

Sleep HealthCenters Receives Accreditation for Out of Center Sleep Testing

Sleep HealthCenters is the first multi-state out of center sleep testing (OCST) provider in the U.S. to receive accreditation by the American Academy of Sleep Medicine (AASM).

AASM accreditation is the gold standard by which the medical community and the public can evaluate sleep medicine services. AASM's OCST accreditation identifies those organizations with a commitment to providing the highest quality patient care in an out of center setting to enhance the health, public safety and quality of life for patients and organizations.

Sleep HealthCenters Welcomes New Physician to Scottsdale

Sleep HealthCenters is pleased to welcome Ruchir Pravin Patel, MD as Medical Director of our Scottsdale location. Dr. Patel performed his post-graduate training in Sleep Disorders Medicine at Rush University Medical Center in Chicago. He is board certified in Internal Medicine and will be taking his Sleep Medicine boards in November of this year. He will begin seeing patients September 1st.

Sleep HealthCenters Opens New Location in Tucson

Sleep HealthCenters is pleased to announce the opening of our brand new state-of-the-art sleep center in Tucson, Arizona. The new center is located at: **5983 East Grant Road, Suite 105, Tucson, AZ 85712.**



Sleep HealthCenters is a network of sleep medicine centers staffed by experts in the field of sleep medicine.

Our integrated care system provides all the services needed to diagnose and treat patients with the entire array of sleep disorders including obstructive sleep apnea, insomnia, narcolepsy, and restless leg syndrome.

Massachusetts Affiliations: Beth Israel Deaconess Medical Center, Brigham and Women's Hospital, Boston University Medical Group, Faulkner Hospital, Hallmark Health, Massachusetts Eye and Ear Infirmary, Milton Hospital, New England Sinai Hospital, Southcoast Hospitals Group; **Connecticut Affiliations:** Gaylord Sleep Medicine.

Massachusetts Locations: Beverly, Boston, Brighton, Brookline, Framingham, Jamaica Plain, Medford, Milton, North Dartmouth, Stoughton, Weymouth, Worcester; **Arizona Locations:** Mesa, Phoenix, Scottsdale, Tucson; **Connecticut Locations:** Hartford, Glastonbury, Guilford, North Haven, Trumbull, Bridgeport; **Rhode Island Locations:** Cumberland.

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Edited by:
[Lawrence J. Epstein, MD](#)
Chief Medical Officer
Sleep HealthCenters

For more information, please contact us at **877-SLEEP-HC (877-753-3742)** or visit our website at:

www.sleephealth.com

Requisition forms available on our website.

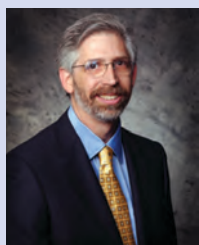
★ Discover Sleep

Dear Colleague:

Sleep is too often thought of as a static process; you go to sleep, you wake up and nothing changes. In reality, sleep is a very dynamic process, with different stages and physiological processes occurring during sleep. Sleep patterns are also different depending on the time of the day (or night), the age of the person, developmental stage and gender. It is necessary to understand these differences in order to truly understand sleep and its impact.

In this issue of Discover Sleep, Sleep HealthCenters' Dr. Maryann Deak describes the lifetime arc of sleep in women. The menstrual cycle and menopausal stage have a profound impact on sleep need and sleep quality. In addition, occurrence and severity of a variety of sleep disorders are also affected by gender and menopausal status. Dr. Deak describes these complex relationships and recommends ways to evaluate and utilize this knowledge to more effectively promote healthy sleep.

If you have any questions or areas you would like to hear about, please contact me or the staff at Sleep HealthCenters.



