



June 2016 | Volume 25 | Number 2

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- ✦ **Melatonin and Allergy**
  - ✦ **Finding That One Perfect Mask: Or Maybe Not**
  - ✦ **How to Make the Most of Sleep Conference Meetings**
  - ✦ **Sleep Educator Opportunities – It's a Revolution**
  - ✦ **A Technologist's Introduction to Sleep Telemedicine**
  - ✦ **Dreaming and Encounters with the Alternate Self (Part 2)**
- 

A Publication of the American Association of Sleep Technologists



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## Best Practices for Managing Narcolepsy and Obstructive Sleep Apnea: Evidence-Based Strategies and Solutions



**Monday, June 13, 2016**

**REGISTRATION AND DINNER 6:15 PM – 6:45 PM**

**SYMPOSIUM 6:45 PM – 8:45 PM**

**Hyatt Regency Denver at  
Colorado Convention Center  
Centennial Ballroom A,B,C,D**

650 15th Street  
Denver, Colorado

## AGENDA

- 6:45 PM** Introduction  
**Thomas Scammell, MD (Chair)**
- 6:50 PM** Narcolepsy: Diagnostic Challenges and Solutions  
**Thomas Scammell, MD**
- 7:10 PM** Current and Emerging Treatment Strategies in  
Managing Narcolepsy  
**Michael Thorpy, MD**
- 7:30 PM** Excessive Daytime Sleepiness in Obstructive Sleep  
Apnea: Diagnostic Assessment and Therapeutic  
Approaches  
**Phyllis Zee, MD, PhD**
- 7:50 PM** Interactive Case Presentation  
**Richard Bogan, MD**
- 8:10 PM** Expert Panel Discussion on Narcolepsy and OSA
- 8:25 PM** Question and Answer Session
- 8:45 PM** Conclusion of Program

## CHAIR

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# NEW AAST ONLINE LEARNING MODULES

The AAST Online Learning Center gives you new and affordable opportunities each month to earn continuing education credits (CECs) while you sharpen your professional skills and understanding. Each narrated presentation allows you to learn at your own pace and from the convenience of your home or office.

**VISIT THE AAST ONLINE LEARNING CENTER FOR THE LATEST LEARNING MODULES IN EACH OF THESE SERIES:**



## FALL COURSE 2015 MODULES

In October 2015 the AAST's fall course "Beyond OSA: Diagnosis, Comorbidities and Therapy of Sleep Related Breathing Disorders" focused on advanced therapies for sleep disordered breathing.

**Several presentations from the course are now available as learning modules:**

- Upper Airway, Lungs and the Control of Breathing
- Central Sleep Apnea
- Moving Beyond the Basics
- Therapy for Respiratory Rhythm Disorders
- Neuromuscular Disease
- Monitoring Adherence and Outcomes

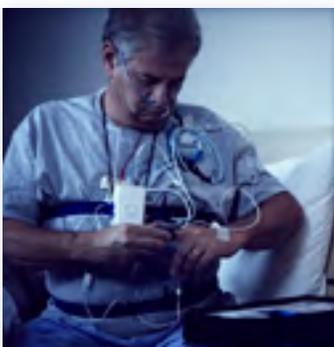


## CASE OF THE MONTH

Each month a new module reviews a case dealing with topics such as proper and improper titration, difficult decisions associated with split-night studies, and normal sleep study variants. Tips on scoring and reporting are provided with each presentation.

**Recent modules include:**

- Neonatal Sleep Staging
- Treatment of Chronic Low Oxygen Saturation
- PAP Titration in a Patient Needing Extra Attention to Improve Adherence
- ASV Titration for Central Sleep Apnea



## JOURNAL CLUB

These learning modules will help you stay up to date on the latest developments in sleep technology and sleep medicine. Each module contains a video discussion with the author of a recent article published in a sleep journal. The full text of the article is included with purchase.

**Recent modules include:**

- Barcelona Sleepiness Index
- Circadian Rhythm Sleep Disorders
- PAP Adherence
- OSA and Depression



<https://go.aastweb.org/LearningCenter/Home.aspx>

## FROM THE EDITOR

Rita Brooks, MED, RST, RPSGT, REEG/EPT



As I write my column for this issue of *A<sub>2</sub>Zzz*, we're on the cusp of another AAST Annual Meeting, our 38<sup>th</sup>, just over a week away. We look forward to seeing everyone again in Denver!

I would like to once again thank the members of the AAST Program Committee for the outstanding job they did planning this year's meeting. Committee members are Shalanda

Mitchell; Leslie Ruoff; Ginny Brown; Pamela DeYoung; Laree Fordyce; Patricia Gibson; Peggy Innocenti; Cindy Kistner; Sharon Leach; Stephen Marquis; Bernadette M. Moore-Dumas; Connstance Shivers-Smith; Laurie Skinger; Ben Steele and AAST board liaison Allen Boone.

Each year the AAST recognizes individual members for their professional excellence, service and commitment to the association and sleep technology profession. I would also like to congratulate this year's award winners that will be recognized at the Annual Meeting: Kevin Asp, the AAST Leadership Award; William Rivers, the AAST Service Award; Rita Brooks, the AAST Professional Development Service Award; Pamela DeYoung, the AAST Literary Award; and Steven Klinger, the AAST New Technologist Award.

A hot topic that will be covered at length at this year's Annual Meeting will be telemedicine. As an introduction to this intriguing topic, in this issue of *A<sub>2</sub>Zzz* Tamara Sellman provides us with a preview of the technologist's role in sleep telemedicine. Tamara also shares some tips on how to make the most of sleep conference meetings.

We have gathered a variety of excellent articles for this issue of *A<sub>2</sub>Zzz*. Regina Patrick discusses melatonin and allergy. Lisa Bond provides information on how using a variety of CPAP interfaces may provide advantages for some patients and encourage therapeutic compliance. An article by Brendan Duffy discusses sleep educator opportunities. Reg Hackshaw continues his fascinating discussion on the study of autoscopic hallucinations before modern sleep technology. Tamara also provided a detailed review of *A Technologist's Introduction to Sleep Disorders*, Second Edition, for us in this issue.

Save the date for the upcoming AAST "Technologist Fundamentals" course that will be held October 7-8, 2016, at the Wyndham Playhouse Square, in Cleveland, Ohio. It is shaping up to be an excellent course for new and experienced technologists alike!

*Rita J. Brooks*



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Submit an original article for publication in *A<sub>2</sub>Zzz*. See [page 5](#) for details.

# OFFICIAL PUBLICATION OF THE **AMERICAN ASSOCIATION OF SLEEP TECHNOLOGISTS (AAST)**

## ABOUT **A<sub>2</sub>Zzz**

*A<sub>2</sub>Zzz* is published quarterly by the American Association of Sleep Technologists (AAST), 2510 North Frontage Road, Darien, IL 60561.

**Learning Objectives:** Readers of *A<sub>2</sub>Zzz* 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

**Submissions:** Original articles submitted by AAST members and by invited authors will be considered for publication. Published articles become the permanent property of the AAST.

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**Disclaimer:** The statements and opinions contained in articles and

### SUBMIT AN ARTICLE TO **A<sub>2</sub>Zzz**

Share your expertise with colleagues in the profession of sleep technology by submitting an original article to *A<sub>2</sub>Zzz*. Read the *A<sub>2</sub>Zzz* Writer's Guidelines at <http://www.aastweb.org/publication-info>. To propose an article topic or to get more information, send an e-mail to [A2Zzz@aastweb.org](mailto:A2Zzz@aastweb.org).

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**Mission:** The American Association of Sleep Technologists (AAST) promotes sleep wellness and leads the sleep technology profession through education, resources, and advocacy.

**Vision:** The American Association of Sleep Technologists (AAST) will play a key role in setting the standard for professional excellence in the evolving practice of sleep healthcare.

**Purpose:** To provide a voice for the professionals who ensure the safe and accurate assessment and treatment of sleep disorders.

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*A<sub>2</sub>Zzz* publishes articles that relate to the profession of sleep technology and informs members about recent and upcoming activities of the American Association of Sleep Technologists (AAST).

## FROM THE PRESIDENT

By Laura Linley, CRT, RST, RPSGT



AAST PRESIDENT  
LAURA LINLEY, CRT,  
RST, RPSGT

As I near the end of the first year of my term as President, I want you to know that it truly has been an honor serving this organization, and I look forward to the upcoming year. I also am looking forward to seeing many of you in Denver at the 38th Annual Meeting of the American Association of Sleep Technologists (AAST); a meeting that I always anticipate with excitement.

I am grateful to have this opportunity to serve as your President; I remember attending my very first AAST Annual Meeting, and wondering if I would ever be in a position to contribute to this wonderful profession. I would encourage any of you to consider participating at whatever level feels comfortable for you. The AAST really is a great and supportive organization, and we should all be proud to be a part of it and of our fascinating profession.

I am particularly excited about this year's Annual Meeting program. New this year, on Sunday, June 12, the AAST 38th Annual Meeting will offer two tracks in the afternoon—one covering fundamental topics and one covering advanced topics. Attendees are welcome to attend all sessions, and may pick and choose from both tracks to meet their individual interests and needs.

The fundamental track includes sessions F01: Proper Hook-Ups with Eileen Leary, MS, RPSGT, RST; F02: Filters with Tim Fields, RPSGT, RST; F03: Artifact Recognition with Deborah Holderman, RPSGT and F04: Arrhythmias with Jon Atkinson, RPSGT, CCSH. The advanced track includes sessions A01: Proper Documentation with William Beauchamp, RRT, RPSGT, RST; A02: CPAP Compliance Program with Kevin Asp, RPSGT, CRT; A03: Successful Titration: Article Review with Nancy Collop, MD and A04: Successful Titrations: Case Reviews with Allen Boone, RPSGT, RST, CCRC and Bernadette Moore-Dumas, RPSGT, RST, REEGT, CRET. I anticipate all of these will be excellent learning opportunities for both new and seasoned technologists!

As part of the Annual Meeting registration fee, AAST attendees will also have access to the SLEEP 2016 Exhibit Hall, which showcases booth displays of the latest offerings from pharmaceutical companies, equipment manufacturers, medical publishers, software companies and more. We have scheduled dedicated time for attendees to visit the Exhibit Hall, and even have provided CEC opportunities for technologists interested in partaking in some of the industry theatre offerings.

Additionally, there will be a new audience engagement platform that attendees can utilize to engage with the AAST during the Annual Meeting. Attendees can navigate to [sleep.conf.io](http://sleep.conf.io) on any computer, tablet or mobile device web browser. The sessions will include the following three features:

- Audience Polling: Polls will automatically appear on your device if there are polls in your sessions.
- Evaluations: Evaluations will automatically unlock at the end of each session.
- Audience Q&A: Click the 'Ask' button to submit a question or up-vote questions you like by clicking the arrow next to that question.

We expect attendees will enjoy this new feature, and we look forward to your feedback!

There is another reason for you to be excited about our 38th annual meeting—Blues Night is back! Sponsored by MVAP, Braebon and the AAST, this will be a fun night for meeting attendees. Join us from 9 p.m. to midnight, Tuesday, June 14, at Jazz@Jacks, located in the Denver Pavilions at 500 16th Street #320, Denver, CO.

Also, don't forget to add the date for the AAST Fall Course to your calendar. The "Technologist Fundamentals Course" will be held Oct. 7-8, 2016 at the Wyndham Playhouse Square in Cleveland, Ohio. Preliminary information is posted on the AAST website, and registration will open soon. Stay tuned for more detailed information about this upcoming course!

Finally, I wish all of you safe travels, and I look forward to seeing you in Denver.

# CONTINUING EDUCATION CREDIT OFFERING

## INSTRUCTIONS FOR EARNING CREDIT

AAST members who read *A<sub>2</sub>Zzz* 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 American Board of Sleep Medicine (ABSM) and the Board of Registered Polysomnographic Technologists (BRPT).

