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SPECIAL ARTICLES

Change is the Only Constant in Life (and in Sleep Medicine)

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Heraclitus, a philosopher who lived nearly 500 years before the common era, made the assertion that "Life is Flux," meaning that change is the only constant in life. Modern medicine, inclusive of the field of sleep medicine, has undergone dramatic changes over the last 10 years. For the American Academy of Sleep Medicine (AASM) specifically, the last year has been one of great change. Yes, change happens, but with great change comes even greater opportunity. As AASM president, I have been focused on staying abreast of the changes in our health care system while anticipating and preparing to adapt to challenges in our field. In June 2017, given all the changes in our health care delivery system, I challenged the AASM membership and our field to adapt our models of care to reduce the number of patients with undiagnosed and untreated obstructive sleep apnea (OSA) by 10% over 5 years. This article will provide a brief update describing how the AASM board of directors has responded to my challenge and capitalized on change in the areas of the physician pipeline, patient access, advocacy, new technology and strategic research. Change is inevitable and often beyond our control, but how we anticipate and respond to change is entirely within our power. As sleep specialists, it is our responsibility not only to respond to change so that we can deliver the best possible care for our patients, but also to be the leading voice for change so that we all achieve better health through optimal sleep.

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INTRODUCTION

Clinicians are trained to study the past: we review scientific literature, analyze data and gather a patient's medical history. This wealth of information enables us to make informed decisions in the present as we examine patients and evaluate their clinical signs to make a diagnosis and develop a treatment plan. However, in becoming masters of the past and present, we are at risk of being caught standing still while the swift current of change sweeps us up and carries us into the future. Heraclitus, a philosopher who lived nearly 500 years before the common era, made the assertion that "Life is Flux," meaning that change is the only constant in life. (Interestingly, he also maintained that only philosophers who pursued the Truth were fully awake, proclaiming all others to be living as though they were asleep.) Even as we achieve understanding of the here and now, we, the stewards of the sleep field, must stay awake and look ahead; change is constant.

Modern medicine has faced a lot of changes in the past decade. The enactment of the Patient Protection and Affordable Care Act (ACA) in 2010 ushered in an era of health care reform that continues to have a dramatic impact on the practice of medicine in America. We have muddled through the adoption of electronic health records (EHRs) and the reporting of quality measures in our workflow, all with the intent of achieving the Triple Aim of better care, better health and lower costs.[1]

Similarly, the field of sleep medicine has undergone dramatic changes over the last 10 years. In some regions of the country, market forces combined with technological advances have driven the rapid adoption of home sleep apnea tests (HSATs) for the evaluation of patients with suspected obstructive sleep apnea (OSA), and many payers now require utilization management review and preauthorization for in-center diagnostic and therapeutic sleep testing in an effort to promote cost containment.[2] Insurers also have implemented strict criteria for continued coverage of a positive airway pressure (PAP) device for the treatment of OSA.[3] These changes in payer policies and the reimbursement rates for sleep-related services have forced many sleep practices to adopt new business models and staffing strategies.[4,5] We have also had to assist our patients as they, too, navigate these changes that often delay or prevent access to proper care for their sleep disorders. Furthermore, as our understanding of sleep, circadian rhythms and sleep disorders continues to grow, our preconceived notions about the diagnosis and treatment of sleep disorders continue to be challenged. For example, there is debate about the significance of the apnea-hypopnea index (AHI) as a quantification of OSA severity[6–8]; the most appropriate definition of a hypopnea; and the comparative merits of other measures of sleep-disordered breathing (SDB), such as arousals, oxygen desaturation, and the percentage of recording time with oxygen saturation below 90% (T < 90). Change is constant.

For the American Academy of Sleep Medicine (AASM) specifically, the last year has been one of great change. We have a new executive director. We have an updated logo and a new website. We have more opportunities for member engagement with an increased number of active committees and task forces. Our foundation has been rebranded as the American Academy of Sleep Medicine Foundation, and it also has a new website. Yes, change happens, but with great change comes even greater opportunity.

