automobiles coming at you at 60 miles an hour, I don’t recommend it. Fortunately, adrenaline kicked in, and I was able to get to the shoulder quickly.

More generally, even getting up a few hours early leaves me somewhat dysfunctional for a day or two and not able to perform well in my work. I’ve learned to insist on afternoon appointments.

One DSPD patient wrote me saying, "For decades, I worked day jobs after sleeping 3:30-7:30 a.m., catching up on weekends … That worked while I was young and resilient. Next step was adding a long ‘nap’ from 5-10 p.m. Wreaks havoc with the social life, but it kept me my job for years. If you can’t be normal, you’re not good enough. You learn to apologize, make excuses, tell lies. No one understands.”

A non-24 patient wrote me saying, "I no longer live in a 24-hour day. I live in a 27-hour day … I can’t predict how much forward I will move, and I can’t stop it. There isn’t a cure. There are treatments, but their success rate is low, and they have proven unsuccessful for me … As you can imagine, not having a consistent schedule means that I cannot work a normal job, or any job. No one wants to employ me in the United States. The ADA doesn’t help me because they do not consider my disability to be worth accommodating."

Diagnosis

The first hurdle for people suffering from constant tiredness is to get their primary care doctor to refer them to a sleep specialist. Too often the primary doctor treats the problem as insomnia and prescribes sleeping pills or blames it on depression when the real culprit is the underlying circadian disorder. We know of too many people who went for years being repeatedly misdiagnosed and often given medications with side effects for conditions they didn’t have.

The first hurdle for people suffering from constant tiredness is to get their primary care doctor to refer them to a sleep specialist. Too often the primary doctor treats the problem as insomnia and prescribes sleeping pills or blames it on depression when the real culprit is the underlying circadian disorder. We know of too many people who went for years being repeatedly misdiagnosed and often given medications with side effects for conditions they didn’t have.

The sleep specialist often refers the patient to a sleep laboratory for an overnight sleep study. This can diagnose or rule out other disorders such as sleep apnea or restless legs syndrome. Often a multiple sleep latency test (MSLT) is prescribed to check for narcolepsy. But there is a problem. Most sleep studies are conducted during normal sleep hours. This may not be valid for someone with a circadian rhythm sleep disorder, who sleeps on a different schedule. It is known, for example, that the MSLT can yield false positives for people working the night shift. Surely the same applies to a DSPD patient working a 9-to-5 day shift.

Scheduling is particularly difficult for non-24 patients, because they often cannot predict where their schedule will be far enough in advance to schedule the study.

Treatment

Treatment attempts to shift the patient’s circadian rhythm to fit conventional job schedules. Three treatments are generally suggested: light therapy, light restriction and melatonin. All three may be used together. This assumes normal sleep hygiene is already being followed.

Light therapy involves exposure to bright light. For DSPD and non-24 patients, this would be in the morning; for ASPD patients, it would be at night.

Light restriction for DSPD and non-24 means limiting light exposure to only very dim light in the evening. Light containing a lot of blue should particularly be avoided.

Melatonin, prescribed as a chronobiotic to shift circadian rhythm, should be taken four to eight hours before bedtime. The same dose of melatonin gives rise to widely varying
It seems likely that different patients may have different underlying causes. DSPD, for example, is a symptom, as fever is a symptom, but it may have different causes in different people. That would explain the low success rates of the various treatments, which are not being tailored to the underlying cause.

**Conclusion**

Further research is sorely needed. The American Academy of Sleep Medicine (AASM), Sleep Research Society (SRS) and Society for Research on Biological Rhythms (SRBR) are drafting a white paper on needed research, and Circadian Sleep Disorders Network has submitted its priorities.16

**References**

These are examples; many more supporting references are available:

3. ICSD-R (International Classification of Sleep Disorders, Revised), American mAcademy of Sleep Medicine, 2001, p.130.
12. Burgess HJ, Revell VL, Molina TA, Eastman CI, Human phase response curves to three days of daily melatonin: 0.5 mg versus 3.0 mg (J Clin Endocrinol Metab. 2010 Jul;95(7):3325-31).

**PETER MANSBACH, PH.D.** is founder and president of Circadian Sleep Disorders Network, an independent nonprofit organization dedicated to improving the lives of people with chronic circadian rhythm sleep disorders.
Caffeine and Sleep

By Brendan Duffy, RPSGT, RST, CCSH

I recently spoke with several sleep experts about caffeine and sleep. These wonderful sleep professionals were very giving of their time and knowledge, and I thank them immensely. It is because of their willingness to share their time, thoughts and friendship that I can share this information with you.

