

SPECIAL ARTICLES

Strategies to improve patient care for obstructive sleep apnea: a report from the American Academy of Sleep Medicine Sleep-Disordered Breathing Collaboration Summit

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In Chicago, Illinois, on Saturday, November 10, 2018, the American Academy of Sleep Medicine hosted 35 representatives from 14 medical societies, nurse practitioner associations and patient advocacy groups for a one-day Sleep-Disordered Breathing Collaboration Summit to discuss strategies to improve the diagnosis and treatment of obstructive sleep apnea. This report provides a brief synopsis of the meeting, identifies current challenges, and highlights potential opportunities for ongoing collaboration.

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BACKGROUND

Like other medical specialties, sleep medicine is anticipating that the field will experience workforce supply challenges in the years ahead. The U.S. Bureau of Labor Statistics projects that overall employment of physicians and surgeons will grow 4% from 2019 to 2029.¹ However, projections from the Association of American Medical Colleges indicate that demand for physicians will continue to grow faster than supply, leading to a projected total physician shortfall by 2033 of between 54,100 and 139,000 physicians, including 33,700 to 86,700 non-primary care specialists.² While demand is expected to rise due to the increasing medical needs of an aging population, supply will likely be hindered by the similarly aging physician workforce. Data show that the average age of actively licensed physicians in 2016 was 51 years, and the percentage of actively licensed physicians 60 years of age or older grew from 25% in 2010 to 29% in 2016.³

In 2019 the American Academy of Sleep Medicine (AASM) submitted proposals to the Accreditation Council for Graduate Medical Education (ACGME) as part of its Advancing Innovation in Residency Education initiative, which is a pilot program focused on enabling the exploration of novel approaches and pathways in graduate medical education through competency-based medical education and outcomes.⁴ To offer more flexible pathways that would allow the sleep field to broaden the pool of potential sleep specialists, the AASM proposed two models that would augment the current, full-time, one-year programs with part-time training options that would still meet all ACGME requirements. Both proposals were approved by ACGME, and the pilots began July 1, 2019.

However, the AASM recognizes that one strategy alone will not be enough to ensure patient access to sleep care, especially for the large and growing population of adults who have obstructive sleep apnea (OSA).⁵ A report released by the AASM in 2016 estimates that 23.5 million adults with OSA remain undiagnosed in the U.S.⁶ Because both primary care providers and physicians in multiple other specialties interface frequently with sleep medicine, the AASM hosted a summit to gather stakeholder input about potential strategies for multidisciplinary, collaborative care for OSA.

SUMMIT

Over the past decade, the AASM has convened multiple gatherings of thought leaders to discuss how sleep specialists must adapt to the changing health care landscape.^{7–11} Building on these efforts, the AASM board of directors appointed a planning committee to organize a Sleep-Disordered Breathing Collaboration Summit that would focus more narrowly on encouraging innovation to promote access to OSA care, with an emphasis on discussing strategies and models to involve more medical providers in the diagnosis of OSA. The committee was led by Chair Dr. Ilene Rosen and comprised Dr. Kelly Carden, Dr. David Kristo, Dr. Raman Malhotra and Dr. James Rowley.

Numerous organizations were invited to participate. The following organizations accepted the AASM's invitation and sent representatives to the one-day summit:

- American Academy of Neurology
- American Academy of Otolaryngology – Head and Neck Surgery

- American Academy of Pediatrics
- American Alliance for Healthy Sleep
- American Association of Nurse Practitioners
- American College of Cardiology
- American College of Chest Physicians
- American Osteopathic Association
- American Society for Metabolic and Bariatric Surgery
- Illinois Academy of Family Physicians
- MyApnea.org/Sleep Apnea Patient-Centered Outcomes Network
- Society of Behavioral Sleep Medicine

The objectives of the summit were to:

- Increase awareness of the scope of untreated OSA and the shortage of physicians trained to treat OSA
- Explore unique, collaborative care models designed to expand access to care within individual specialties for patients who have OSA
- Discuss realistic training requirements for partnerships

The structure of the one-day summit consisted of introductory presentations by members of the planning committee, presentations by invited panelists describing unique care models, a panel discussion, and moderated group discussions.

INTRODUCTION

Planning committee members began the summit by outlining the problem and reviewing the current models for the diagnosis and management of OSA. Untreated adult OSA demands attention because of the myriad health problems and performance deficits that can result, including greater risks of: excessive daytime sleepiness, impaired executive function, mild cognitive impairment, depression, sexual dysfunction, type 2 diabetes, nonalcoholic fatty liver disease, cardiovascular disease, perioperative complications, motor vehicle accidents, and mortality.¹² Untreated OSA also is common in children and is associated with attention, behavioral, and learning problems; an increased risk of failure to thrive; decreased secretion of nocturnal growth hormone; and cardiovascular problems such as increased heart rate and heart-rate variability, as well as elevations in waking and sleeping blood pressure.¹³

Recommendations for diagnostic testing for OSA with polysomnography and a home sleep apnea test (HSAT), as well as treatment of OSA with positive airway pressure (PAP) therapy, are provided by the AASM in a recently published position paper and two clinical practice guidelines.^{14–16} Additional guidelines published in recent years by the AASM and other stakeholders provide recommendations for treatment of OSA with weight loss, bariatric surgery, and oral appliance therapy, in addition to adenotonsillectomy in children.^{17–20} The AASM currently is in the process of updating its clinical practice guideline for surgical treatments for OSA.