To earn AAST CECs, carefully read four of the designated CEC articles from the list below and claim your credits online. You must go online to claim your credits by the deadline of **September 6, 2016**. After the successful completion of this educational activity, a confirmation letter acknowledging that you have earned 2.00 AAST CECs will be sent to the email address that you have on file with the AAST.

## COST

The *A<sub>2</sub>Zzz* continuing education credit offering is an exclusive learning opportunity for AAST members only and is a free benefit of membership.

## CLAIM CEC CREDITS FOR A2ZZZ ONLINE

Claiming continuing education credits (CECs) by reading *A<sub>2</sub>Zzz* is now easier than ever: AAST Members can [claim credits online](#) through the AAST website – no need to mail, email or fax your completed evaluation form! Visit the AAST website and claim your CECs today!

## 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 American Board of Sleep Medicine (ABSM) and the Board of Registered Polysomnographic Technologists (BRPT). Individuals should only claim credit for the articles that they actually read and evaluate for this educational activity.

## STATEMENT OF EDUCATIONAL PURPOSE/OVERALL EDUCATIONAL OBJECTIVES

*A<sub>2</sub>Zzz* 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 A<sub>2</sub>Zzz should be able to do the following:*

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- Apply this knowledge in the practice of sleep technology

You must go online to claim your CECs by the deadline of **September 6, 2016**.

Read and evaluate four of the following articles to earn 2.0 AAST CECs:

	Page #
<b>Melatonin and Allergy</b> .....	14-15
<i>Objective: Be aware that impaired production (or utilization) of melatonin may be a factor in allergy.</i>	
<b>Finding That One Perfect Mask: Or Maybe Not</b> .....	16-17
<i>Objective: Understand that there are patients for whom no one mask will work for an extended period of time.</i>	
<b>How To Make The Most Of Sleep Conference Meetings</b> .....	18-19
<i>Objective: Learn how to make the most of your time while attending sleep conferences.</i>	
<b>Sleep Educator Opportunities—It's a Revolution</b> .....	20-22
<i>Objective: Understand that the need for sleep educators is here to stay</i>	
<b>A Technologist's Introduction to Sleep Telemedicine</b> .....	24-27
<i>Objective: Be aware that sleep medicine has become one of the most active fields using telehealth.</i>	
<b>Dreaming and Encounters With the Alternate Self (Part 2)</b> .....	28-29
<i>Objective: Understand how autoscopical hallucinations during dreaming were studied before modern sleep technology.</i>	

## AN INTERVIEW WITH SHARON KEENAN, PHD, RPSGT

By Yoona Ha and Rita Brooks, MED, RST, RPSGT, REEG/EPT

**S**haron Keenan served as president of the AAST (then APT) from 1983 to 1991.

Like many from this era, Sharon happened into the field of sleep medicine and technology as it was developing in the late 1970's and early 1980's. She completed undergraduate studies at Penn State University in physiological psychology in 1976. Then, she trained in EEG at Crozer Chester Medical Center in Chester, Pennsylvania and remained there until 1978; assisting Drs. Calvin Stafford and Lawrence Green to establish the sleep laboratory there.

Sleep was in its infancy and at that time there were only about six clinical sleep laboratories in the country. Most work in sleep at that time was research, and some physicians and scientists collected their own data. (This is still true in many countries outside the United States.) Dr. Dement collected his own data for his 1957 study that allowed him to make the observation that dreams occur in association with rapid eye movements (which were previously described by Drs. Kleitman and Aserinsky), decreased motor tone and the occurrence of dreaming.

Sharon remembers:

In June of 1978, I attended an Association for the Psychophysiological Study of Sleep (APSS) meeting in Palo Alto, California where I met Peter McGregor and a host of other colleagues who were interested in sleep. It was an international meeting and there were about three hundred people there. About twenty of us were technologists, most were involved in research and a few of us were studying patients. Many did both. It was at this meeting that the Association of Polysomnographic Technologists (APT) was created. It was Peter McGregor's idea to start the discussion and to create the organization. We all agreed there should be some mechanism of communication and sharing of ideas, standardization

of practice and for providing training and education for technologists. And we all shared the excitement of being part of this magnificent work.

During this period of time Peter McGregor was at Montefiore Hospital in New York with Dr. Elliot Weitzman, who was good friends and colleagues with Dr. Bill Dement at Stanford. Later, Dr. Dement, in his role as President of the Association of Sleep Disorders Centers (ASDC) for many years, convinced "the powers that be" to let the APT meetings "ride on the coattails" of the larger ASDC meetings. Often, this was simply providing the meeting room (the space to hold the process) to provide education, conduct association business and/or host social gatherings. The nascent APT could not have flourished in the way it did, at the time it did, without this critical support. I joined Drs. Dement and Guilleminault at Stanford in January of 1979.

In the early days there were very few sleep laboratories and those that existed were usually the "step children" of a department that was feeling forced into "taking responsibility for the sleep lab". Equipment was stored in stairwells or closets and space was usually shared with the EEG or pulmonary function laboratory. The clinical sleep laboratory at Stanford was on the third floor in the old "Hoover Pavilion" (previously the first Palo Alto Hospital) at that time. This laboratory was simply one small control room with holes cut through the walls to allow for the cables from the equipment to pass through to the patient's rooms on either side. Patient exam rooms, administration and other clinical offices were in another building, on the other side of campus. We had to haul the paper tracings each morning to the Edwards Building where the records were scored and the patients were seen.

The sleep laboratory moved to a few different places on campus. Sometimes, when the hospital census was high, all the equipment was moved from one building to another. Eventually a dedicated sleep clinic and laboratory was built out in newly acquired space



**YOONA HA**

Yoona Ha, a graduate of Northwestern University's Medill School of Journalism and Weinberg College of Arts and Sciences, is a web content manager for the American Association of Sleep Technologists.



**RITA BROOKS  
MED, RST, RPSGT, REEG/EPT**

Rita Brooks MED, RST, RPSGT, REEG/EPT is the President of the American Association of Sleep Technologists. She is the Director of Diagnostic Services for Capital Health in Trenton, N.J.

on the second floor where administration, patient exam rooms, clinical offices and the sleep laboratory were all in one place for the first time. “It was exciting to be a part of the field during this time — as it still is. Our patients are still our teachers. We are still learning about sleep.”

Sharon remembers the challenges of the early years:

A unique challenge for the APT early on was establishing and keeping a voice for the technologist..... and this is still a need. More than any other branch of medicine, in sleep the highest quality of patient care comes from an environment where the technologists, physicians, nurses work closely together to provide the best diagnostic, treatment and follow up care for our patients. We were beginning. Our membership grew and we created committees dedicated to education, and a committee to create an examination for credentialing of technologists. As technologists we were actively involved in the growth of the field of sleep medicine and sleep research through nurturing our relationships with the Sleep Research Society (SRS) and the Association of Sleep Disorders Centers (ASDC, now the AASM) and our colleagues throughout the world.

During the early years the technologist credentialing examination was held in various sleep laboratories across the country. Stanford held the exams many times and APT board meetings were also held there early on. Ultimately the APT Board of Directors realized the examination had to be separate from the membership organization. In 1998 there was a referendum to allow for the Board of Registered Polysomnographic Technologists (BRPT) to become an independent entity. In 1999 the BRPT officially separated from the APT and was incorporated as an independent entity, and in 2002 the RPSGT credential attained NCCA accreditation.

The challenges and rewards of being president of the AAST are unique. The work is challenging but the rewards are many. We, as past, current and future presidents, share a special bond because we are always struggling to gain or keep a voice in the process of providing a critical part of health care. I do wish we had been able to establish more sleep training and education within existing Respiratory Therapy, EEG Technology, Nursing, and other allied health programs early on. We still struggle to get into curricula in places where it makes perfect sense to provide at least a few hours about sleep. Our work is not done.

Those who were most influential and helpful during the early years of the APT were Christian Guilleminault, German Nino-Murcia, Bill Dement, Mary Carskadon, Peter McGregor, Helen Bearpark; it is impossible to list everyone. There are so many good friends and colleagues who have helped me over the years.



SHARON KEENAN, SECOND APT PRESIDENT.

Drs. Dement, Guilleminault and Nino-Murcia were all very much involved in the ongoing development of the APT. All of them showed profound recognition of the importance of highly qualified technologists. Without exception, these three men were instrumental in affirming and reaffirming the critical role of the technologist in the emerging discipline of sleep disorders medicine. “It is the people... it is all about the people we have met and known and hold in our hearts forever. I am grateful to have had the opportunity to serve. It has been an honor and a privilege to work with so many dedicated people.”

Dr. Dement fought the battle “with the Blues” to obtain a billing code for our most important tool in sleep medicine; the polysomnogram. Nino-Murcia worked tirelessly during early years of our credentialing exam development, Guilleminault is responsible for the terms Sleep Apnea Syndrome and Upper Airway Resistance Syndrome (UARS). He has been a moving force in the use of our tools, indeed, the development of our tools, as we move forward in this exciting journey of trying to understand the wonders of sleep and sleep disorders.

Of these three pioneers Sharon says:

You can’t be in the room with these guys and not know you are with greatness. Without their efforts our lives, our work might be very different.

Dement spent many a night at the Grass Model 3 in Chicago as a graduate student for Dr. Kleitman. Dr. Guilleminault was always in the lab. He still is! He reads every morning for the fellows and continues to inspire us with insights to things we have not yet thought about. Dr. Nino-Murcia, before he came to Stanford in the early 80’s, expanded the research laboratory at Thomas Jefferson University in Philadelphia, (which previously studied only erectile dysfunction at Dr. Charles Fisher’s laboratory). When Dr. Fisher left Jefferson, Nino-Murcia became the

Director and under his leadership the sleep laboratory expanded to study patients with sleep related breathing disorders, narcolepsy, insomnia and parasomnias.

Since my presidency the AAST has grown in numbers and influence. We have legislation in place requiring credentialing and independent licensing in some states. There is a very well attended AAST Annual Meeting and there are many other successful educational efforts are underway. We have recognition as a profession. Thanks to Bill Dement and Jerry Holland (1974) we have a billing code for our procedure.

Remembering the international contingent from the early days, Sharon says:

I am sad that the AAST is “less international” than when we started. I understand how this may have happened over time however, in the world sleep technologists are still a relatively small group. In 1988 the first technologist course was held in Sydney at Professor Sullivan’s lab. Fay Everett of his team became the first Australian RPSGT. There was a first International Meeting of Polysomnographic Technologists held in September 1991 in Milan, Italy organized by Vincenza Castronvo, the first European RPSGT. Roger Godbout, RPSGT in Montreal is well known to us for all his work. Elena Diaz in Madrid, Susan Phil in Finland, Jason Alster in Israel, Maxime Elbaz in Paris... There are so many wonderful people all over the world in our field!

The field of sleep and the role of sleep technologists have changed since those early days. First, we have seen the transition from analog data to digital data. Second, we collect sleep data in the home and other places as well as the sleep laboratory and in hospitals. Third, positive airway pressure provides a wonderful alternative to tracheostomy for the treatment of sleep related breathing disorders. Technologists and engineers have adapted tools and techniques, protocols and procedures to increase standardization of practice. Technologists collect the data to assist with the diagnosis, treatment and management of sleep disorders. As well, the role of the technologist in the ongoing support and education of patients and reaching out to the community has grown. It is an exciting time to be in the field; it has never been dull.

Since the time of my presidency, my life has been dedicated to teaching and training about sleep and sleep disorders. The future of sleep medicine is bright. Bill Dement says that most of what we know in medicine is based upon information from the waking or dead body. Through polysomnography we gain access into physiological changes that occur during sleep. Along with the technological advances in computer science, we have been able to increase our understanding of sleep. We work still to convince



SHARON KEENAN WITH DR. WILLIAM DEMENT, WHO WAS INFLUENTIAL AND HELPFUL DURING THE EARLY YEARS OF THE APT.

others that sleep is a critical physiological state.

As the Winter 2016 semester at Stanford begins Dr. Dement is still teaching Stanford undergrads and graduate students. He uses the Sleep and Dreams golf cart to get to class and gives students rides to class. His mantra: "Drowsiness is Red Alert" is being imparted to yet another group of potential movers and shakers of the world.