Lawrence J. Epstein, MD
Chief Medical Officer
Sleep HealthCenters

Sleep and Women: Changes Over a Lifetime

Maryann Deak, MD

Both men and women experience changes in sleep from infancy through late adulthood. Understanding the evolution of sleep throughout a woman's life requires consideration of unique factors such as phase of menstrual cycle, pregnancy and menopausal status. It is important to consider the possibility of sleep problems that may occur exclusively in women or that may present in a different way or have distinct implications in women. The 2007 Sleep in America poll conducted by the National Sleep Foundation (NSF), which focused on women and sleep, found that about two thirds of women reported experiencing problems with sleep at least a few nights a week, while almost half of women reported problems with sleep every night or almost every night. Women who reported more frequent problems with sleep were more likely to miss days of work, drive drowsy and be classified as obese. Clearly, sleep in women is an issue that demands our attention!

Menarchy

Because hormonal changes that accompany the phases of the menstrual cycle impact sleep, it is important to consider menstrual phase in an evaluation of women with sleep problems. Subjectively, women report increased sleep disturbance during the late luteal phase and early follicular phase of the menstrual cycle, which corresponds to the premenstrual period and menses.^{1,2} Objective changes in circadian rhythm and sleep architecture have also been noted during phases of the menstrual cycle.^{3,4} Sleep and reproductive hormones appear to have a bidirectional impact, i.e. sleep and circadian rhythm disturbance can also influence menstrual function. This is evidenced by altered menstrual cycles and reproductive function in female shift workers.⁵

Women with menstrual cycle disorders such as dysmenorrhea or premenstrual dysphoric disorder experience more profound sleep disturbance around the time of menstruation, which can significantly impact daytime functioning and quality of life.⁶ Some women experience premenstrual hypersomnia, causing significant daytime sleepiness during the week prior to the onset of menses.⁶

Although obstructive sleep apnea (OSA) is less common in premenopausal women compared to postmenopausal women and men, certain conditions predispose women of reproductive age to OSA. Women with polycystic ovary syndrome (PCOS) are more likely to have sleep complaints, and the rate of obstructive sleep apnea is significantly higher. One study showed that women with PCOS were 30 times more likely to suffer from OSA than women without PCOS.⁷ The increased prevalence of OSA occurs independently of obesity.^{8,9} Co-morbid obstructive sleep apnea may contribute to abnormalities in glucose metabolism in women with PCOS.¹⁰ Patients with PCOS should be evaluated for OSA.

Pregnancy

Each trimester of pregnancy is associated with hormonal and physiological changes that have a profound impact on sleep. For example, progesterone and estrogen, which progressively increase during pregnancy, cause changes in alertness and sleep architecture. Progesterone is associated with increased sleepiness and increased amount of non-REM sleep.¹¹ Estrogen decreases rapid eye movement sleep. Hormonal changes are accompanied by significant physical and emotional changes. During the first trimester, many women experience nausea/vomiting and increased urination. From the second to the third trimester, heartburn, abdominal discomfort due to irregular uterine contractions, fetal movement, back pain, muscle cramps, shortness of breath, and anxiety are common.

How do all of these changes impact sleep? The first trimester is associated with an increase in daytime sleepiness and need for sleep. Sleep studies performed during the first trimester show increased total sleep time, associated with more frequent awakenings and less deep sleep (i.e. slow wave sleep).¹² Daytime napping is also increased. During the second trimester, many women report improved sleep and daytime alertness. Total sleep time normalizes and the amount of rapid eye movement sleep decreases.¹¹ The third trimester is associated with a decrease in total sleep time, and increases in symptoms of insomnia, sleep

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fragmentation, and daytime sleepiness. Polysomnography during the third trimester reveals decreased total sleep time, slow wave sleep and rapid eye movement sleep, and increased time spent awake after the onset of sleep. Changes in sleep architecture in pregnancy are related to a combination of factors including hormonal changes, physical discomforts such as gastroesophageal reflux and back pain, as well as psychological factors.