FUTURE FOCUS

A wise man adapts himself to circumstances, as water shapes itself to the vessel that contains it.
–Chinese Proverb

As AASM president, I have been focused on staying abreast of the changes in our health care system while anticipating and preparing to adapt to challenges in our field. I am not alone. For years the AASM leadership has been looking to the future and gathering thought leaders in the field, strategizing to determine how we can enhance the relevance of our specialty.[9–13] At the same time, we have been challenged and encouraged by other AASM members who have provided their own insight on the difficulties and opportunities facing our field.[14–18] Strategies and initiatives sparked by the 2013 Future Models of Care conference organized by the AASM have been previously described.[19,20] In June 2017, given all the changes in our health care delivery system, I challenged the AASM membership and our field to adapt our models of care in order to reduce the number of patients with undiagnosed and untreated OSA by 10% over 5 years. This article will provide a brief update describing how the AASM board of directors has responded to my challenge, capitalized on change, and continued to look to the future.

PHYSICIAN SUPPLY

The United States health care system has a serious workforce supply problem. The Association of American Medical Colleges (AAMC) projects that physician demand will continue to grow faster than supply, leading to a projected total physician shortfall by 2030 of between 40,800 and 104,900 physicians, including 33,500 to 61,800 non-primary care specialists.[21] The field of nursing also is expected to experience a similar problem, with significant workforce shortages of registered nurses projected throughout the country in 2030.[22]

Balanced budget acts passed in the 1990s specifically limit the number of residents supported by Medicare, which is the primary funder of graduate medical education (GME). Therefore, increasing the overall supply of physicians would require either new funding mechanisms or new legislation, such as the proposed Resident Physician Shortage Reduction Act of 2017 (H.R.2267 and S.1301), which would provide Medicare support for 15,000 additional GME residency positions over a five-year period.[23]

In the sleep field our current workforce comprises a little more than 6,000 physicians who are certified in sleep medicine by a member board of the American Board of Medical Specialties (ABMS) or by the American Board of Sleep Medicine (ABMS). These physicians are leading teams of advanced practice providers, clinical psychologists, sleep technologists and other skilled clinicians at more than 2,500 AASM-accredited sleep facilities. The reality, however, is that this workforce is insufficient to meet the demands of the enormous population of patients who have a sleep disease, including an estimated 23.5 million adults with undiagnosed OSA.[24]

Moreover, in addition to being limited by the size of the sleep physician workforce, access to care may be related to both the geographic location of accredited sleep centers and health care disparities along racial, ethnic, and gender lines. These health care disparities continue to permeate throughout the United States. The AASM appreciates the growing consensus that alleviation of health care disparities requires a multifaceted approach, involving increased diversity in our provider workforce as an imperative. To this end, the AASM board of directors recently voted to create a new Diversity and Inclusion Task Force for the upcoming year to evaluate how well the AASM does in fostering a welcoming environment for all members. The task force will assess the current AASM membership to identify underrepresented groups, detect any barriers to diversity and inclusion, and recommend strategies for improvement.

TRAINING INNOVATION

Efforts by the AASM to inspire more physicians-in-training to "choose sleep" have produced encouraging results. During the 2016/2017 academic year, there were 16 sleep medicine interest groups (SMIGs) at medical schools throughout the country. Furthermore, data from the sleep medicine match that was conducted in November 2017 by the National Resident Matching Program (NRMP) Specialties Matching Service (SMS) show rising interest in the sleep field. This was the first year in which there were more applicants than available positions in the sleep medicine match. The 172 applicants who were vying for the 170 positions represented a 20% increase from the previous year, when there were 143 applicants in the match.[25]

While these results are heartening, we need to get even more creative to offer other pathways with greater flexibility that would allow us to broaden the pool of potential sleep specialists. That is why we established the AASM Innovative Fellowship Model Implementation Presidential Committee. Building on the work of an AASM exploratory committee, the Innovative Fellowship Model Committee is developing a proposal to submit to the Accreditation Council for Graduate Medical Education (ACGME) as part of its Advancing Innovation in Residency Education (AIRE) initiative, which is a pilot program focused on enabling the exploration of novel approaches and pathways in graduate medical education (GME) through competency-based medical education and outcomes.[26] We are proposing two models that would augment our current, full-time, one-year programs with part-time training pilot options that would still meet all ACGME requirements.