What does the future hold? As we move forward, one may imagine a world in which every patient is asked about their sleep health and directed to support if they are suffering, and every doctor, nurse, PA, NP, RN, etc., is trained to ask about sleep, and every patient understands that sleep problems are to be taken seriously.

Who knows what is ahead in this digital, big data, wearable technology, cloud storage, fMRI compatible EEG electrode (!) world we live in?!! We are at the leading edge of cutting edge science! ❖



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\*Results of customer preference trial; data on file.

**PHILIPS**

**RESPIRONICS**

## NEW ENGLAND POLYSOMNOGRAPHIC SOCIETY: AN INTERVIEW WITH PRESIDENT PEGGY INNOCENTI

By Yoona Ha and Rita Brooks, MED, RST, RPSGT, REEG/EPT

The New England Polysomnographic Society (NEPS), originally founded in 2003 due to legislative concerns in New Hampshire, is comprised of over 600 members from Vermont, New Hampshire, Maine, Massachusetts, Connecticut, and Rhode Island. The society holds 10-15 board meetings per year, primarily to plan their annual conference. There is no cost for membership; if you attend the conference then you are considered a member. The conference is a day and a half in length and offers 10 CECs at an average cost of \$175.

Their next conference is coming up in September. The conference will be returning to Foxwoods Resort and Casino in Connecticut this year and will be held on September 8-9, 2016. Sleep clinicians from New York, Pennsylvania and other surrounding states are welcomed and often attend their annual conference as well.

The organization's mission encompasses communication, professional support and education for sleep technologists. Their goals include providing a means of communication among sleep technologists and other professionals, supporting and advancing professional identity, and providing educational opportunities that are state-of-the-art and evidence based. The organization uses social media, primarily Facebook, and their annual education conference to motivate new members to join the society.

Members of the board of directors participate in planning the conference and use their networking skills to provide appropriate speakers for the topics developed. Their board members come from various states and are connected with physicians and other speakers they can recommend to assist with the conference. Speakers who are well received are often invited to return. President Peggy Innocenti, RRT, tells us that her participation in the society allowed her to develop and enhance her conference planning skills. Her organization's biggest challenge is always putting on a conference that includes speakers that are dynamic

and interesting. Their conference always focuses on current up-to-date topics that are useful in every practice.

Benefits of being a member include access to a reasonably priced conference and 10 CECs toward maintaining professional credentials. Networking with other sleep professionals and the ability to visit exhibitors is also worthwhile to members. The conference also provides an opportunity to learn about new products. Becoming a member and attending the conference is also a great job search opportunity for their members. They provide a job board on the web site and networking opportunities at the conference. On-site job interviews have even occurred at the conference.

The society has been involved with legislation related to licensure since it was founded in 2003, initially working on legislative concerns related to the Respiratory Care Practice Act that was moving through the NH House of Representatives at that time. That act had important ramifications for sleep technologists that threatened their ability to practice. While the Association of Polysomnographic Technologists (APT) offered national support, local support was needed as well. A small group of dedicated volunteers got together several times in the winter of 2003 to plan a course of action. Those volunteers became the original Board of Directors of the New England Polysomnographic Society. Their first course of action was to create a vision for the organization, develop membership, and work toward defeating the legislation that threatened their jobs. Fortunately, although they had little experience with legislative issues, they had support from the American Association of Sleep Technologists (APT at the time) and Dr. Mike Sateia. They were instrumental in defeating the legislation as it stood.

More recently a contingent of the society in Maine worked on a licensing bill for sleep technologists that went to the legislature



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year ago, but was returned for more tweaking on the wording. This reworked legislation will be resubmitted next year, so obtaining licensure for sleep technologists in Maine is still in process. New Hampshire is also working on a licensing bill. Currently Maine, Vermont, and Massachusetts have exemption language in their Respiratory Care Practice Acts, and the New Hampshire Respiratory Care Practice Act defines qualifications for sleep technologists. The Connecticut and Rhode Island Respiratory Care Practice Acts do not address polysomnographic technologist practice.

When the President was asked, “What do you think the AAST can do to assist your society?” her response was they would like assistance to get the word out about their society and potentially to provide speaker suggestions for their conferences. More importantly she felt that the AAST attending their conference as an exhibitor and providing information regarding AAST membership benefits would be valuable. The AAST Board of Directors appreciates these suggestions from state and regional sleep societies. We are currently working on developing a speaker’s bureau and are also working toward offering an AAST presence at these meetings whenever possible. Thank you Peggy for your insight and recommendations! ❖

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## MELATONIN AND ALLERGY

By Regina Patrick, BA, RPSGT, RST

Symptoms of allergic diseases (e.g., wheezing in asthma or itching in allergic dermatitis) can disrupt sleep. However, these symptoms may not be the only reason for sleep disruption: some research indicates that the impaired production (or utilization) of melatonin may be a factor in allergy. For example, a Chinese study<sup>1</sup> found that children with allergic dermatitis had lower-than-normal nocturnal melatonin secretion, and other research<sup>2</sup> has demonstrated that administering melatonin to people with asthma is helpful in reducing asthma symptoms. Such findings could someday lead to the use of melatonin to improve sleep and symptoms in people with allergic diseases.

An allergy is a hyperimmune response that occurs after an exposure to a substance (i.e., allergen) that the body recognizes as foreign. After the exposure, a series of actions occur such as the release of inflammatory substances (e.g., histamine) that result in symptoms such as runny nose, airway constriction, and, at worst, anaphylactic shock (i.e., a potentially fatal allergic reaction characterized by a sudden drop in blood pressure, dilated blood vessels, swelling, hives, and breathing difficulties, rapid pulse, and loss of consciousness). Some common allergens are pollen, bee venom, viruses, bacteria, and pet dander.

An immune response can be antibody-mediated in which a protein, called an antibody, binds with and neutralizes the effects of an allergy-inducing substance (i.e., antigen), or an immune response can be cell-mediated in which immune cells such as T-lymphocytes interact with an antigen (e.g., bacteria, virus) to neutralize its harmful effects. An antibody-mediated immune response manifests immediately because antibodies travel through the blood and can quickly reach the site of an antigen. A cell-mediated response manifests some time after the exposure to an antigen because immune cells require time to reproduce and travel to the site of the antigen.

Some research suggests that the sleep-promoting hormone melatonin modulates antibody-mediated and cell-mediated immune responses.<sup>3-7</sup> Melatonin is produced by the pineal gland, which has connections to the suprachiasmatic nucleus, a

group of specialized cells that control the circadian rhythmicity of many processes such as sleep and wake cycles. The optic nerves relay information about the level of external light to the suprachiasmatic nucleus. This photic information is then relayed to the pineal gland. In response, the pineal gland produces melatonin when the external light level is low and reduces melatonin production when the external light level is high. As a result, the melatonin level is highest during the night and lowest during the day.

Melatonin interacts with the immune system in a variety of ways. For example, melatonin receptors on the outer membrane and nuclear membrane of T-helper 1 and T-helper 2 cells allow melatonin to induce lymphocytes, monocytes, and other immune cells to synthesize immunomodulating proteins (i.e., cytokines, which mediate immune responses such as cell migration, cytotoxic activity, and inflammation).<sup>1,7,8</sup> Examples of cytokines are interferon-gamma, interleukin (IL)-2, IL-6, and IL-12. Melatonin neutralizes free radicals (i.e., a highly reactive molecule, atom, or ion such as the hydroxyl ion [OH<sup>-</sup>] that are involved in oxidative reactions) and upregulates the activity of antioxidant enzymes (i.e., glutathione peroxidase, catalase, and superoxide dismutase) on cellular membranes.<sup>8</sup> In this way, melatonin exerts antioxidant and cytoprotective effects.<sup>4,9-11</sup> Melatonin has been detected in skin cells, lymphocytes, mast cells, airway epithelial cells, brain, retina, and other cells in the body.<sup>8</sup> This factor may allow melatonin to modulate symptoms such as runny nose or itching in allergic diseases.

Whether improper amounts or improper utilization of melatonin—rather than allergic symptoms—contributes to disrupted sleep in people with allergic diseases has been investigated in some studies. To this end, Yung-Sen Chang and colleagues<sup>1</sup> explored sleep disturbances in children with allergic dermatitis and possible contributing factors. They measured the nocturnal activity level (using actigraphy) and urinary melatonin levels of children with allergic dermatitis and children without allergic dermatitis (i.e., controls). They found that children with allergic dermatitis had a greater number of movements during sleep, greater sleep disruption (as reflected by reduced sleep efficiency, longer sleep onset latency, more sleep fragmentation, and less nonrapid eye movement sleep), and some children had a higher-than-normal secretion of nocturnal melatonin, compared to the controls. Chang was surprised at the latter finding since some investigators have found lower levels of melatonin in individuals with allergic dermatitis.<sup>12,13</sup> Chang conjectures that the increased melatonin production in their study may reflect the



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body's attempt to modulate the sleep disturbance. In support of this, they noted that the children with allergic dermatitis who had a higher nocturnal melatonin level had better sleep efficiency, longer total sleep time, and less sleep fragmentation, compared to children without allergic dermatitis.

Researchers who have found decreased levels of melatonin in people with allergic diseases speculate that impaired melatonin production may have a role in the disease. For example, Schwarz and colleagues<sup>13</sup> found that, among 18 patients with severe eczema, six patients had a low serum melatonin level and lacked the normal circadian rhythmic change in melatonin secretion, eight patients had a lower-than-normal increase in the nocturnal melatonin level, and four patients had a normal secretion pattern of melatonin. Schwarz suggests that these findings indicate a dysfunction of the pineal gland. Munoz-Hoyos and colleagues<sup>12</sup> found that circadian differences in melatonin production between symptomatic and asymptomatic people with dermatitis was significant only for the daytime levels. From this finding, Munoz-Hoyos hypothesized that the nocturnal peak of melatonin produced by the pineal gland in a person with allergic dermatitis may mask that the person has a lower-than-normal daytime production of melatonin from extrapineal sources. (Melatonin-synthesizing enzymes have been identified in many tissues such as the brain, airway epithelium, skin, immune system cells, and endothelial cells; these tissues may provide melatonin during the day when the pineal gland decreases its production.)

The use of melatonin on a continual basis to improve sleep while treating allergic diseases is problematic. Despite the encouraging results of melatonin in reducing allergic symptoms, melatonin may need to be used with caution when treating certain allergic diseases. For example, some investigators have found that melatonin improves asthma symptoms by reducing airway inflammation,<sup>2</sup> whereas other investigators have found that melatonin increases airway inflammation,<sup>14</sup> possibly by stimulating the migration of inflammatory cells to the airway. If melatonin were to be used as a treatment to improve sleep in people with allergic diseases, another factor that may be important is the time of its administration. Maestroni and colleagues<sup>4</sup> demonstrated that the immunostimulatory effect of melatonin was enhanced only when mice in which an allergic reaction had been induced were treated with melatonin before evening. Future studies that address these and other problematic factors may soon make it possible to strategically use melatonin to improve sleep, as well as symptoms, in people with allergic diseases.