Below is a summary of the questions I posed — and some of their responses. So, pour yourself a “Double Ristretto Venti Half-Soy Nonfat Decaf Organic Chocolate Brownie Iced Vanilla Double-Shot Gingerbread Frappuccino Extra Hot with Foam Whipped Cream Upside Down Double Blended, One Sweet’N Low and One NutraSweet” — or perhaps just a refreshing glass of ice water — and enjoy this coffee break with sleep experts.

In what ways does caffeine affect sleep, and are there benefits to using caffeine as a way to increase alertness and/or reaction time?

Dr. Jaques Reifman, Ph.D., senior research scientist, U.S. Army: https://www.sciencedaily.com/releases/2018/06/180604093116.htm

Caffeine binds to brain receptors (adenosine receptors, which, when activated by adenosine, promote sleepiness and suppress arousal). Hence, when caffeine, instead of adenosine, binds to these receptors, it inhibits the slowdown of neural activity and reduces your feeling of sleepiness. Therefore, caffeine acts as a stimulant to the central nervous system, promoting alertness and reducing reaction time.

Dr. Ian Dunican, Ph.D., MineEng, MBA, GCASSc, BA, sleep and performance expert: Twitter: @sleep4perform

Caffeine affects sleep mainly by delaying sleep onset. As we know from the pharmacokinetics, it takes an hour to peak, has anywhere from a four- to six-hour half-life, and takes up to eight hours or more to leave the body. So, we know when people have caffeine when going to bed, that actually delays sleep onset. We also see it can cause disruptions in sleep after sleep onset, which means more awakenings throughout the night.

As for the second part of the question about reaction time, this is interesting because the data in athletes is a little bit contradictory in some ways; in some studies, it does increase alertness and, in some, it does not. It depends how you want to quantify alertness and/or reaction time. What is interesting is if we look at military studies where people are taking caffeine after sleep deprivation to negate the effects of sleep deprivation. In a military study where reaction time was being tested, they found that reaction time improved but accuracy diminished. We have also seen with athletes as well that excessive use of caffeine may increase alertness and reaction time, but it may lead to cramping. Although, again, the literature is divided, and there is no direct correlation on that, but we have seen anecdotally in athletes that they do cramp within 60-70 minutes after consuming excessive caffeine levels.

Dr. Marta Maczaj, AASM Board certified sleep physician; co-director, St. Charles Sleep Disorders Center, Port Jefferson: https://stcharleshospital.chsli.org/sleep-disorders-center

Although a cup of coffee (or other caffeinated beverage) in the morning should not interfere with your ability to sleep at night, some individuals are sensitive to caffeine. Others may metabolize caffeine more slowly, and these individuals could have difficulty falling asleep due to the caffeine. Caffeine
is found in many substances, not just coffee. It is present in black tea, green tea, soda, chocolate and energy drinks. Although it is usually OK to have a caffeinated drink up until noon, if you are having trouble falling asleep or staying asleep, then you should consider either restricting or eliminating caffeine intake.

Dr. Daniel Erichsen, sleep physician: https://www.youtube.com/channel/UC_tdQDMOon0CfD0xAbZPNDg/videos

You may be surprised to hear this, but caffeine is virtually never the cause of insomnia. The occasional difficulties falling asleep if you have more coffee at a later time than you normally would, absolutely. Caffeine could be the culprit. Constant or intermittent insomnia for weeks or months, very unlikely. This is important to know because giving up coffee, or anything else you enjoy, increases the influence insomnia has over your life. And for no reason.

Dr. Amy Bender, senior research scientist, Calgary Counselling Centre; sleep performance expert Twitter: @sleep4sport

Caffeine causes more arousals, longer sleep latency and potentially an effect on slow wave activity, so not just the sleep parameters but more the brain wave activity. Per some research studies, if you are sleep restricted, caffeine can benefit you for a short period of time, but after the third day it seems to impair your performance. One of my quotes for World Sleep Day was “Use caffeine strategically, not automatically.” I think if people are addicted, that they have to have their coffee every morning, that can become problematic.

What are your thoughts on “caffeine naps” where a person drinks coffee prior to a short nap? Sometimes referred to as a “nappuccino.”

Dr. Jacques Reifman:
I understand that this “old” idea came back last year with Daniel Pinks’ publishing of "WHEN." I have not seen studies that support this idea, which does not mean they do not exist. With that said, “sleep is sleep,” meaning the sleep community currently believes that sleep is always beneficial, even if it is a short nap. Separately, caffeine promotes alertness. Hence the idea of short naps (20 minutes) seems to make sense, because it takes about 45 minutes for the full effect of caffeine to take place.