Sleep Disorders in Pregnancy

In addition to the changes in sleep quality and sleep architecture that most women experience during pregnancy, the prevalence of certain primary sleep disorders increases. The NSF Sleep and Women poll found that over 80% of pregnant women reported sleeping problems a few nights a week, while 40% reported symptoms of sleep disorders such as snoring, apneas, or symptoms of restless legs syndrome. Due to potential consequences for maternal and fetal health, identification of primary sleep disorders in pregnant women is important.

Although the prevalence of obstructive sleep apnea (OSA) in pregnancy is currently unknown, symptoms of obstructive sleep apnea including gasping episodes, witnessed apneas and snoring are more common during pregnancy. OSA symptoms are most prevalent in the third trimester. One study found that greater than 10% of pregnant women have symptoms suggestive of obstructive sleep apnea.¹³ Women with higher body mass indexes and larger increases in neck circumference during pregnancy were more likely to develop symptoms of OSA. Identification of OSA in pregnant women is potentially important because OSA is associated with pregnancy-induced hypertension and preeclampsia, gestational diabetes, and unplanned caesarean deliveries.¹⁴ Preliminary evidence suggests that treatment with continuous positive airway pressure improves blood pressure control and pregnancy outcomes.¹⁵

Restless legs syndrome (RLS) increases in prevalence during pregnancy, with highest rates in the third trimester. Approximately 20% to 25% of pregnant women have RLS, the majority of whom develop RLS symptoms for the first time during pregnancy.¹⁶⁻¹⁸

Pregnant women with RLS are more likely to report trouble initiating and maintaining sleep and to take sleeping medication during pregnancy.¹⁸ In general, non-pharmacological therapy is the preferred treatment for RLS in pregnant women. Iron should be supplemented in patients with low iron or ferritin levels.

Insomnia symptoms are common in pregnancy including difficulty initiating sleep, awakenings during the night or the early morning, and poor quality sleep, which can adversely affect quality of life and daytime functioning.¹⁹ A variety of factors can contribute to these symptoms such as physical discomfort, anxiety or depressive symptoms, and poor sleep hygiene. If present, primary sleep disorders and mood disorders should be treated. Cognitive behavioral therapy is an effective therapy for primary insomnia symptoms.²⁰

The Post-Partum Period

Sleep disturbance worsens during the post-partum period, with decreases in both total sleep time and sleep efficiency.¹² Possible contributors to sleep disturbance include abrupt post-partum hormonal changes, infant care and feeding, the presence of post-partum blues or depression, and primary sleep disorders. Some primary sleep disorders such as OSA and RLS may improve after delivery.^{21,22} However, women who develop certain sleep disorders during pregnancy such as RLS may be more likely to experience recurrence later in life.²² Sleep disturbance and mood symptoms should be evaluated during routine follow-up in the post-partum period.

Menopause

Menopause begins one year after the cessation of menses. Changes in sleep during this period are influenced not only by aging, but also by hormonal changes that may begin up to 10 years prior to the onset of menopause. Subjective sleep disturbance becomes increasingly more common in women in the peri-menopausal period through the post-menopausal period.²³ In addition to physiological changes that accompany menopause, other factors that can potentially impact sleep include depression, psychosocial factors, primary sleep disorders, circadian changes, and medical co-morbidities.

Sleep Disorders in Menopause

Insomnia, i.e. difficulty initiating/maintaining sleep or non-restorative sleep causing daytime dysfunction, is more common in women than men. The prevalence of insomnia increases in the post-menopausal period.²³ Evaluation of insomnia in peri/post-menopausal women requires careful consideration of possible contributing factors indicated above including other primary sleep disorders, mood symptoms or medical conditions. Vasomotor symptoms including hot flushes and night sweats are associated with an increase in prolonged awakenings during the night.²⁴ After consideration of possible contributing factors, primary insomnia is often treated with cognitive behavioral therapy, medication, or a combination of both.