In the first model, sleep medicine training would be combined with fellowship training occurring within "feeder specialties," which have significant overlap with sleep medicine in knowledge and procedures. For example, the innovative pathway would allow the trainee to develop competency in pulmonary/critical care and sleep, clinical neurophysiology and sleep, child and adolescent psychiatry and sleep, or pediatric pulmonary and sleep, in a more integrated way. The second model is a part-time model that would allow physicians to receive training while continuing to practice medicine or while engaging in

research; it also would accommodate lifestyle obligations (eg, pregnancy, caring for young children) that might prohibit participation in traditional, full-time training. This model would leverage online learning and telemedicine to require less time at the sponsoring institution or primary clinical site. It should be noted that these alternative training programs would be tied to an existing program that is accredited for traditional training and concurrently engaged in the training of fellows in the traditional model. Preliminary feedback has been positive as we prepare the proposal for final submission, and we hope to receive approval to pilot the programs in the near future. Recognizing the importance of this initiative, the AASM board of directors recently agreed to set aside $4 million in restricted funds for the five-year implementation of these pilot programs, should the AIRE proposal receive approval from ACGME.

PATIENT ACCESS

We also need to think creatively to improve access to high quality, patient-centered sleep medicine care. Earlier this year the AASM announced the formation of a new patient-focused membership organization, the American Alliance for Healthy Sleep (AAHS), which is dedicated to improving the lives of patients who have sleep disorders through advocacy, education and support. A distinctive emphasis of the AAHS is its focus on connecting patients and providers in a partnership to address issues of importance to the sleep community. By bringing health care providers and patients with sleep disorders together, we can make greater progress in our mission to improve sleep health for all.

In addition, the AASM continues to provide resources to support teams of sleep professionals at accredited centers delivering high value, cost-conscious care. Last year, the Academy released a 13-hour series of educational modules to equip advanced practice providers who are working with board-certified sleep medicine physicians to provide care to patients with sleep disorders. In October 2018 the AASM also will be offering a new Practice Management Course to provide up-to-date information on sleep facility optimization and management, leading to more effective and efficient patient care.

A committee of the board of directors also is developing proposed models of care that would help accredited sleep facilities develop productive, collaborative relationships with other clinicians who can play a role in the diagnostic evaluation and management of patients who have OSA. Accredited sleep facilities would establish formal relationships for bidirectional referrals with these clinicians, who would receive tailored education on sleep-related breathing disorders. Formal agreements would be established to outline the parameters for ongoing patient management, and patients with complex cases would be referred to the accredited sleep facility for evaluation. We believe that these partnerships would enable even greater numbers of patients with OSA to be diagnosed. As the board of directors continues to discuss and refine the details of these proposed partnerships, including a discussion session at the SLEEP 2018 meeting, the AASM is making plans to host a Collaborative Care Models Summit of key stakeholders in November 2018. Given the multidisciplinary nature of our specialty, this meeting will help us better understand the concerns of the various stakeholders before official programs are created.

ADVOCACY

Recognizing that we also need to work more strategically to have our voices heard on important issues that affect our patients and the public, the AASM board of directors has decided to take a multi-pronged approach to advocacy. Last summer we formed a Health Policy Strategy Presidential Committee to help us identify emerging health policy, payer and legislative priorities. In response to the survey conducted by this committee, we learned that many of our members are concerned about how current payer policies and regulations are reducing access to care and contributing to disparities in sleep health care. Given these findings, we are initially focusing on engaging with private payers through our Payer Policy Review Committee, which is an initiative championed by Past President Dr. Ron Chervin. The committee is developing guideline scorecards to evaluate how effective payer policies are at establishing appropriate coverage for diagnostic sleep testing services. The intent of the scorecards is to encourage insurers to adopt evidence-based policies that support patient safety and delivery of high-quality care. Several scorecards have been completed, shared with payers, and posted on the AASM website, and more than a dozen are currently in development.[27] The initial response from payers has been mostly receptive and collaborative, and these efforts have opened the lines of communication and yielded several fruitful meetings. The committee also has developed a template policy on diagnostic testing for OSA, which will be shared with payers to help them align their policies with AASM recommendations.