Dr. Ian Dunican:
I think it is good. What we have seen is it’s recommended a lot here in Australia where people have to drive long distances, and there are lots of problems with people experiencing micro-sleeps, or driving long distances such as 30 hours or more. This gets back to the pharmacokinetics where the caffeine kicks in after the nap of 20 to 30 minutes, and it will help to negate the sleep inertia.

Dr. Marta Maczaj:
Caffeine naps can be very useful to get through the second half of your work day if you are severely sleep deprived or jet lagged. Schedule a 20-minute nap around 2-3 p.m. and have a cup of coffee or tea/caffeine. When you are waking up after your nap, the caffeine is kicking in and making it easier for you to awaken.

Dr. Amy Bender:
In general, I am not a fan of the caffeine nap because the caffeine can stay in your system at night, therefore impacting your nighttime sleep. So, if I take caffeine at 3 p.m., it’s going to impact my nighttime sleep and, therefore, I think just having a nap — a short power nap — is more beneficial than the nap with caffeine.

What would you like people to know about caffeine metabolism?

Dr. Jacques Reifman:
In our mathematical model, we account for the pharmacokinetics of caffeine (PK: the caffeine concentration time course in the body) and the pharmacodynamics of caffeine (PD: the response of the body to caffeine concentration in the blood). The effect and concentration of caffeine peaks about 45 minutes after consumption and decays exponentially with a half-life of 1.5 hours. Hence, four hours after caffeine consumption, for example, the effect and concentration of caffeine are about 25% of their peak values.

Dr. Ian Dunican:
I would like people to know that everybody is different. We are not all like machines. This is the problem. People kind of think like engineers, like inputs and outputs, but we are all different. I am sure we all know people who can drink coffee and go to bed and be knocked out straight away without a problem. For me, I’d be bouncing around like a frog for two or three hours after consuming caffeine at 7-8 p.m. at night. So, everybody is different as to how they metabolize caffeine, and people like Dr. Amy Bender and Dr. Nanci Guest have done some work on this so they can offer more on this than I can.

The effect and concentration of caffeine peaks about 45 minutes after consumption.
Dr. Marta Maczaj:
The half-life of coffee is around 4.5 hours. It usually takes three half-lives before caffeine is totally eliminated from your system, and this should be taken into consideration when having your last cup of coffee. Some people metabolize caffeine more slowly (or more rapidly), and the caffeine can last a longer time in their system and can interfere with nighttime sleep. Some individuals are very sensitive to caffeine, and the caffeine can also cause a sense of nervousness, an increase in heart rate and also contribute to insomnia.

Dr. Daniel Erichsen:
Having a cup of coffee can help you stave off the fatigue and inability to focus that often comes with trouble sleeping. Use common sense. If you are sensitive to caffeine, then having a Red Bull in the evening is probably not a good idea. But, most importantly, know that what is often considered part of the problem can become an important part of the solution.

Dr. Amy Bender:
Everybody has a different metabolism for caffeine. The go-to study that I refer to a lot is from Dr. Nanci Guest (https://www.ncbi.nlm.nih.gov/pubmed/29509641). She found that in cyclists, when given caffeine, their performance was based on genotype, so those who were slow metabolizers of caffeine actually performed worse than those who were fast metabolizers. And for the fast metabolizers, it was really beneficial for them. So, I think you really have to be careful about making the assumption that caffeine is beneficial for everyone all the time.

How does caffeine detox affect a person? Do you recommend cold turkey or gradual withdrawal?

Dr. Ian Duncan:
This would be a personal thing. All I ever do is drink caffeine. I don’t drink or smoke. So, when I have been off caffeine, it’s been tough. So, I’m not sure on that one. It depends on the person.

Dr. Marta Maczaj:
Death before decaf! Just kidding! I would not recommend rapid detox. The individual will develop headaches. Caffeine is a vasoconstrictor, and removing caffeine causes vasodilation and can lead to headaches due to the vasodilation. The person can also feel much drowsier during the day and may have drowsy driving. I suggest a gradual withdrawal. Consider half caffeine and half decaf for all your cups of coffee for a few days, then decrease to one-third caffeine and two-thirds decaf for a few days, then one-quarter caffeine and three-quarters decaf for a few days, and then all decaf.