## REFERENCES

1. Chang YS, Chou YT, Lee JH, et al. Atopic dermatitis, melatonin, and sleep disturbance. *Pediatrics*. 2014;134:e397-405.
2. Shin IS, Park JW, Shin NR, et al. Melatonin reduces airway inflammation in ovalbumin-induced asthma. *Immunobiology*. 2014;219:901-908.
3. Lin GJ, Huang SH, Chen SJ, et al. Modulation by melatonin of the pathogenesis of inflammatory autoimmune diseases. *International Journal of Molecular Sciences*. 2013;14:11742-11766.
4. Maestroni GJ, Conti A, Pierpaoli W. Role of the pineal gland in immunity: II. Melatonin enhances the antibody response via an opiate mechanism. *Clinical Experimental Immunology*. 1987;68:384-391.
5. Marseglia L, D'Angelo G, Manti S, et al. Melatonin and atopy: Role in atopic dermatitis and asthma. *International Journal of Molecular Sciences*. 2014;15:13482-13493.
6. Miller SC, Pandi-Perumal SR, Esquifino AI, et al. The role of melatonin in immuno-enhancement: Potential application in cancer. *International Journal of Experimental Pathology*. 2006;87:81-87.
7. Srinivasan V, Maestroni, GJ, Cardinali DP, et al. Melatonin, immune function and aging. *Immunity and Ageing*. 2005;2:17.
8. Chang YS, Chiang BL. Mechanism of sleep disturbance in children with atopic dermatitis and the role of the circadian rhythm and melatonin. *International Journal of Molecular Sciences*. 2016;17:462.
9. Caffarelli C, Santamaria F, Vottero A, et al. Progress in pediatrics in 2013: Choices in allergology, endocrinology, gastroenterology, hypertension, infectious diseases, neonatology, neurology, nutrition and respiratory tract illnesses. *Italian Journal of Pediatrics*. 2014;40:62.
10. Silvestri M, Rossi GA. Melatonin: Its possible role in the management of viral infections—a brief review. *Italian Journal of Pediatrics*. 2013;39:61.
11. Princ F, Maxit AG, Cardalda C, et al. In vivo protection by melatonin against delta-aminolevulinic acid-induced oxidative damage and its antioxidant effect on the activity of haem enzymes. *Journal of Pineal Research*. 1998;24:1-8.
12. Munoz-Hoyos A, Espin-Quirantes C, Molina-Carballo A, et al. Neuroendocrine and circadian aspects (melatonin and beta-endorphin) of atopic dermatitis in the child. *Pediatric Allergy and Immunology*. 2007;18:679-686.
13. Schwarz W, Birau N, Hornstein OP, et al. Alterations of melatonin secretion in atopic eczema. *Acta Dermmato-Venerologica*. 1988;68:224-229.
14. Sutherland ER, Ellison MC, Kraft M, et al. Elevated serum melatonin is associated with the nocturnal worsening of asthma. *Journal of Allergy and Clinical Immunology*. 2003;112:513-517. ❖

## FINDING THAT ONE PERFECT MASK: OR MAYBE NOT

By Lisa Bond, RST, RPSGT

Masks, masks, masks. Those of us in the sleep field be it working in the sleep center, the durable medical equipment (DME) company, or even if you are a patient, are constantly talking about masks. Why? Because we all know that the mask is the single most important factor in achieving compliance and successful adherence to positive airway pressure (PAP) therapy. All of us are on the search for the perfect mask, the one that above all others fits, is comfortable, and will be used every night. And there are so many to choose from now. New masks are coming out every day. So that perfect mask has to be out there and we are all determined, down to the core of our being, to find that one mask that will work for every patient we see, or for just this one patient in front of us right now.

Well step on the brakes, it's time to consider another approach. Maybe the patient needs more than one mask. It's not a new approach but it is an approach that has been forgotten in the sea of masks we have available today. We all know intellectually that no single mask style or brand will fit everyone. It's not possible and that is why we have so many choices.

Now and again, you will run into those patients that you just cannot fit perfectly, no matter what mask you try. You have fit them with 20 different masks and nothing seems to work for them to use every night. Sure this mask was good for a few nights but then they started to have redness from it rubbing in one spot. Then the second mask worked for a week but then the patient started complaining about sinus passage issues and excessive drainage. So you try yet another mask, sure that this time it will be the perfect one at last, only to yet again have the patient call and say that it was great for a while but now this mask is leaking in a different area and it is bothering them. We have all been there.

There are patients out there for whom no one mask will work for an extended period of time. These patients actually will do better with a couple of different masks that they can use

on a rotating basis. Some facial shapes simply do not lend themselves to finding any mask that fits perfectly and being able to rotate masks every couple of days keeps any one issue from becoming overwhelming. Some patients simply do better with that sense of control they get from being able to switch masks around even though every mask they have actually does fit them well. Some masks work well at one altitude but when the patient travels, that mask may not do so well at another altitude, even though the CPAP machine is adjusting to the new altitude.

On the patient side finding the right mask or interface can be very frustrating. The patient may have been getting conflicting information about what one mask is the best. At the time of their sleep study they were told mask A was the best, at the DME they are told another mask, mask B, is perfect for them. In the support groups/forums they are told masks C, D, E, etc. will solve their problems. Now the patient is really frustrated and ready to give up because at this point, the patient has decided that nobody knew what they were talking about. No mask will work for them. The problem is that nobody considers that they may all have been right mask. It's a novel thought but everyone may have been right saying this is the mask for you. It's just that this patient needs different masks in order to deal with different issues at different times.

I have always advocated for every patient that loves their nasal mask or pillows to have a full face mask as a backup. Why? Because when the patient gets a bad cold, or has excessive sinus drainage from allergies, it can not only be difficult to breathe through the nose but detrimental to the patient to use that nasal mask or pillows interface. Colds and allergies cause lots of pressure, pushing mucus into every corner of the sinus passage and increasing the chances of obtaining a sinus infection. Using a full-face mask temporally during these times allows your patient to breathe through their mouth and takes some of the pressure off the sinuses. Maybe it is not the perfect fit for them and they normally hate a full-face mask but, it allows them to actually breathe and use their PAP, so it may be the perfect mask for the moment and this situation.

The goal is to assure our patients get the therapeutic PAP pressure they need to support their airway. It's not actually to find them the one perfect mask. We tend to concentrate on the mask as it is the interface we need to accomplish our goal. There is no rule, no law, no real reason we cannot switch the mask up a bit to fit the situation. Sure, we know that with



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some masks we may need a slightly different pressure than with another to assure a perfect fit and to splint that airway perfectly. Still, if you look at the global picture, where 4 measly hours of use is considered compliant (we all know this is not really very therapeutic) and we are able to get our patient to use their PAP device every night for 7+ hours where the actual delivered pressure is off by  $\frac{1}{2}$  to 1 cm  $H_2O$  because of the mask variation, are we not ahead by miles?

Most patients will do well with just one interface. But not all patients will. For some patients the use of multiple masks may be the solution to assure their compliance and adherence to their PAP therapy. ❖



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## HOW TO MAKE THE MOST OF SLEEP CONFERENCE MEETINGS

By Tamara Sellman, RPSGT, CCSH

**S**LEEP 2016 is right around the corner. It may be the first time you attend. Or you may be a veteran who still struggles to maximize your time there. If you've paid your money and made the long trip there, you may as well take advantage of the situation.

Savvy conference goers know this: while sessions are *valuable*, the conversations between them are *invaluable*. Face-to-face networking with your peers is the number one reason why you should attend any conference.

Education rates a close second, sure. CECs count! But getting to know the people inside your field opens up realities — both good and bad — of working in our specialized healthcare niche.

Our work, especially if it's all at night, can be lonesome and invisible. If we meet and bond with others who do the same thing, we all stand to benefit from their support, ideas, camaraderie, and expertise even during the loneliest shifts at the lab.

If you're attending the Denver event, here are some surviving and thriving tips:

- **Make a plan.** Consult the schedule in advance, highlight all that interests you, then write in these events on a daily calendar to identify any overlap. Prioritize them to prevent making last-minute decisions you may regret later. You can always change your mind.
- **Sample everything.** A conference of this size offers a wealth of networking opportunities. Besides the general sessions, there's the exhibit hall, poster galley, vendor events and meals, bulletin boards, and strategy sessions. Don't ignore them.



**TAMARA SELLMAN RPSGT, CCSH**

Tamara Sellman RPSGT, CCSH is a sleep health writer and activist. She curates the sleep health information clearinghouse, SleepyHeadCentral.com, and generates content for the SomnoSure Education Center and the sleep center clients at InBoundMed.

- **SLEEP is for everybody.** Don't limit yourself to technology sessions... you can attend AASM workshops, too. They offer insight into physician and researcher concerns and can help you expand your understanding.
- **Be a loyal member.** *Always* attend the AAST member meeting. The board and committee members comprise the movers and shakers of our field; they can advise on trends in employment, Medicare rules, best practices, and educational opportunities.

Smaller events, like the AAST workshops and state sleep society meetings, allow a more relaxed approach to networking. Try these tips:

- **Get bonded.** At smaller events, people become familiar faster and cluster more readily; it makes it easier to be invited out afterward. Look for chances to get to know your peers better by stepping out for meals or post-conference drinks.
- **Respect the sponsors.** Vendors pay big money to sponsor meetings, many which can't take place without this investment! Let them show you new technologies, even if you're not currently using them (i.e., oral devices).
- **Fill out your forms.** CECs are a key reason why you attend, right? Most live events offer a year's worth. It's easy to skip a visit to the host table, but you must remember to follow through on paperwork so you can receive your credits.
- **It's okay to say no.** It's the board members' jobs to ask for volunteers. If you can't, they'll understand. If you do want to help, introduce yourself! Inventory your strengths and commitment levels, then say "Hi" and offer what you can.

The following tips work for any conference:

- **Be present.** Don't check email or play games during sessions. Do your cellular business between sessions, then put away the smartphone, turning off ringtones and vibrate features. Eye contact cannot happen if your baby blues are trained on a handheld screen.

- **Come calling.** Entrepreneurial technologists should bring business cards to hand out freely. If you're looking for a new job, want to work in public education, or advance yourself by applying the CCSH credential, business cards are essential.
- **Walk with giants.** In our specific niche of sleep medicine, giants literally walk among us: Lee-Chiong, Buysse, Watson, Mignot, Morgenthaler, etc. *Know who they are.* Don't miss opportunities to listen to or meet with them; they're leaders for a *reason*.
- **Give a shout out.** Contact your peers in social media groups and forums before the event to see who's going. Plan to meet them, face to face. This is Networking Basics 101, and it works for *every* person at *every* level in *every* field.
- **Keep your ears to the wall.** The people who speak out and come forward are most inclined to make positive change. At controversial sessions, note the activists in both the panel and the audience. If they inspire you, introduce yourself to them to say thank you.
- **Make a To-Do List.** As you jot down notes, add Action Items to them to follow up on later. These give actionable context for scribbling you may not be able to interpret later. Then... **Follow up.** Turn those Action Items into reality within a week's time.
- **Know your purpose.** Why are you there? To learn everything you can about parasomnia? To meet the local sleep society board and offer to volunteer? To find answers to your burning questions about controversial lab policies? To shake Dr. Dement's hand?

Whatever it is that motivates you to go to a conference, keep your eyes on the prize. If you do so, it'll be easy to rise early and head down those gaudy carpeted halls to the ballroom with its oversized chandelier to get what you came for.

This article is dedicated to Iain Boyle, who passed away on April 21, 2016 in Surrey, BC. Iain was a well-seasoned sleep technologist who I had the privilege and honor to meet and learn from at the Seattle SLEEP meeting in 2015. ❖



The AAST acknowledges and thanks the following organizations for their generous support and for investing in the future of the sleep technology profession as AAST supporter members:



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## SLEEP EDUCATOR OPPORTUNITIES—IT’S A REVOLUTION

By Brendan Duffy, RST, RPSGT

If not here, then where? If not us, then who? If not now, then when?

These are questions I pondered as I researched what opportunities were available for newly minted Certified Sleep Educator (CSE) graduates and Certified Clinical Sleep Health Educator (CCSH) credential holders. After years of public speaking on sleep matters to many different audiences, I am in the process of applying for my CCSH designation. As you will see from the information that follows, I am convinced that the need for sleep educators is here to stay and technologists and others with this credential will be utilized in a multitude of new areas and settings in the future. We are all familiar with the possibilities for working inside a hospital in a sleep educator role. The types of programs you usually think of and could create in the medical setting, include sleep apnea awareness programs, continuous positive airway pressure (CPAP) adaptation classes, compliance education, pediatric sleep awareness, nutrition and sleep, diabetes and sleep, etc. Dr. Marta Maczaj, Co-Director of the St. Charles Sleep Disorders Center in Port Jefferson N.Y., and a prominent speaker with regard to sleep issues sees our mission as educators in this manner, “We need to focus our sleep educational efforts anywhere that there is an interest in health. For instance, fitness centers, schools, sport teams ... Nowadays, sleep should be considered the third side — along with diet and exercise — in the triangle of good health”.