Our members also have expressed a variety of concerns related to the local and national coverage determination policies of the Centers for Medicare and Medicaid Services (CMS). Therefore, AASM leadership will be meeting with CMS leaders in June 2018 to discuss several issues, including the definitions of hypopnea and PAP adherence. Furthermore, the AASM is developing a proof-of-concept alternative payment model (ie, bundled payment) for OSA management in the hopes that this will allow us to increase our ability to give high value care. To this end, we are appointing an Alternative Payment Models Task Force that will refine a previously drafted bundled payment option for OSA management and craft a plan to test it so that we can submit it for approval by the CMS Physician-Focused Payment Model Technical Advisory Committee (PTAC).

We also have decided to be a regular presence with lawmakers on the Hill. AASM leaders began this initiative by conducting meetings in April at the offices of more than 30 legislators on Capitol Hill to advocate for patient access to quality care for sleep disorders. Meetings included discussions on the proposed formation of a congressional caucus to promote healthy sleep, the impact of drowsy driving on transportation safety, and the House Resolution (H.Res.46) expressing support for soldiers and veterans with OSA and posttraumatic stress disorder (PTSD).[28]

The federal Stark Law was another topic of discussion during meetings with Rep. Peter Roskam, the House Ways & Means Tax Policy chairman and a member of the Health Subcommittee, and with the counsel to Senate Finance Committee Chairman Orrin Hatch. We described how the law prohibits board-certified sleep medicine physicians from providing PAP devices to Medicare patients who have OSA, which leads to a more fragmented and inferior quality of care compared with what patients who have private insurance receive.

The AASM also has been proactive in releasing position statements and health advisories to call attention to important public health issues and advise patients, consumers and providers accordingly. Recently, the AASM released position statements on the risk of fatigue and sleepiness in the ride-sharing industry and medical cannabis and the treatment of OSA.[29,30] In the upcoming months we plan to issue a position statement addressing hypopneas with arousals and respiratory event-related arousals when scoring sleep studies, as well as several health advisories related to Alzheimer disease and oral appliance therapy.

NEW TECHNOLOGY

Technology is influencing our day-to-day lives at an enormously rapid pace. This is especially true for the field of sleep medicine. In 2016 the AASM launched a state-of-the-art telemedicine platform, AASM SleepTM, to make it easier for sleep specialists to expand the reach of their expertise through secure video visits.[31] Later that year we also developed "A Handbook for Optimizing EHR Use in Sleep Medicine" as a free, downloadable resource for AASM members.

While telemedicine and EHRs continue to have an important role in clinical sleep medicine, much of our recent attention has been focused on new sleep technology and artificial intelligence. Consumer sleep technology—including mobile apps, wearables and embedded technology—continues to capture the attention of many of our patients.[32] I appointed an AASM Technology Presidential Committee to monitor and evaluate emerging and evolving technologies that impact the practice of sleep medicine. A position statement developed by the committee and adopted by the board of directors emphasizes that consumer sleep technology must be cleared by the United States Food and Drug Administration (FDA) and rigorously tested against current gold standards if it is intended to render a diagnosis and/or treatment.[33] However, these devices may be utilized to enhance the patient-clinician interaction when presented in the context of an appropriate clinical evaluation. The committee is also developing a strategy to help members understand the benefits and limits of these devices by evaluating emergent technology and providing online assessment reports for sleep specialists. AASM President-Elect Dr. Douglas Kirsch and I, along with two members of this committee, will be attending the Sleep Research Society (SRS) Sleep Wearables Workshop to discuss the use of wearable technology and how it can help advance sleep and circadian science.