Dr. Amy Bender:
I recommend gradual. I didn’t really drink caffeine until college and grad school — about two cups a day every single day for years. For me, the gradual method worked really well when I went off caffeine. I eliminated coffee, but then I would replace it with black tea, and it took me two weeks to be to the point where I wasn’t tired and exhausted from not having that much caffeine. I would be really tired in the morning and have a black tea. I may then be tired in the afternoon so I would have a green tea and then I just gradually started reducing that to only needing the green tea.

Can you give me an example of how caffeine negatively impacted performance of one of your patients or athletes?

Dr. Ian Duncan:
The best example of this would be the caffeine usage in a paper we published about caffeine use in a super rugby team (https://www.ncbi.nlm.nih.gov/pubmed/29431593). Basically, all the guys had various levels of caffeine consumption before the game and during the game. Afterward, the caffeine level was very high in some players. What was really interesting that didn’t make it into our paper was that some of those athletes who had the highest amount of caffeine really had issues with performance during the last quarter of the game — the last 20 minutes. Going forward, for the following season we advised the team dietitian/nutritionist to devise a caffeine strategy: the timing of caffeine, dosage of caffeine, in relation to player body weight.

Dr. Marta Maczaj:
One of my insomnia patients drank Red Bulls in the evening after dinner. His insomnia improved after he stopped drinking the Red Bulls!

Caffeine is a vasoconstrictor, and removing caffeine causes vasodilation and can lead to headaches due to the vasodilation.
The Pros and Cons of Group Setups

By Sarah Brennecka

More and more labs are facing less reimbursement on studies. This forces the administration to look at how we can maximize our potential of studies while still giving excellent care. One of the ways might be looking at group setups, whether that is home sleep testing or PAP setups.

<table>
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<tr>
<th>PROS</th>
<th>CONS</th>
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<tr>
<td>More minds equals more ideas. The more people you gather together, the more ideas that will be generated. Questions will often get asked that one wouldn’t think to ask if they were solo.</td>
<td>Not everyone can meet at that allotted time. Allow time for other individual sessions also during the week. Setting a cut-off time the patient would be allowed to arrive until is necessary. Example: If the appointment is at 7 p.m., then 7:15 p.m. is latest they can arrive for their setup. It’s important to stay on time for yourself and for the other patients involved.</td>
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<td>They are more time efficient. Group setups should allow the lab to maximize amount of studies per week. A positive approach when scheduling these patients is very important. Some patients may be hesitant. Managing up will be key, and it will start with the schedulers.</td>
<td>Not all patients will qualify for a group setup. It’s important to research the patient, in detail, prior to scheduling. Some patients will need extra attention that will prolong a group setup. Those patients will need one-on-one appointments.</td>
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<td>It’s more cost effective. Reimbursement and in-lab approvals are becoming a challenge for labs. Group setups will maximize the potential of getting more studies in throughout the week.</td>
<td>Not having adequate space. Allow space for family members to join in. Often times the patient will be bringing a family member along for comfort.</td>
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How to Perform an Effective Group Setup

1. Organize prior to patient arrival.
   a. Use a setup folder that the patient will be able to take home with information in it.
   b. Set the device for the patient prior to them arriving.
   c. Have information and instructions in the folder.
   d. Get the sign-in sheet (HIPAA consent form) ready.
2. Structure your room.
   a. Have a demo set up for the instructor.
   b. Use name plates (it’s important to identify patient by name).
   c. Have a clerk or administrative assistant help with the paperwork so the clinician can focus solely on patient care.
   d. Use a flip chart to state your three objectives for the class.
   e. Go over each piece of the equipment step by step.
   f. Allow time for questions at the end. Refer back to the objectives flip chart to ensure all items were covered. If a patient still has a lot of questions, spend a couple extra minutes after class is over with them.

SARAH BRENNECKA, is the manager of sleep services and DME at Northwestern Medicine. She is also a member of the AAST Strategic Content Council.
Welcome to the second Trends article, a new A2Zzz department. In the previous Trends, we explored the shift to high-acuity patients in our centers, what is driving it and how best to respond. In this edition, we’ll give a perspective on why and how the field itself has evolved from a “trade” to a “profession” to meet the needs of the complex patient and numerous other demands in our modern sleep centers. And as is par for the Trends format, we’ll provide recommendations on how you as a sleep professional can stay ahead of this change.

"Everything we know, we learned from someone else." —John Wooden

"Did you go to school to learn this?" is a question we get a lot from patients. In sleep, in particular, the answer varies depending on how you get into the field and is rarely a straightforward “Yes.” Think of your own entry into the field: Likely, it followed from an interest in the subject for a personal reason, maybe a friend or family member who was diagnosed with sleep apnea, or out of curiosity. You may have applied related professional training or education to qualify for your first job in the field; you may have learned sleep technology through OJT or "on-the-job training."