Dr. Mohammad Amin, also a Co-Director of St. Charles Sleep Center, and with extensive experience working with retired military veterans, as well as returning military men and women added, “Sleep education has gained tremendous momentum at the federal level in both the military and transportation areas. Sleep disturbances have been linked to post traumatic stress disorder, depression, and anxiety disorders. These represent a golden opportunity for an enterprising sleep educator to develop programs that educate those designated populations and support the work of the sleep specialists that treat these military groups and their families”.

Community health fairs and community presentations are also wonderful venues to utilize your educator credential. After all, if the community doesn’t get the information from properly credentialed, trained, and certified sleep professionals, we run the risk of losing this audience to internet “sleep coaches” with little or no sleep medicine experience. A quick search of the internet delivers an abundance of such sleep coaches who claim to be “certified” via their own online schools and programs. Much like the late night ads for snoring solutions, these programs all too often do nothing more than separate desperate individuals or parents from their money and/or true solutions. They also give a bad name to the good work we do. But why do they exist and prosper? Because they fill a void that we did not have the ability to fill until recently. Now, we can offer the assistance that these patients and parents need; and we have science, knowledge, and experience behind our RPSGT, CSE and CCSH credentials. Another avenue for job possibilities and an arena that has been utilizing sleep experts to assist their mission is inside the sports world. For years, great attention was given to an athlete’s diet, and their workout regimen. However, scant, if any, attention was paid to what happened for the other 8 hours of time the athlete was out of the training facility. That is rapidly changing. Professional and college coaches are contacting sleep professionals to assist them with everything from training schedules, bedroom set up, sleep hygiene, travel scheduling and time zone management. Even the Olympic teams of various countries have been very involved in how sleep impacts their athletes’ performance and how they can gain an edge using sleep information. They have sought out sleep experts to assist them in their preparations.

For the past few years, teams from the MLB, NFL, and NHL have been hiring sleep experts to assist them in managing this mystery of sleep. Just this past spring training season, the New York Yankees brought in a sleep expert to assist with the spring schedule and to work with individuals to assist them. The experts pushed back the customary 7 a.m. start time for daily spring training drills to allow the players to get much needed rest and to emulate a schedule similar to the regular season. After all, spring training should train for the regular season schedule. Players stated anecdotally that they were better focused and able to learn better with the later start time. In another baseball camp, a player was complaining of being tired and having what his General Manager described as being “disjointed sleep”. He was sent for a sleep study, which revealed that he had severe sleep apnea! Other sleep research in baseball has indicated that players that tend toward a higher Epworth Sleepiness Score (ESS) tend also not to last as long in the league as their lower ESS scoring



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counterparts. Still other sleep research indicated that fatigue caused significant performance decreases as the season wore on for major league batters. These types of studies lend credence to the need for professional help to manage the sleep of professional athletes. Some hockey teams such as the Vancouver Canucks have worked with sleep experts for years in an attempt to mitigate the fatigue they experience from the 55,000 miles they travel each season! While working with the sleep experts, the Canucks posted the best winning percentage on the road (in spite of all the travel.) in one season (2012) and also were very strong in endurance at the end of games. They frequently outscored their opponents in the final period of play. This appears to be testament, at least in part, to the scheduling changes, conditioning and awareness that was promoted by their “sleep team”.

It’s not just the pros that are hiring sleep educators to teach them how to use this “secret weapon” we call sleep. Many colleges have hired sleep consultants to assist their players and have seen great benefits. Some of these, such as the University of Tennessee, have had their best season in years after making sleep adjustments! Some other teams benefitting include the University of Pittsburgh football team and the highly successful Florida State University Women’s Soccer team. All of these teams realize the competitive edge that a well-rested athlete has in both their competition and academic life.

Whether it is at the professional, college, or high school level, jobs can be found, or created, by sleep technologists with a sleep educator background and an interest in helping to develop sleep awareness in various settings. Other group settings that would benefit from sleep awareness programs include gyms, nutrition and diet programs, college health classes, adult living facilities, and personal trainer or life coach programs. If they don’t already have a sleep coach, a very enterprising sleep technologist can make a presentation to these groups to show how important and how vital sleep is to the success of their programs.

Another area that also has been utilizing sleep consultants is the business/corporate world. With a recent sizable awareness boost in the importance of sleep from the likes of Arianna Huffington of the *Huffington Post* (author of the best seller book *The Sleep Revolution*) we are seeing many articles and blogs that are focused on how employers need to be retrained to learn the importance of sleep. We are now publically addressing how much money sleep deprived employees are costing companies as a result of lack of creativity, work related injuries, mistakes, sick days, and poor business decisions. In his book *Dreamland*, author David Randall predicts the need for a new future corporate title in Human Resources departments. He believes that as we begin to seriously tackle the issue of sleep-deprived workers, 24-hour schedules, shift work, and businesses that never close, the new title of Fatigue Management Officer will adorn the door of offices in many corporate

headquarters. What better background for those seeking these new corporate sleep positions than a sleep clinician and educator?

One example of sleep emerging as important to corporations is the increase of nap rooms in various corporations such as Google, Ben and Jerry’s, Zappos, and the *Huffington Post*. In addition, Aetna Insurance Company is actually paying their employers to increase their sleep time at home. Employees can earn up to \$300 just for increasing their sleep time. The management staff at Aetna realizes that a more rested and refreshed employee makes for a more creative, positive and healthier employee. Other companies have placed a “ban” on emailing their employees with work related inquiries while the employee is at home or on vacation. They are showing respect for the employees’ rest time by doing so. Several corporations have hired sleep experts to address sleep issues via live presentations, or for their expert help in creating employee health topic videos. These developments indicate a positive shifting culture for companies and more opportunities for sleep educators.

Dr. Maczaj has worked with a few of these entities and just recently completed a sleep hygiene video for HBO which will be available for HBO employees on their internal corporate human resources (HR) employee wellness video service. These types of opportunities, as well as the obvious need for sleep education and structuring in the transportation industry, will open up a multitude of opportunities for the enterprising sleep educator. Just this past month, the Long Island Railroad announced plans to test and treat their railroad employees for sleep issues. This is great news for the health of these employees, the safety of the riders, and the opportunities we will have to share our sleep knowledge and experiences with the general public as more transportation services “get on board” with the importance of sleep as an issue to be managed. “The transportation industry has been aware of the disastrous consequences of sleep deprivation for many years and now the corporate world is recognizing the importance of sleep. Major corporations such as HBO, Bloomberg News, Nielsen, and NASDAQ recognize the negative effect that poor sleep has on health and productivity and they have incorporated sleep programs for their employees” said Dr. Maczaj.

The need for sleep educators is here now; and the time is right for us as the true sleep educators to take our knowledge and experience out to the corporate world. While most of my personal speaking engagements have revolved around my interest in sports performance and sleep, I have been asked to speak to diverse groups on other areas of sleep health this past year. These groups include adult communities, the dental students at Stony Brook University, the Parent Teacher Student Association (PTSA) group, fire departments, library groups, our hospital stroke recovery meeting and the local county chapter of a group for the disabled. These groups are excellent places to start as a provider of sleep education.

These opportunities, coupled with the upsurge in employee wellness interest from the corporate world, are very exciting and welcome developments for sleep professionals. I envision that this new world focused on corporate sleep will evolve into a separate subsection of sleep science entitled fatigue science that will be devoted primarily to the impact of sleep issues in the working and competitive world. It will tackle the tough issues for employees such as jetlag, shift work, travel, balancing home and work life, use of sleep aids, employee sleep disorders, etc.

The future is bright for those that are trained, knowledgeable and passionate about educating others about sleep. Sleep technology never was just a “sleep tech and hospital test” issue. Like improper diet and lack of exercise, sleep is an important area that can sabotage our health if it is not managed properly. This clearly involves promoting and teaching a new lifestyle to an audience

in dire need. It is using your skill set and knowledge to help heal and prevent disease and injuries from grabbing a foothold. This is accomplished by focusing on sleep as an active and crucial element of health.

As you look around you will notice the dynamics in sleep medicine and personal health are changing. People want, and receive much more health information and can track their personal health (including sleep) much easier today using electronic devices. And, as Arianna Huffington states, there truly is a sleep revolution underway... and we, as educators, are on the front lines of the revolution! Embrace your career and the many opportunities that await you as sleep educators. I, for one, am very excited about what great experiences await us! Enjoy the challenges and creativity that will engulf you in your role as a sleep educator during the sleep revolution! ❖

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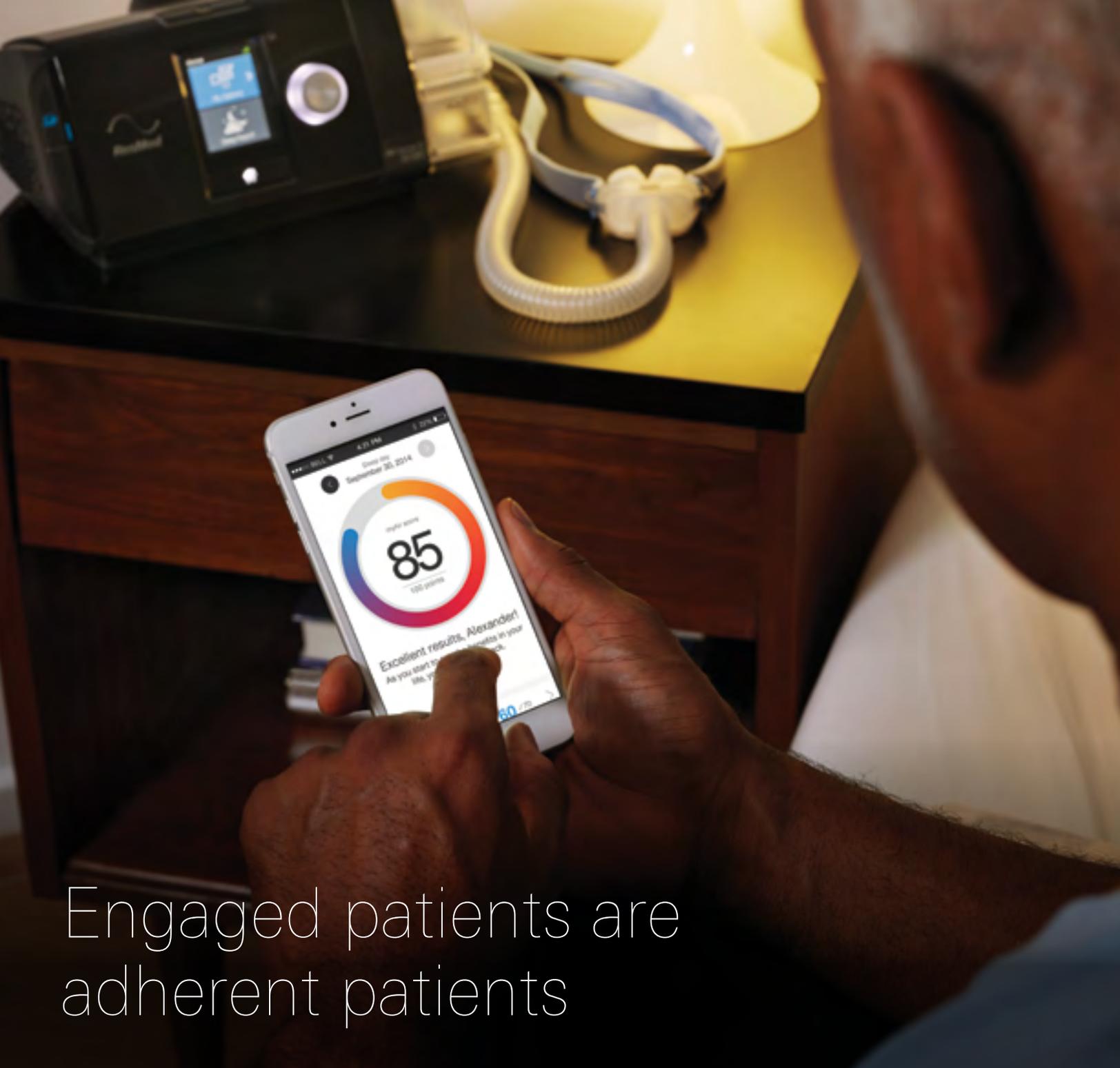
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# A TECHNOLOGIST'S INTRODUCTION TO SLEEP TELEMEDICINE

By Tamara Sellman, RPSGT, CCSH

Discussions between sleep technologists in forums or at conferences are peppered with new healthcare topics. Telemedicine is one such topic drawing discussion: what it is, how it works, and who can work in the field. Sleep medicine has become one of the most active fields using telehealth, as many of its applications save time and money for both physicians and patients.