The risk of obstructive sleep apnea (OSA) in women increases significantly after menopause, with post-menopausal women being over two times as likely to develop sleep disordered breathing compared to pre-menopausal women.²⁵ Common symptoms of obstructive sleep apnea include snoring, daytime fatigue or sleepiness, nocturia, nighttime gasping or choking episodes, and non-refreshing sleep. Women with obstructive sleep apnea are more likely than men to use terms like fatigue, tiredness, and lack of energy to describe symptoms.²⁶ Women may experience increased symptoms at lower OSA severity.²⁷ Not only can OSA adversely impact mood and quality of life, it is associated with a higher risk of other health problems such as hypertension and cardiovascular disease. Treatment of obstructive sleep apnea in women is similar to treatment in men, with positive airway pressure as the mainstay of treatment.

The risk of restless legs syndrome (RLS) is greater in women, with women being over twice as likely to develop RLS compared to men.²⁸ The likelihood of developing RLS increases with age and with number of children. Sleep-related symptoms, such as inability to fall asleep, inability to stay asleep, or disrupted sleep, and daytime symptoms, such as daytime fatigue and sleepiness are common in RLS.²⁹ These symptoms adversely impact mood and quality of life. Management of RLS in women includes investigating possible causes of RLS such as low iron, as well as both pharmacological and non-pharmacological therapeutic options.

Summary

Treating women with sleep problems requires understanding the unique alterations in sleep and risk of sleep disorders that occur in women over time. Sleep in women is influenced by evolving hormonal, physiological and psychosocial factors.

For a complete list of references, please visit our website at www.sleephealth.com/about-us-newsletters.htm.

Maryann Deak, MD Sleep Specialist, Sleep HealthCenters

Dr. Deak is a Sleep Specialist at Sleep HealthCenters, a Clinical Instructor in Sleep Medicine at Harvard Medical School, and an Associate Physician at Brigham and Women's Hospital. She completed medical school training at Georgetown University School of Medicine, neurology residency at the University of Massachusetts, and sleep medicine fellowship at Brigham and Women's Hospital. She is board certified in both Neurology and Sleep Medicine.



Case Study

Miranda, a retired 62 y/o with a history of high blood pressure reports that she was a "good sleeper" until 6 years ago when she began to wake up multiple times a night. Recently, she began having trouble falling asleep. She also is not able to return to sleep after awakening, sometimes staying awake for up to an hour. She admits to feeling fatigued during the day. She reports a history of soft snoring noted by her husband, although he has not noticed gasping or choking episodes. She reports that her legs "bother her" while she is trying to fall asleep and has trouble staying still. Rubbing her legs or walking improves these symptoms. She denies symptoms of depression or anxiety.

Possible contributing factors:

Restless Legs Syndrome: The patient meets 4 required criteria for RLS, including (1) an urge to move the legs which may be accompanied by unpleasant sensations (2) worsening of symptoms during periods of rest (3) partial or total relief of symptoms with movement (4) worsening of symptoms in the evening or night. RLS is frequently associated with trouble falling asleep, but it can also be associated with trouble maintaining sleep particularly when periodic limb movements of sleep (PLMS) are also present.

Obstructive Sleep Apnea: Risk factors in this patient include co-morbid hypertension, snoring, and post-menopausal status. An overnight sleep study is required to make a diagnosis of OSA.

Sleep Hygiene: The patient has an irregular sleep schedule that involves sleeping late and daytime napping. This can influence her ability to fall and stay asleep at night. She should also be questioned regarding other sleep habits, such as the sleeping environment, caffeine and alcohol intake.

Psychophysiological Insomnia: Patients with disturbed sleep may develop symptoms of psychophysiological insomnia such as maladaptive conditioning to the bedroom environment or physiological or cognitive arousal at bedtime. These factors should be considered as the patient is evaluated/treated.