The Elements of a Skilled Trade

History tells us that most occupations start out as a trade. A tradesperson refers to a worker who learns the skills of their trade on the job, at times through an apprenticeship role. This model is familiar to many of us in the field, and reflects how new a field sleep technology really is. Think back to how you learned your first 10-20 setup, biocalibration, PAP titration, scoring, etc. It’s in the laboratory policy and procedure manual, but most of us learned by doing.

The Latent Demand for Competency

But back to our Trends. Sleep has matured to the point where we:

- Treat more acute patient populations (reviewed in the previous Trends article) in need of more regimented safety protocols.
- Experience additional regulatory oversight.
- Perform more comprehensive insurance pre-authorizations.
- Provide a broader range of specialized and complex treatment options.

In practice, these transformative changes are great for patient safety, treatment effectiveness and cost control. And they reflect changes in healthcare in general. However, comparatively speaking, sleep has experienced growth and change in a shorter span than most medical fields, some of which have been around decades longer than sleep, and this naturally opens up gaps in care — “growing pains,” if you will. One of these gaps has been the latent demand for staff at the competency level needed for today’s sleep center and patients. There are limits to how effectively someone new to the field can be brought up to the competency level needed in the modern sleep center when on-the-job training is the only avenue.

Scenario A: The Seizure Montage

For a real-world example, imagine your center, which is comprised of pulmonary physicians, decides to bring on a neurologist to see sleep patients. From day one, there will be a need to evaluate for nocturnal seizures versus parasomnias, and the most effective way to accomplish this is to offer a diagnostic in-lab test that offers a full 10-20 hookup. Unless the technical staff has training in EEG montages and the additional procedures needed to safely manage patients with epilepsy — many labs will end a study and call a code for any convulsant seizure, whether localized or not — significant training in testing and workflow protocols will be needed to treat even one of these patients safely and effectively.

Scenario B: Adjusting to a Patient Advocate Role

The complex patient increasingly needs support during the day to prepare for a safe and high-quality study at night. Arranging and performing testing procedures like HSATs, PAP NAPs and other versions of mask accommodation for PAP adherence, and advanced treatments like ventilator transition and advanced titration require more daytime staffing support than ever. Skills needed to organize the insurance authorization are different than what is typically needed for the sleep technologist role. Communicating with durable medical equipment (DME) care providers to facilitate treatment and ensure the pathway to treatment moves along smoothly requires a different level of oral and written communication than has been part of the scope of practice in the past.

Scenario C: Safety Protocol and Communication

Acute patients require a higher level of care to mitigate the risks they present to themselves, to staff and even to other patients. Newer skills needed to navigate in a sleep center include the use of more rigorous patient contact precautions.
and disinfection protocols; knowledge of medication effects on the performance of PSG and storage of patient meds; safe transfer of patients with limited mobility; safety huddles and a need for a more fact-based “SBAR” (situation/background/assessment/recommendation) structure to communication; and many more that impose a higher demand for technologist education and communication than ever before.

**Trending Demands**

Before we review how the field has kept pace thus far, let us summarize the trending demands that have brought us to this place:

- A need to broaden skill sets to include additional diagnostic (e.g., HSAT, capnography, EEG montage) and treatment (e.g., neurostimulators, advanced titrations, PAP NAPs, ventilators) approaches.
- The increasingly complex workflows that go along with these procedures to optimize safety and quality.
- The learning and communication skills needed to adapt and work together effectively as a care team.

Keep in mind that few of these skills were in widespread use in sleep centers just several years ago, especially in the adult population.

**The Pillars of a Professional Occupation**

In the transformation from trade to profession, a framework is typically followed:

1. An occupation becomes a full-time occupation.
2. A training program or university curriculum is established.
3. Local and national associations are developed to standardize practice and professional ethics.
4. Regulations and/or state licensing laws are established (Wikipedia, 2019).

A profession arises when any trade or occupation transforms itself through “the development of formal qualifications based upon education, apprenticeship, and examinations, the emergence of regulatory bodies with powers to admit and discipline members …” (Bullock & Trombley, 1999).

A profession is an occupation founded upon specialized education. Therefore, education is a key tenet of a modern sleep professional. With the typical profession framework understood, let’s take a look at how our field has developed and how you specifically can position yourself in the right place for the changing times.

The sleep profession has been a full-time occupation for some time (and, for many of us, more than full time), which meets the first pillar of a professional occupation.

**Education (Pillar #2)**

Education, for the most part, makes for a well-rounded person.