## WHAT IS SLEEP TELEMEDICINE?

Before you understand specifically how sleep telemedicine works, you need to understand the roots of telemedicine.

The American Telemedicine Association (ATA) defines telemedicine (also known variously as remote medicine, remote healthcare, distance medicine, teled, telehealth, mobile health, or mhealth) as “the use of medical information exchanged from one site to another via electronic communications to improve a patient’s clinical health status.”

Despite it being a “new idea” in the healthcare landscape, telemedicine has been practiced for four decades as a branch of the larger arena of healthcare information technology (HIT).

Other forms of HIT already being used include:

- Electronic medical records
- Two-way video conferences
- Secured email communications
- Digital image file transfer
- Mobile recording devices and applications
- Wearable monitors and sensors
- Remote wireless monitoring tools
- Secured social media access points

- Digital health information exchanges
- Nursing call centers
- Patient portals to view records and facilitate dialog

Whatever else you might think about it, know this: telemedicine is not a separate medical specialty. How one sleep health provider uses telehealth will vastly differ from any other based on their patients’ needs and community’s overall access to HIT services. Telemedicine uses a hybrid of digital and virtual interfaces based on (and sometimes still using) conventional aspects of the continuum of care to generate interactivity between patients and their doctors.

Continuum of care is defined by the Healthcare Information and Management Systems Society (HIMSS) as the “concept involving a system that guides and tracks patients over time through a comprehensive array of health services spanning all levels and intensity of care.”

## WHY THE TREND?

Hospitals have always needed to extend care to patients in remote areas. In the 21st century, the technologies have risen to the demands and needs of healthcare providers.

The ATA reports that the US currently hosts about 200 teled networks and 3,500 service locations, and this number will continue to grow. Millions of Americans are already using telemedicine to some degree, whether it be through the use of remote cardiac monitors, patient portals, or hospital-sanctioned wearable devices. Half of all US hospitals use some form of telemedicine as well.

## SLEEP TELEMEDICINE IN 2016

### Players

In January 2016, AASM SleepTM was launched by the American Academy of Sleep Medicine (AASM). This latest platform enables patients to access sleep healthcare from any location; it uses a secured internet-based platform to conduct patient-to-doctor videoconferences and doctor’s visits.

One month later, IBM’s Watson Health joined the American Sleep Apnea Association (ASAA) to launch the SleepHealth app (which introduced Night Shift, the new evening light-blocking feature) and the SleepHealth Mobile Study, which runs on Apple’s ResearchKit platform and uses the iPhone or Apple Watch.



**TAMARA SELLMAN RPSGT, CCSH**

Tamara Sellman RPSGT, CCSH is a sleep health writer and activist. She curates the sleep health information clearinghouse, SleepyHeadCentral.com, and generates content for the SomnoSure Education Center and the sleep center clients at InBoundMed.

The SleepHealth Mobile Study hopes to collect user-reported data on a wide range of sleep metrics, including quality and length of sleep, snoring, restlessness, and the impact of behavioral and external factors, such as sleep hygiene and environment.

Author David Agus, MD described the benefits of telemedicine to patients in the age of Big Data in an excerpt from his book, *The Lucky Years: How to Thrive in the Brave New World of Health*, published in last January's *Fortune*:

“In some cases it entails live video consultations with doctors available 24 hours a day, who can offer advice, prescribe medicine, and suggest follow-up care. Some towns have installed kiosks where patients can enter and have their vital signs checked while talking with a doctor at a distant major university. All of this will help achieve the best outcome if used correctly.”

### Services

A recent report in *SLEEP* suggests that users of telemedicine-based obstructive sleep apnea (OSA) management were highly satisfied with this option.

Outcomes, dropout rates, and adherence statistics of users were measured in research conducted by Emory University and the Atlanta VA. The results were comparable to those who paid face-to-face visits to clinics for the same services. Convenience and not having to travel long distances were two benefits expressed by patients using sleep telehealth services.

Swedish TeleSleep Services in Seattle is one such example. This full-service, hospital-based healthcare provider offers initial evaluations to adult or pediatric patients when specialized exams are not readily available closer to home. Their telehealth technology links patients and their primary care providers to Swedish sleep specialists without needing to be physically located in the same office.

A thorough consultation and exam occurs at the patient's primary provider's office using monitors which connect with the specialists; a specially trained healthcare worker known as a telepresenter conducts the evaluation and transmits necessary medical information from the patient to the sleep specialist using a secure telehealth connection via the Internet.

Other sleep telemedicine services orbit around a patient following a sleep study. Already, home sleep apnea testing (HSAT) contributes to health information technology. Remote scoring of in-lab PSG studies is another extension of sleep telehealth.

Follow up with patients can now take place using secured Skype-style teleconferences. Remote monitoring of CPAP usage and

compliance—and of oral device therapy usage, for certain models embedded with tracking chips—helps patients and doctors keep focused on outcomes. Patients can also, in some cases, download their own PAP stats onto Windows-based software for review.

In addition, some companies, like SomnoSure in St. Louis, MO, offer real-time services using phone and Internet technologies to monitor and assist patients with PAP-related problems literally the moment they have them.

### Jobs

There will always be a need for respiratory therapists and sleep technologists in every facet of sleep medicine. Despite the increase in the use of HSATs, many patients do not qualify for these tests and require face-to-face visits with sleep specialists.

However, sleep telemedicine may also expand our scope of practice to offer positions as patient presenters, case managers, or sleep educators for many patients who may not need an overnight study. These jobs (most of them daytime positions) will most likely be filled with those who possess RPSGT, CCSH, or nursing credentials.

Scoring technologists may have more options in the field of remote scoring, as well, either working directly for a single employer or on a freelance basis.

### Beneficiaries

Veterans' hospitals are the largest single population of users right now, but sleep telemedicine has the power to reach out to people in rural locations who cannot afford the travel costs of interacting with sleep physicians located several hours away.

Likewise, people who are disabled or chronically ill may find a sleep telehealth option far easier to manage if mobility or symptoms are barriers to office visits.

Finally, the state of Texas is using sleep telemedicine in its incarceration system to cut healthcare costs.

### Reimbursements

No distinction is usually made between services provided on site and those provided through telemedicine, according to the ATA. Neither is separate coding usually required for billing remote services.

However, distinctions among specific payers and limitations should be considered carefully. More than half of all states require private insurers to cover telemedicine services, with more insurance companies starting to expand their coverage.

Medicare and Medicaid have some particular limitations to



WEB-BASED TELEMEDICINE PLATFORMS FACILITATE LIVE, INTERACTIVE, VIDEO CONSULTATIONS AND FOLLOW-UP VISITS BETWEEN PATIENTS AND PROVIDERS, REGARDLESS OF DISTANCE. PHOTO COURTESY OF AASM SLEEPTM.

telehealth coverage which the ATA deems arbitrary; they are pushing for changes within CMS to ensure all of their beneficiaries can receive benefits. Meanwhile, although Medicaid plans for telehealth are available in all states, the state requirements vary widely.

New legislation (the CONNECT For Health Act) was introduced to the Congress on February 2nd to promote the expansion of telehealth services through Medicare.

“Telehealth is the future of health care. It saves money and improves health outcomes,” said Senator Brian Schatz (Dem-HI). “Our bipartisan bill puts us on a path to transform health care delivery, making it less costly and more convenient for patients and providers.”

The act was referred to the Committee on Finance, where it awaits review by the Senate (as of this printing).

## LEGAL LIMITATIONS FOR SLEEP TELEMEDICINE

Daniel Brown of the Daniel Brown Law Group in Atlanta wrote, in a 2014 article in *Sleep Review*, that “telemedicine practitioners’ use of 21st century technologies is sometimes limited by medical practice laws and regulations modeled on 20th century healthcare methods.”

Areas of legal focus for sleep practices providing telemedicine services include:

- Making sure your telehealth protocols are compliant with state medical board licensing.
- Holding a telemedicine license in the state where each patient is receiving sleep tests. Some states, but not all, have provisions for “out-of-state” practice with regard to telemedicine.

- Knowing the definition of “patient-physician relationship” as it pertains to telehealth jurisdiction and malpractice regulations.
- Providing the same quality of care to the virtual patient as healthcare providers do for face-to-face patients.
- Choosing discretion when ordering tests through telehealth portals; some patients really do benefit more from a live encounter.
- Acknowledging that laws about fraud and abuse apply to telehealth as well.
- Mastering the fine points of CMS requirements for telemedicine reimbursement, which can be very confusing.
- Using only HIPAA-compliant telemedicine software and procedures while providing telehealth services.
- Following FDA protocols when using smartphone applications as medical devices.

As with any application of new technology to a field, whether it’s healthcare or some other area of business, there’s bound to be a learning curve as technology is incorporated, jobs are re-imagined, and standards are set from the top down, both internally and externally.

Models of 20th century healthcare have begun to shift toward patient-centered care; working in sleep telemedicine will require vision from its practitioners (from the top down) and a concerted effort to reach out to and educate patients on the benefits of technology-based patient-doctor relationships.

It will also mean technologists will see that while some of their jobs may be threatened by the adoption of new technologies (HSAT being, perhaps, the most pressing concern in our field), there are other ways for the ambitious among us to advance our careers as sleep technologists by examining and acquiring the skill sets that sleep telemedicine demands.