There also has been a recent proliferation of practice-focused technology, with the FDA noting that it has seen in recent years an increase in devices intended for both the diagnosis and treatment of SDB.[34] In fact, the FDA recently hosted a public workshop, "Study Design Considerations for Devices including Digital Health Technologies for Sleep Disordered Breathing in Adults." The goal of this workshop was to discuss appropriate design of clinical studies to evaluate devices intended for the diagnosis, monitoring, or treatment of SDB in adults. Study design considerations that were discussed included definitions for SDB conditions, inclusion/exclusion criteria for studies of these conditions, use of SDB assessment technologies, controls, and study endpoints. Along with representatives from other stakeholder societies, I had the privilege of participating in this workshop along with AASM President-Elect Dr. Douglas Kirsch and a host of other AASM members who have expertise in this area.

It is also clear that big data, artificial intelligence and machine learning are going to have a dramatic impact on the practice of sleep medicine.[35–38] Therefore, an AASM Artificial Intelligence in Sleep Medicine Subcommittee is developing a position statement on the use of artificial intelligence within sleep medicine. The subcommittee also is going to evaluate and provide recommendations regarding the development of a certification program for machine learning algorithms for the scoring of sleep studies. Their expertise and input will be important for us as we continue to look to the future of sleep medicine.

STRATEGIC RESEARCH

Given the importance of sleep for individual health and public safety, there is an urgent need to accelerate translational and clinical research in sleep and circadian rhythms.[39] In addition to helping train the next generation of clinical sleep scientists through the annual AASM Young Investigators Research Forum,[40] the AASM provides funding annually for the awards program of the AASM Foundation, most recently through a five-year, $10 million commitment for 2014–2019. This year the AASM hired additional staff to bolster the AASM Foundation's fundraising campaigns and awards management, and we recently initiated a strategic planning process to look to the future.

Through its awards program, including the Strategic Research Award, the AASM Foundation is funding projects that will advance the field of sleep medicine. Recent award recipients are studying topics such as the use of telemedicine to deliver cognitive behavioral therapy for insomnia (CBT-I), sleep disturbances in pre-clinical Alzheimer disease, hypoglossal nerve stimulation, and custom 3D printing for pediatric PAP masks. I anticipate that the awards program will continue to fund research in emerging areas of importance such as chronomedicine,[41] while also supporting projects that explore relevant clinical issues such as patient-reported health outcomes, long-term sleep disorders management, and health disparities.

We continue to work closely with the SRS in outlining our research priorities and imperatives as well as defining a unified front to communicate them to the public and funding organizations. We recently co-sponsored the 2018 Sleep 101 symposium

at the National Center on Sleep Disorders Research (NCSDR) at the National Institutes of Health (NIH). The goal was to convey our vision and excitement about sleep research while highlighting the research opportunities in sleep and circadian biology to non-NCSDR, non-National Heart, Lung, and Blood Institute (NHLBI) scientific research officers and program officers in an effort to increase funding options for researchers in our field.

The AASM also participates in meetings of the Sleep Disorders Research Advisory Board (SDRAB), a federal advisory committee of the NIH, to make sure our voices are heard at the highest level.

CONCLUSIONS

Change is inevitable and often beyond our control, but how we anticipate and respond to change is entirely within our power. This is a great time for our field. The Nobel Prize was recently awarded to three individuals whose work is focused on discoveries of the molecular mechanisms controlling the circadian rhythms. Moreover, we are seeing increases in the number of trainees, advanced practice providers, and other collaborators engaging with sleep medicine. There is increased public recognition of the importance of sleep health as well as greater numbers of patients seeking sleep medical care. All of these indicators attest that sleep medicine remains a strong, growing field.

As sleep specialists, it is our responsibility not only to respond to change so that we can deliver the best possible care for our patients, but also to be the leading voice for change so that we all achieve better health through optimal sleep. The board of directors of the AASM understands this imperative of delivering high quality, patient-centered sleep care to those in need and is committed to equipping our members to thrive; we cannot stand still. As Benjamin Franklin once said, "When you're finished changing, you're finished." Change is constant; let us boldly embrace change and seize the opportunity to shape the future of sleep medicine.

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DISCLOSURE STATEMENT

Upon completion in June 2018 of her term as the 2017–2018 AASM president, Dr. Rosen will transition to the position of 2018–2019 immediate past president.