In order to succeed in the medical field a formal degree, which is built upon basic courses like English, mathematics, rhetoric and writing, as well as sleep technology, is important for communication and interpersonal effectiveness in the workplace. It teaches how to organize thoughts, formulate action plans, solve problems — all skills needed in the complex workplace where a modern sleep professional is always learning about emerging technologies, adapting to changing workflows, communicating with administrators and medical staff as well as patients and co-workers, and staying up to date on changes in the field and role.

Though we are one of the few allied health fields that accepts supplementary programs — most credentialing agencies require a formal degree (e.g., medical assisting, surgical technologist, physical therapy) — it can be demonstrated that formal education gives the sleep professional a better foundation to build upon.

Plus, any degree affords you the ability to continue your education in sleep or other sciences, and even unrelated fields. Education precipitates further education, and once you have a formal education degree, it never expires.

With the advent of distance and online learning, it is easier than ever to attend a polysomnography technology program. There are 42 nationwide post-secondary certificate and associate degree programs in polysomnography accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). You can enroll either part time or full time in some of the programs. These programs specifically train sleep technologists in the tasks required for the job and the skills needed to acquire new information quickly and effectively.
With financial assistance, community colleges are more affordable than ever and are set up to allow for continuation to a higher degree (accepting most basic English, math, communication, etc., credits toward a higher degree).

How can you not be for education?

**Association (Pillar #3)**

At the national level, the American Association of Sleep Technologists (AAST) has been the driving force in coordinating the effort to transform our field from a trade orientation to a full-fledged profession. With a board that sets a vision for the ongoing viability of the field and committees that promote the highest standards in conferences, legislative action, CECs, competencies through standards and guidelines, education, strategy and existing and emerging technology, AAST is a high point in our field’s standing as a profession. AAST prepares sleep professionals for a changing workplace through an array of continuing education offers from national meetings and partnerships with regional meetings to online education with CECs and publications.

At the local level, more than 40 states have sleep societies with a mission statement that aims to serve the interests, both professional and through public policy, of sleep professionals by state or region. Most provide a robust forum for the sharing of best practices in research, clinical, and educational realms through regional conferences and networking opportunities.

**Credentials (Includes Ethics from Pillar #3)**

Sleep technologists can earn a certified credential from the Board of Registered Polysomnographic Technologists (BRPT) and the National Board for Respiratory Care (NBRC). The credential holder must adhere to a code of professional ethics or forfeit that credential. For example, from the BRPT: All RPSGT applicants/certificants shall abide by BRPT’s Standards, Rules and Procedures Regarding Ethical and Professional Review and Complaints (“Rules and Procedures”), and all other BRPT rules, policies and procedures. The BRPT may take review action against any individual who fails to meet these requirements. Such review action may include, but not be limited to, suspending or revoking a RPSGT applicant/certificant’s certification, or declaring a RPSGT applicant/certificant’s candidate ineligible for certification (BRPT, n.d.).

**State Licensing (Pillar #4)**

Many states require licensure with a certified credential like the RPSGT, while others practice under a respiratory care act and exempt sleep technologists. A few do not define sleep technologists in any licensure act (AAST, n.d.).

The point is that there is tremendous variation from state to state. It is very important that you understand what is required in your state. What is sufficient to practice in one state may not be accepted via reciprocity in another state. What this means for you is that the more education and certified credentialing you have, the more likely you will be to meet your state’s minimum requirements. The particular licensure pathway chosen ensures that each sleep technologist is qualified based on education, training and
experience, as well as a certified credential (e.g., typically a state license requires certification in RPSGT from the BRPT).

Make certain what certified credentials are accepted in each state. As a sleep professional in your chosen field, you need to be personally involved in these basic questions. What education level is needed? What credential is needed? This impacts your status in your state and ability to be employed. Be aware of credentialing minimums in job postings. Minimum competencies are changing as employers see the vulnerability in not hiring staff that meet their payers’ and facility credentialing agency minimum staffing competency requirements. Risk management, medical, administration and human resources departments are increasingly aware of the need for competent staff to work in an increasingly complex environment, and this means that a sleep center or clinic that allowed OJT in the past now requires sleep credentialing at time of hire or within a defined time period after hire.

Notwithstanding the employers’ attention to credentialing, some 40 states and counting have some type of regulation in place (which may include either a licensure pathway or exemption in their state legislatures).