## REFERENCES

1. American Telemedicine Association: <http://www.american-telemed.org/>
2. Healthcare Information and Management Systems Society: <http://www HIMSS.org/>
3. Swedish Hospital Telesleep Service: <http://www.swedish.org/services/telehealth/telesleep>
4. Turning to Telehealth For a Good Night’s Sleep: <http://mhealthintelligence.com/news/turning-to-telehealth-for-a-good-nights-sleep>

5. "American Academy of Sleep Medicine (AASM) Position Paper for the Use of Telemedicine for the Diagnosis and Treatment of Sleep Disorders." Singh J, et al. *Journal of Clinical Sleep Medicine*: Oct 2015.
6. "The Doctor Will See You (and Your Data) Now." (Excerpted *The Lucky Years: How to Thrive in the Brave New World of Health*.) Agus D. *Fortune*, Jan 2016.
7. "Everything you should know about Telemedicine in Sleep Centers." Ha, Y. AAST blog. Dec 23, 2015."
8. "Extracting value from chaos: The promise of health information technology." Indiana University. *American Journal of Medical Sciences*, Jan 2016.
9. "mHealth Put to Work on the Science of Sleep." Wicklund, E. *mHealthIntelligence*: Mar 2, 2016.
10. "Remote Ambulatory Management of Veterans with Obstructive Sleep Apnea." Fields BG, et al. *SLEEP*, Mar 1, 2016.
11. "Senate bill would expand Medicare's telehealth coverage." Terry K. *Medscape Medical News*, Feb 5, 2016.
12. "Sleep Telemedicine Legal Tips and Traps." Brown, DB. *Sleep Review*: Sept 30, 2014. ❖

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## DREAMING AND ENCOUNTERS WITH THE ALTERNATE SELF (PART I I)

By Reg Hackshaw, EdD, RPSGT

**D**reams where one's perception of the surrounding environment is dissociated from (or outside of) the body-centered experience that normally exists during wakefulness are described in the oral and written traditions of many cultures. The perception of looking down at one's sleeping body from an elevated position during an out-of-body experience (OBE) is clinically defined as a "self-looking" or autoscopic hallucination (AH). Another type of AH is the perception of encountering a mirror image of one's face or even one's entire body while dreaming.<sup>1</sup>

An essential difference between these two experiences is the locus of visual perception. In other words, is the dreamer viewing the alternate self from a perspective of a recumbent sleeper without the dissociation of consciousness; or, from a perspective of a disembodied consciousness levitating in space and viewing one's body? Although the clinical significance of this distinction is unclear, both types of AHs are presumed to be hypnogogic or hypnompic cognitions due to abrupt wake-REM or REM-wake stage transitions, respectively.<sup>2</sup> The exploration of body misperceptions arising from these transitions is an important step in understanding the neurocognitive foundations for identity formation.<sup>3</sup>

Regardless of the visual perspective encountered during an AH, the dreamer is the exclusive source of these experiences. Consequently, personal narratives of OBEs and AHs have resisted objective analysis until recent times. In addition, the use of inconsistent and conflicting terms when analyzing these narratives has complicated efforts to document the clinical history of this remarkable parasomnia.<sup>4</sup>

### RECORDING FLIGHTS OF FANTASY

During the early decades of the twentieth century, the experimental psychologist, Lydiard Horton, investigated AHs with the aim of understanding and encouraging their occurrence during sleep. However, his definition of autoscopia as "levitating or flying illusions" was more in line with the modern definition of OBEs without autoscopia.<sup>5</sup>

Born in London in 1879, he traveled to the United States to pursue undergraduate and then graduate work in the psychology of fatigue and rest.<sup>6</sup> Eventually, he developed an interest in dream content analysis, which motivated him to develop a systematic approach to study recollections of levitating and flying imagery during sleep.<sup>5</sup> Because Horton's work predated the use of many technological advances found in modern dream research facilities, his investigative tools were limited to structured self-assessments that his subjects completed in the morning.

A dream, reasoned Horton, was the workshop of the mind. His Dream Analysis Record (DAR) was a multi-level assessment designed to interpret mental images encountered during sleep within the context of waking life.<sup>7</sup> The DAR consisted of three sections: the Narrative, the Inventory and lastly, Associations. In the Narrative, subjects provided the storyline of a particular dream. Incidental details, seemingly irrelevant to the storyline, were itemized in an adjacent column. The Inventory section directed subjects to recall the locations, specific settings, and the weather as well as descriptions of both real and animated characters that populated the dreamscape. In addition, memories of any remarkable qualities demonstrated by the characters (specifically, unique physical postures, attitudes, exceptional or extreme abilities) were noted in this section. Personal thoughts or sentiments revealed through free association with any of the inventoried recollections were included in the last section.

### SLEEP INDUCTION

Horton began his experiments by advising his subjects to enter a pre-sleep state of relaxed wakefulness through simple exercises, such as voluntary muscle relaxation. He referred to the induction of this state as "somnosis."<sup>8</sup> In modern terms, the goal of somnosis was to reduce judgmental and logical thought processes, which would facilitate sleep onset. Horton observed that subjects in a hypnogogic state noticed sensations of lightness. According to Horton, these sensations were elaborated in dreams to create a storyline involving levitating and flying (see Fig 1).

Horton relied on the DAR to attribute meaning to the storyline provided in the Narrative. A survey of his findings will appear in the third and final installment of this article.



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HORTON'S SKETCH OF A DREAMSCAPE WITH ACTS OF LEVITATION.(FIG. 1)<sup>5</sup>

## REFERENCES

1. Anzellotti F, Onofrij V, et al. Autosopic phenomena: Case report and review of the literature. *Behavioral Brain Functions*. 2011;7(2). Accessed on 04/18/2016 from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3032659/pdf/1744-9081-7-2.pdf>
2. American Academy of Sleep Medicine. International Classification of Sleep Disorders, 2<sup>nd</sup> ed. Westchester, IL: AASM. 2005:170-2.
3. Blanke O. Out of body experience, heautoscopy, and autosopic hallucination of neurological origin. *Brain Research Reviews*. 2005. 50(184), 186.
4. Brugger P, Regard M and Landis T. Illusory reduplication of one's own body: Phenomenology and classification of autosopic phenomena. *Cognitive Neuropsychiatry*. 1997;2(1):19-38. Accessed from: <http://dx.doi.org/10.1080/135468097396397>.
5. Horton LH. The illusion of levitation. Part one: A general presentation. *J Abnorm Psychol*. 1918;13(1):42-53.
6. Horton LH Papers. Columbia University, Butler Library. Accessed on 05/11/2016 from: <https://clio.columbia.edu/catalog/4078910?counter=1>
7. Horton LH. Inventorial record forms of use in the analysis of dreams. Psychopathic Hospital. Boston, MA. July, 1913. ❖

## BOOK REVIEW: A TECHNOLOGIST'S INTRODUCTION TO SLEEP DISORDERS, SECOND EDITION

By Tamara Kaye Sellman, RPSGT, CCSH

In January 2016, the American Academy of Sleep Medicine (AASM) released a second edition of *A Technologist's Introduction to Sleep Disorders*. This slim spiral bound handbook with clear laminate cover packs a lot of important information inside its covers.

The second edition replaces the 2010 edition by necessity. As its author, Richard S. Rosenberg PhD, accurately points out, "It has been five tumultuous years for the field of sleep technology."

### A TECHNOLOGIST'S INTRODUCTION: WHY A NEW VERSION?

Changes in the field include the release of the International Classification of Sleep Disorders – Third Edition (ICSD-3), a new edition of AASM's ubiquitous scoring manual, and the rise of the home sleep apnea testing (HSAT).

This manual does a nice job of breaking down how the ICSD-3 defines sleep disorders. Perusing this manual will catch you up on all the latest thinking. For instance, the definition of insomnia has been a moving target for years; *A Technologist's Introduction* adds necessary clarity.

Definitions matter, even if our scope of practice as sleep technologists disallows us the freedom to diagnose. Our work still contributes to a team effort. Knowing our sleep disorders inside and out broadens our scope of understanding, which leads to heightened observation skills and richer technologist notes, which help doctors make correct diagnoses and apply the most appropriate therapies.

Our jobs aren't only about hooking up patients, but about being the eyes and ears of sleep specialists. While a squeaky clean study is critical to data collection, our ability to extract key information beyond the technical study is equally crucial.



#### TAMARA SELLMAN RPSGT, CCSH

Tamara Sellman RPSGT, CCSH is a sleep health writer and activist. She curates the sleep health information clearinghouse, SleepyHeadCentral.com, and generates content for the SomnoSure Education Center and the sleep center clients at InBoundMed.

After all, a patient's perceived insomnia could actually be sleep apnea or delayed sleep phase disorder. Hypersomnia could be caused entirely by poor sleep hygiene or an unexpected drug side effect. Not every muscle movement during REM is going to indicate RBD. While enuresis may be an inconvenient problem for technologists to manage in the lab, it's also a potential symptom of other kinds of sleep disorders.

"At times the sleep specialist must be a detective to ferret out the causes of the sleep complaints," writes Dr. Rosenberg.

We can't do this if we don't fully know our sleep disorders basics. And this alone may be the key reason why sleep technologists will always have value, even in a world where HSATs exist.

In addition, Dr. Rosenberg writes:

"An experienced sleep technologist may be lulled into thinking that sleep disordered breathing is 99% of sleep disorders. This isn't true ... Having some understanding of the diagnostic criteria and clinical symptoms associated with other sleep disorders can help the technologist evaluate patients presenting in the sleep center ... Now and then the patient will reveal something in the relaxed moments before the sleep study that leads to a new diagnosis and helps the patient get the appropriate treatment."

Other major shifts in our field made it necessary for Dr. Rosenberg to update this manual: the Affordable Care Act, ever-shifting Medicare rules, sleep telemedicine, dental sleep medicine, and new definitions and credentials that define the scope of practice for technologists.

### A TECHNOLOGIST'S INTRODUCTION: USEFUL FEATURES

#### Comorbidity focus

This manual's focus on comorbidity is essential: identifying, observing, and treating comorbid conditions must be an active, layered conversation shared between all parties along the patient's continuum of care.

#### From *A Technologist's Introduction*:

"Patients may suffer from more than one sleep disorder, and this may significantly impact the treatment approach. In addition, many patients have comorbid medical disorders."

This may not seem like news to you, but the fact is that we still must master sleep disorder pathology and comorbidities to do our jobs well. This manual helps to achieve this by:

- Providing a deeper understanding of sleep disorders and their diagnosis,
- Examining the evolution of sleep disorders over time,
- Shining a light on treatments, and
- Offering a knowledge base to support better communication, compliance, and health outcomes overall

### Organization

Of special interest are the creative approaches this manual presents, using visual models, case studies, and analogies to convey theories about sleep disorders.

### For instance:

In the sleep breathing disorders chapter, the use of the thermostat analogy to model the respiratory system's "feedback loop" is useful.

The comparisons of different kinds of hypersomnia and how they're quantified using Borbély's "Two Process model" (via graphs) comes in handy for differentiating sleep-wake phase disorders from circadian disorders and thinking about a third influence on biological rhythms, which is social.

The Schenck-Mahowald overlap diagram distinguishing REM from nonREM parasomnia works, but could be extrapolated even further.

The Venn diagram showing relationships between restless leg complaints and period leg movements in sleep is also insightful. Another excellent inclusion in the manual: Spielman's Three-Factor model in the insomnia chapter. This "3 P" theoretical construct for understanding insomnia provides a simple, effective way to apply critical thinking to all sleep disorders.

The case studies in this book are also easy to read, amusing at times, and often include atypical scenarios, which is useful since most patients do not fit a textbook mold.

### Relevance

This trio of critical questions occurs within each chapter following definitions and case studies:

- What do we see when a patient with X disorder has a sleep study?
- How is an X disorder treated?
- What happens to X disordered patients?

Some sleep technologists believe that, because they're not in the business of diagnosis, they shouldn't do more than collect and document data.

Not true. As technologists, we are team players expected to practice expertise in sleep medicine. We can't know what to look for unless we master our fundamentals.

For example, with regard to insomnia—a sleep disorder that typically doesn't call for an overnight test by itself—Rosenberg writes in *A Technologist's Introduction*: "Comprehensive evaluation of the patient with a complaint of insomnia may lead to a different diagnosis or, in some cases, a dual diagnosis that reflects the importance of both disorders in explaining a patient's complaints. These diagnostic considerations have consequences for treatment planning."

In other words, you need to understand insomnia from the inside out if you're going to be an effective part of your sleep medicine team.

We also need to know what the treatment is ... not because technologists can prescribe therapies (it's well outside our scope of practice to do so), but because our laboratory-based input informs our doctors' conclusions.

Finally, it's relevant to know what could happen to the patient with a sleep disorder now that healthcare is shaped by the model of patient-centered outcomes.

Why does this concern sleep technologists? Patient outcomes inform the metrics by which Medicare determines reimbursements. If patients cycle through a clinic and never get better, that's going to hurt everyone economically from the top down in that facility.

You may only see that patient for one night, but what you do during that study—making observations, data gathering and recording, and patient education—has a much bigger impact on that patient's outcome than you might think.

Sleep technologists enjoy the most concentrated face-to-face patient time of any of the healthcare professionals involved in that patient's continuum of care. Our jobs aren't limited to staring at squiggly lines on a montage. We must be present to patient concerns, behaviors, and other details missed (or omitted) during patient-doctor encounters.