Work-up and clinical course:

The patient undergoes an overnight sleep study and blood tests for iron and ferritin levels. The sleep study is negative for sleep disordered breathing, but it displays an elevated periodic limb movement of sleep index (PLMSI). Because PLMS can be associated with RLS, this finding is supportive of RLS. (However, it is important to note that RLS is a clinical diagnosis, and PLMS are not specific for RLS.) Iron level is normal, but ferritin level is 20 micrograms per liter (goal greater than 45-50 in RLS).

Iron is supplemented and sleep hygiene recommendations are given. Because the patient continues to be symptomatic despite iron supplementation, she is treated with low dose pramipexole before bed. She also implements sleep hygiene recommendations including maintaining a regular sleep-wake schedule, avoiding daytime napping, and optimizing the comfort of her sleeping environment. Both sleep and daytime symptoms are significantly improved at follow-up. Ferritin is rechecked two months later and the level is 47.

Insurance Companies Turning the Pillow on Sleep Medicine

Harvard Pilgrim Health Care (HPHC), a Massachusetts-based payor, recently announced that all sleep services must be pre-authorized by HPHC. There will also be a shift from in-lab, overnight sleep studies to home sleep testing (HST), where medically appropriate. Additionally, HPHC has established patient compliance standards and requirements for submission of PAP-related services and for sleep health providers to maintain their status as approved providers.

While the changes discussed above are specific to a Northeast regional payor, we believe that other payors across the country are moving in this direction.

Why Are Health Plans Doing This?

In communication from Harvard Pilgrim about the program, they state the following:

"Harvard Pilgrim has created a utilization management program for core HMO, POS and PPO members ages 18 and older with sleep disordered breathing. The program is designed to improve the quality of care while ensuring access to the most appropriate, medically necessary care. For dates of services on or after August 1, 2011, all sleep studies, non-invasive airway assist devices (i.e., CPAP, BiPAP and APAP) and related sleep study supplies and services for these members will require prior authorization."

How Are They Doing This?

To implement and manage the day-to-day pre-authorization process, as well as oversee provider reporting, HPHC contracted with a 3rd party "utilization management" company called CareCore National (CCN). Utilization management includes the evaluation of the validity, clinical need and efficiency of health care services and providers, based on specified protocols and guidelines.

What Does This Mean for SHC?

Sleep HealthCenters has been working closely with CCN and HPHC to ensure that we meet the requirements of the new HPHC program. Specifically, we have been working to make sure that we:

- 1) Are an approved provider of HST, in-lab and DME services
- 2) Establish an approved workflow for the authorization, fulfillment and reporting of all sleep services (diagnostic evaluation through long-term treatment)

- 3) Establish effective communication and information system integration for electronic transmission of authorizations, performance and claims
- 4) Establish effective and accurate reporting of patient PAP compliance

SHC has been preparing its business for these new changes for a number of years – and we are ready!

In anticipation of these trends, Sleep HealthCenters has developed protocols, tools and provider-support services to meet the pre-authorization, performance, reporting and outcomes standards set by payors.

We have moved aggressively to incorporate home sleep testing into our practices and patient workflows, and have invested in technologies to manage and ensure quality provisioning of these tests.

We have also developed our own proprietary patient PAP therapy compliance software platform that will set an industry standard for compliance management and reporting.

What Opportunities Does This Present for Sleep HealthCenters?

Not only has it given us an opportunity to engage HPHC and CareCore on key elements of this new program, it has also created a timely, proactive environment within which to partner with top sleep health providers to extend our services and business.

We are reaching out to our affiliate partners and sleep providers throughout HPHC's New England coverage area, as well as all areas Sleep HealthCenters covers, to offer our assistance and resources to help them meet the requirements of new payor programs. It is our intention to help our partners and fellow sleep providers survive and thrive in this new environment. By offering our expertise and resources, it strengthens our leadership position and establishes our organization as a credible "voice" of sleep providers throughout the country.

Our goal remains to provide accessible, well-coordinated and the highest quality care to our patients. If you have any questions about the new HPHC program or the changing payor perspectives on sleep medicine, please do not hesitate to ask.