Staying Ahead of the Curve: The Practical Pitch for Sleep Professionals

Imagine this jarring real-world experience. You are sitting on a group workplace call when the director says those words that no one wants to hear: There will be staffing reductions. Put yourself in the position of a decision maker. You can keep those with seniority, education or credentials. Which is the best way to separate the more competent from the less? Lessons learned from this type of scenario (without going through this experience) are to increase your competency level proactively and make yourself valuable at your current job and marketable for the next. This means that as a bare minimum you should aim to: a) acquire at least one certified sleep credential; b) work toward an associate’s degree in polysomnography or a bachelor’s degree; and c) join your national and local professional organizations.

With so many advances in clinical practice, technology, industry, research, insurance, regulatory ... there is always something new to explore.

Conclusion

In each issue, you can seek out this column for a snapshot of a leading-edge development in the sleep field and some practical advice on how to adapt and implement an approach back at your sleep center, practice or clinic. With so many advances in clinical practice, technology, industry, research, insurance, regulatory or something else, there is always something new to explore. Today is an exciting time to be a sleep professional. If you encounter a challenge that you need a solution to, please feel free to reach out to me directly for consideration for a future article. ✉️

References


Questions for Sleep Professionals to Consider

- As a potential applicant, do you think your employer would prefer someone with formal education?
- Would your education and credential be valuable at a sleep disorders center that handles acute patient populations and provides a wide range of sleep services?
- Would your education and credential be a predictor for success in one of the new sleep roles such as sleep manager, clinical sleep educator or sleep navigator?


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IN THE MOONLIGHT

With Kristina Weaver, RPSGT

KRISTINA WEAVER, RPSGT, is the neurodiagnostic manager for Parrish Healthcare’s Sleep Disorders Center. She has been involved in sleep medicine for 13 years. Prior to that, she was a paramedic. Weaver is the coordinator of Brevard A W A K E. She also serves as the past president of the Florida Association of Sleep Technologists and is on the AAST Board of Directors.

What did you want to be when you grew up?
The only job I have ever had out of the medical field was a life guard in high school! I have always wanted to do something in the medical field. My original goal was nursing. I’ve been in the medical field since I was 17.

Why did you decide to become a sleep technologist?
I was a paramedic and so burnt out from the ER and the unknown of going into patient’s homes. I actually just stumbled across the position and applied for it having no clue what a “polysomnographic technologist” was. I wanted something different while I finished school. What made me want to stay in the field of sleep medicine was, in the beginning of my career, I did a sleep study on my dad. He had severe sleep apnea and also had arrhythmias (one round of Vtach and a seven-second sinus pause). He refused treatment. A year later, he died of a heart attack in his sleep. That’s when I knew that as a sleep tech I could make more of a difference in the sleep center than in the ER or on a nursing floor. Heart attacks are a leading cause of death in the United States. We can truly help!

Where was your first job in sleep technology?
My first job was at Health First in Cape Canaveral, Florida, in 2005. I went from the ER to their sleep center. What a change!

Why did you become an AAST member?
You know the saying, “It takes a village”? Well, the same goes for our sleep community. We are at a vital time in our profession to prove we can make a difference. No longer is medicine a fee-for-service type practice. Sleep medicine falls in the prime state of the preventative healthcare sector. AAST is here for education and networking and to help us strategically thrive in this new way of the future of medicine.

Who has had the greatest influence on your career?
Jeremy Bradford, an old boss of mine. Through his mentorship and motivating me, I was able to think creatively and start our sleep navigator services eight years ago. This drastically changed my career and has saved many lives. He is an amazing mentor who allowed me to create something so successful within our organization that it is now being done at many other organizations. I can never thank him enough for believing in me and his trust.

What is the most challenging part of your profession?
When you hear someone say, “Oh, they just died in their sleep,” that’s it. Or you hear a hospital code at 3 a.m. and hear the patient had a heart attack and died. We need to help our community connect the dots. I could say also insurance companies — they can be challenging.

What do you like most about your profession?
Making a difference with so many patients and my staff. It’s awesome when a patient calls you up and tells you they had the best night of sleep of their life. Or when we see a hospital patient stop getting readmitted once their severe sleep apnea is treated.

What do you do for fun on days off from work?
I love to jog and surf with my family. I have two young kids and an amazing husband.

What is the biggest change you have seen in the profession since you started?
It’s so cool how much sleep awareness there is out there now. You see schools, trucking companies, sporting teams and employer groups asking for sleep help. We never saw that years ago. We need to keep this momentum going.

Any words of advice for people who are new to the profession?
Always act like your loved one is the patient who you’re treating! You would want someone with passion and the knowledge to care for them. You be that person for all of your patients. And, of course, always think outside the box.