## A TECHNOLOGIST'S INTRODUCTION: A WORK IN PROGRESS

As with any functioning guide to healthcare, there will always be ways that a particular resource can be improved. Here are some potential ideas:

- Each chapter ends with five multiple-choice questions to test comprehension. I would recommend even more questions using scenarios to encourage more critical thinking. An extensive self-test at the end of the book could also be useful.
- An additional chapter specifically devoted to sleep deprivation and debt seems necessary since the CDC (in 2015) replaced obesity with sleep deprivation as the number one public health and safety issue in the US. Two main causes of sleep deprivation are untreated sleep disorders and poor sleep hygiene.
- A separate chapter or appendix comparing common maintenance drugs, their side effects, and their impact on sleep staging would be beneficial. With the explosion in the use of opioid pain medications, a sidebar on their influence on sleep health would also be useful. Also, when discussing pharmaceuticals, it might be beneficial to refer to them by both their generic and most common brand names, or include a list in the appendices.
- There could be more complex case studies to demonstrate how comorbidities can make it difficult to discern a clear-cut diagnosis, as well as to remind us that many patients can and frequently do suffer from multiple sleep disorders.
- Positive airway pressure (PAP) may still be considered the gold standard for treating sleep apnea, but the AASM has sanctioned the use of oral devices as an equally beneficial option for those patients who cannot tolerate PAP therapy; they published guidelines for this therapy in 2015 which begs a more detailed discussion for sleep technologists in the next edition of this manual.
- More information for sleep technologists about the burgeoning world of consumer wearable technology and cellular applications might be pertinent in a future edition. Patients are using these devices with or without the guidance of physicians, and it behooves the sleep technologist to at least know the benefits and shortcomings of these gadgets, how they work, and what they actually reveal.
- A more specific section on posttraumatic stress disorder (PTSD) might be warranted. The numbers of US veterans returning home with trauma that interferes with sleep means sleep technologists must be prepared to know what PTSD is, what to expect from this patient population, and how to best interact with them in a laboratory setting.
- Finally, the manual lacks an index feature as well as footers to indicate chapters. Quick and easy referencing is important to a technologist's workflow. An immersive reading of this manual is worthwhile, but its utility would be even greater with basic searchability features. (For now, technologists should manually flag key pages they use often for easy access later.)

## A TECHNOLOGIST'S INTRODUCTION: WHY YOU NEED A COPY

### It's a thorough reference.

Despite its shortcomings, this manual is still a workhorse, simplifying what we're likely to encounter in the sleep center, even if certain disorders don't typically demand overnight studies.

Staying on top of sleep research means you must at least possess a fundamental mastery of sleep disorders. For instance, circadian rhythm research is a hot topic these days. What researchers discover about melatonin, for instance, could be significant to your job as a sleep technologist in the future.

One of the best books for understanding sleep disorders is *Principles and Practices of Sleep Medicine*, considered an essential text. If you used this book in PSG training, and were smart enough to keep it on your shelf, it would be a great companion to *A Technologist's Introduction*. But let's face it: *Principles* is three inches thick and hardly a quick reference. *A Technologist's Introduction* would be a better text to keep on your sleep center reference shelf.

### It supports patient education efforts.

Many sleep technologists take this part of their role very seriously, and they should. For those who would prefer to just hook up patients in record time—which usually means forgoing opportunities for dialog with the patient—listen up:

Providing patient education during the night of a sleep study isn't optional. Consider Dr. Rosenberg's comments about sleep apnea patient encounters in *A Technologist's Introduction*:

"Studies of the factors that influence long term adherence to treatment have shown that the response of the patient during the first night of use in the sleep laboratory is a strong predictor. Therefore, the efforts of the sleep technologist to find a comfortable mask, determine the most appropriate pressure and respond to the patient's concerns is critical to the successful treatment of the sleep apnea patient."

Sleep technologists must listen critically to patient comments and concerns, then process these into "teachable moments" throughout the night. Simply performing the technical aspects of the job in the laboratory isn't enough.

Sleep technologists should be aware that recent reports in healthcare media suggest that patients with sleep apnea are rarely, if ever, informed about therapy choices. In an age of patient-centered outcomes, patients who struggle with PAP—yet don't know their options—are doomed to never get better. Dr.

Rosenberg makes a good case for sleep technologists educating patients about positional therapy, cognitive behavioral therapy for insomnia (CBT-I), oral devices and surgical procedures. The reasoning? Patients are empowered by choices and have a right to demand to be given options. It's well within the scope of practice of sleep technologists to share this information with them.

We must also be cognizant of clues to poor sleep hygiene and environmental influences that may be affecting our patients' sleep health at home. Reporting on poor sleep hygiene practices observed while they're in the sleep center, and asking patients questions that reveal sleep hygiene mistakes or environmental influences at home should be a regular part of technologist documentation. As sleep technologists, we are able to give advice in the area of simple lifestyle changes to improve sleep hygiene.

As educators, we also must be far more articulate masters of sleep health information than our patients. Dr. Rosenberg writes: "This may sound trivial, but it is important in interactions with patients and healthcare providers to sound like you know what you are talking about."

Reading this manual makes it easier to achieve this goal.

#### **It keeps us focused.**

The thoughtful placement of key reminders in the text may help some technologists to re-examine priorities. We can all burn out; these reminders serve to keep our focus intact.

For instance, we're reminded to turn to our AASM Scoring Manual, ICSD-3 and AASM Practice Parameters for particulars. Ultimately, these are the most significant tools in our toolbox, aside from the policies and procedures (P&P) manual that every sleep center must keep on hand.

The discussion in the sleep apnea section about compliance, desensitization, and tolerance reminds us that, when doing split-night studies and titrations, we must not skip mask fittings and trials. This process prevents problems with transitioning to PAP and empowers patients by giving them choices.

The reference section following each chapter reminds us that, as sleep technologists, our education doesn't begin and end with passing the boards. We should actively seek news and research about sleep health and trends by reading journals relevant to our field (in for example, SLEEP, CHEST, the Journal of Clinical Sleep Medicine, A2Zzz). This is considered a "best practice" for professionals in any field.

The recommended reading list at the end of the manual also lists top-notch references that sleep technologists should be familiar with.

Another reminder: the data we collect isn't limited to our PSG recording platforms. Several times, Dr. Rosenberg reminds us to ask about our patients' daytime schedules, bedtimes and rise times, and other pertinent lifestyle information that could impact sleep health.

One important reminder doesn't stand out, but should. It's the section on Shift Work Disorder (circadian disorders chapter). As shift workers, we need to heed the signs of this legitimate sleep disorder and manage our own symptoms, just like our patients.

Finally, perhaps the most critical reminder is the one that comes at the very end of A Technologist's Introduction: "The best thing you can do for the patient is to collect information and bring it to the sleep specialist. Diagnosing and treating sleep disorders requires a medical license. Don't be caught practicing without one."

## **A TECHNOLOGIST'S INTRODUCTION: FINAL ANALYSIS**

Based on content alone, A Technologist's Introduction to Sleep Disorders deserves a place on the sleep technologist's shelf next to the latest policies and procedures manual, the AASM Manual for Scoring of Sleep and Associated Events, and the International Classification of Sleep Disorders, Third Edition (ICSD-3).

This handbook is a must-read for those who:

- Learned on the job but didn't get academic training in sleep disorders,
- Studied polysomnography prior to working in a sleep center, but could use a refresher,
- Are studying to become registered or who need to retest to maintain registry, and
- Are clinical sleep health educators (CCSH), sleep center patient coordinators, sleep physician extenders, and/or sleep care managers.

Applying what we learn from the theories, models, and definitions in this manual is certain to better prepare all of us for the incoming wave of complex patients headed our way. A Technologist's Introduction to Sleep Disorders, 2nd Edition can be purchased for \$40 (for AAST members) or \$60 (for nonmembers) through the AAST Online store. ❖

# In the Moonlight

In the Moonlight: Q&A with Danielle Reysen, R. EEG T., RST, RPSGT, CCSH, MBA



"In the Moonlight" puts an American Association of Sleep Technologists (AAST) member in the spotlight, giving readers an opportunity to get to know one of their colleagues. This month *A<sub>2</sub>Zzz* asked Danielle Reysen, R. EEG T., RST, RPSGT, CCSH, MBA, to complete the following statements. Reysen has been in the sleep field since 1998. She is the supervisor of Neurodiagnostics and the Center for Sleep Disorders for Agnesian Healthcare-St. Agnes Hospital in Fond du Lac, Wis.

**When I was young I wanted to grow up to be a...**  
lawyer.

**I decided to become a sleep technologist because...**  
this was a field where I could have a positive effect on a patient almost immediately.

**I got my first job in sleep technology at...**  
Spectrum Health in Grand Rapids, Michigan.

**I became an AAST member because...** we need to support them, as they do us.

**The person who has had the greatest influence on my career is...**Clay Pollert.



**The most challenging part of my profession is...**  
reminding myself that when a patient is "cranky" it's not me, it's their sleep deprivation.

**The thing I like most about my profession is...**educating people about sleep.

**The food I'm most likely to snack on while working is...**  
hummus and of course, coffee.

**For fun on days off from work I like to...**spend time with my family outdoors and on the lake.

**My favorite TV show is...**The Black List.

**My favorite singer or musical group is...**anything, but I really like listening to Adele and Pentatonix.

**The website I visit most often is...**Pinterest and Google.

**The person I would most like to meet is...**Johnny Cash.

**The biggest change I have seen in the profession since I started is...**the analog to digital conversion.

**Words of advice I have for people who are new to the profession are...**every day you will learn something new... cherish it, as it will always keep you on our toes!

**My professional goals for the next five years are...**implementing positions for a Sleep Educator, and Clinical Coordinator. Teaching sleep medicine!

**Sleep is...**MANDATORY!



Would you like to appear  
"In the Moonlight"? Send an e-mail to  
[A2Zzz@aastweb.org](mailto:A2Zzz@aastweb.org).

## UPDATE FROM THE BOARD OF REGISTERED POLYSOMNOGRAPHIC TECHNOLOGISTS



### **BRPT Announces Sixth Andrea Patterson Scholarship Winner**

Congratulations to polysomnography student, Yanyun Lin, winner of the sixth Andrea Patterson Memorial Scholarship. Ms. Lin is a student enrolled in the respiratory care program, with the polysomnography

specialty option, in the School of Health Technology and Management at Stony Brook University, in Stony Brook, NY.

“Each applicant had a unique background, journey and aspirations which drove them to pursue an education – and ultimately a career – in sleep technology,” said BRPT Scholarship Committee Chair Helen Driver, PhD, RPSGT, DABSM, Somnologist, CCSH.

“Yanyun’s academic achievements, strong sense of community and professional integrity are impressive and extraordinary.”

Yanyun’s interest in sleep started with a desire to better understand her father’s frequent drowsy driving challenges. She later found herself discussing the subject more and more in college with a roommate equally intrigued with REM sleep patterns and “sleep talking.” Her interest grew and she decided to dig deeper in the field through the PSG specialty option offered through the

respiratory care program at Stony Brook. In addition, Yanyun is an active volunteer holding positions at the Stony Brook Hospital, the Childcare Center and most recently in Stony Brook’s Leadership Office as a student consultant. Yanyun has also worked as a cashier at China Garden restaurant for the past five years.

Said Yanyun Lin, “I’ve always been interested in sleep patterns and sleep issues as it’s both a specific and broad subject which interconnects with psychosocial, electrophysiological and pharmacological aspects of science. Winning this scholarship will greatly reduce my financial pressures allowing me to focus more on school work and furthering my education.”

Yanyun is expected to graduate in June 2016 after which she plans to take the RPSGT examination. She holds a student membership with the American Association of Sleep Technologists (AAST).

The Andrea Patterson Memorial Scholarship Program, named in honor of an early and highly regarded leader in the field of sleep technology, awards a \$2,500 tuition grant to a promising student of polysomnography. Scholarship applicants must be enrolled in or accepted by a CAAHEP-accredited program in PSG or a CoARC-accredited program with a PSG add-on.

# THE BLUES NIGHT 2016



Tuesday, June 14<sup>th</sup>, 2016 ♦ 9pm - Midnight

Denver Pavilions ♦ 500 16<sup>th</sup> ♦ Suite 320 ♦ Denver, CO 80202

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