What are you professional goals in the next five years?
I have a little over a year left to finish my master’s in healthcare administration. I am looking forward to moving onto my doctorate eventually. My goal for the next five years is to be able to contribute to more research in sleep medicine and chronic care management.
OIG Releases Report on Medicare Payments to Providers for Polysomnography Services


Background

The mission of the OIG is to protect the integrity of the Department of Health and Human Services (HHS) programs as well as to the beneficiaries receiving services for these programs. The OIG’s mission is carried out through a network of audits managed by the Office of Audit Services (OAS). These audits and assessments help reduce waste, abuse and mismanagement of HHS services. Other programs that support the governance of HHS are:

- The Office of Evaluation and Inspections (OEI), which evaluates and reports on practical recommendations for improving program operations.
- The Office of Investigations (OI), which conducts criminal, civil and administrative investigations of fraud and misconducted related to HHS programs, operation and beneficiaries.
- The Office of Counsel to the Inspector General (OCIG), which is the legal arm supporting the OIG. The OCIG renders advisory opinions, issues compliance program guidance, publishes fraud alerts, and provides guidance regarding healthcare industry concerns such as the Anti-Kickback Statute and other OIG enforcement authorities.

The OIG has reviewed polysomnography services and released a previous report on Questionable Billing for Polysomnography Services in 2013, and the OIG found that Medicare paid for service that did not meet Medicare requirements. This 2013 nationwide study reviewed over 626,000 claims for 2011 totaling $470 million from 7,232 providers for 461,363 individual beneficiaries. The OIG review identified nearly $17 million in payments for services with inappropriate diagnosis codes, missing required supporting documentation, and providers that exhibited patterns of questionable billing. Thirty-five percent of providers with paid claims submitted at least one claim that did not meet either the proper diagnosis code (not supporting medical necessity for testing), same day duplicate claim (unbundling a split night study or double billing for the professional component) or had an invalid National Provider Identifier (NPI). This finding was viewed as necessitating further and future scrutiny of sleep study service providers to prevent inappropriate payment for polysomnography services as well as to take appropriate action regarding inappropriate payments and providers that exhibited patterns of questionable billing.

Current Report

The 2019 report on Polysomnography Services is based on a review from Jan. 1, 2014, through Dec. 31, 2015. It was determined that Medicare (MCR) paid $755 million for polysomnography services, specifically procedure codes 95810 and 95811. The OIG then reviewed a stratified random sample of 200 beneficiaries with 426 corresponding lines of service equaling a payment of $148,198. Of the 200 selected, 117 did not meet MCR billing requirements, resulting in a net overpayment of $56,668. The OIG stated that based on the sample results, the OIG estimated that MCR made overpayments of $269 million for polysomnography services during the audit period. The conclusion was that the Center for Medicare & Medicaid Services’ (CMS) oversight of sleep services was insufficient to ensure that providers complied with MCR requirements or to prevent payment of claims that did not meet those requirements. Without periodic review of claims, MACs were unable to determine whether providers had received payment for claims that did not meet MCR requirements or to take remedial action.
What OIG Recommends
The OIG recommends that CMS instruct the MACs to recover the portion of the $56,668 it identified as the net overpayments, and that CMS work with the MACs to conduct data analysis allowing for targeted reviews of claims for polysomnography services while educating providers on properly billing for polysomnography services.

Provider Compliance
It is critical that providers understand the requirements for billing sleep services to MCR. The majority of overpayments are due to inappropriate diagnosis codes and related documentation. Coverage of polysomnography is limited to diagnoses of narcolepsy, sleep apnea, impotence and parasomnia, which must be documented in the medical record. Each MAC assigned to process claims includes a comprehensive list in its Local Coverage Determination (LCD).

To prevent denials, make sure you maintain a record of the attending physician’s orders, office visit notes that support necessity of testing, and documentation that the diagnostic testing is not duplicative of previously completed testing.

AAST has created an interactive state map that compiles legal and licensure information, CMS requirements and sleep society information specific to each state. Members can review the statutory language for sleep technologists, coverage policies for continuous positive airway pressure therapy for obstructive sleep apnea, and find information about state sleep societies to review their issues and updates. The interactive state map is available to AAST members only here: State Sleep Resource Map.

The December 2017 A2Zzz Compliance Corner reviewed the LCD regulatory standards for Polysomnography. The Medicare Benefit Policy, Chapter 15, Section 70, is another resource available for service providers. CMS does offer articles and education with their Medicare Learning Network (MLN) platform. You can sign up to connect to new offerings through CMS’ listserv.