More than 6,400 physicians have earned specialty certification in sleep medicine through one of six member boards of the American Board of Medical Specialties (ABMS) since the first ABMS-sanctioned examination was administered in 2007. Excluding

non-U.S. based and deceased Diplomates, but including an undisclosed number who have retired, there are 5,707 board-certified sleep medicine physicians in the U.S. as of June 30, 2019.²¹ In the 2019 match for the 2020 appointment year, there were 180 training slots available in 84 certified sleep medicine fellowship training programs accredited by the ACGME²²; however, approximately 45% of the 154 accredited medical schools in the U.S. currently have no sleep fellowship. In 2017, the most recent cycle of the biennial sleep medicine board examination for which data are available, there were 348 physicians who passed the examination. While the current retirement rate of sleep physicians is uncertain, it is assumed that the influx of new sleep physicians is insufficient to replace those who are retiring. Furthermore, the uneven geographic distribution of sleep physicians is like that of the overall U.S. physician workforce, with overrepresentation in large, metropolitan areas and underrepresentation in rural communities.

Efforts to date have included a discussion group in Baltimore at SLEEP 2018, the 32nd annual meeting of the Associated Professional Sleep Societies. The panel consisted of representatives from the AASM board of directors. The panel had previously identified three provider groups that potentially could play a greater role in the assessment, diagnosis, and management of patients who have OSA: advanced practice providers (eg, nurse practitioners and physician assistants), bariatric surgeons, and cardiologists. Additionally, dentists were mentioned as a group that could use screening questionnaires to identify patients with a high risk for OSA, referring at-risk patients to a medical provider for evaluation. Dentists with expertise in dental sleep medicine also can provide oral appliance therapy for OSA when such treatment is deemed appropriate by the treating medical provider. The panel also outlined certain scenarios in which providers could need additional education, such as for differential diagnosis training, and discussed potential models of collaboration between these providers and accredited sleep facilities. Attendees were generally supportive of proposed collaboration models if there is standardized education for partner providers and detailed rules of engagement for both the partner providers and the accredited sleep facilities. The planning committee considered these issues in preparation for the summit; the organization of the meeting and major themes that emerged are discussed in this report.

UNIQUE MODELS

Invited panelists Ruth Benca, MD, PhD, of the University of California, Irvine; David McCarty, MD, of the Colorado Sleep Institute in Boulder; and Jeremy Weingarten, MD, MS, of New York-Presbyterian Brooklyn Methodist Hospital and Weill Cornell Medicine, gave presentations describing unique education and OSA care models that they have piloted. Of note, the presentations represent creative ideas for increasing access to care for patients with OSA; there is no intent for these models to be considered endorsed or supported by the AASM or the organizations that participated in the summit.

Family practice clinic (Dr. Benca)

Six to eight hours of on-site training on OSA diagnosis and treatment were provided by University of Wisconsin sleep specialists to physicians and advanced practice providers at a large family practice clinic serving 18,000 to 20,000 patients annually. Ongoing support was provided by weekly lectures at lunch and weekly on-site visits by sleep center technicians and nurse practitioners. HSAT equipment was provided by the sleep center and distributed during primary care appointments whenever possible to avoid delays. Test results were downloaded, scored, and interpreted at the sleep center. While a sleep physician provided treatment recommendations, all treatments were ordered by the primary care provider. When auto-adjusting PAP was ordered, the primary care provider managed the treatment. More severe or complex cases were referred to the sleep center for further evaluation and management. The program promoted patient-centered care, yielded a higher rate of OSA testing in at-risk patients, and resulted in high satisfaction among the primary care providers.

Department of Corrections (Dr. Benca)

A contract was negotiated to provide HSATs to the state prison population. Physicians are trained through continuing medical education (CME) lectures, and more extensive HSAT training is provided to respiratory therapists working for the Wisconsin Department of Corrections. Portable monitoring equipment is sent to the prison, which provides the sleep center with a brief medical record (eg, medications, comorbid conditions, body mass index) and test data for interpretation. The sleep center then provides recommendations to the treating physician. Inmates evaluated through this collaborative arrangement have infrequently required follow-up testing with polysomnography. The program has resulted in a higher rate of OSA screening and lower cost to the state, which previously took inmates to hospital-based labs for OSA testing.

Primary care psychiatry “fellowship” (Dr. Benca)

Dr. Benca also noted the newly developed, year-long, “train new trainers” program at the University of California, Irvine, which equips primary care providers to diagnose common psychiatric disorders. Education is provided through two weekend CME teaching sessions. Additional education is provided through case-based online lectures and discussions held twice per month, as well as through individual mentoring with a board-certified psychiatrist, for one hour per month. This was presented as an example of how sleep education might be offered for providers in stakeholder specialties.

Comprehensive sleep practice (Dr. McCarty)

The Colorado Sleep Institute in Boulder is a comprehensive, integrated, patient-centered sleep medicine practice that seeks to unburden primary care by completely taking on responsibility for sleep disorders diagnosis and management. The patient care team serves several locations in Colorado, and it includes board-certified sleep medicine physicians, physician assistants, registered sleep technologists, and a dentist. The physician assistants receive training in sleep disorders recognition through an intensive, three-month, in-house program featuring both didactic and clinical elements. The program concludes with a

comprehensive final examination that requires two to three days to complete. They also receive immersion training in cognitive behavioral therapy for insomnia. The physician assistants perform the history and physical examination for new patients and order testing when appropriate. Test results are interpreted by a sleep physician, who also reviews the results directly at a dedicated visit with the patient. If no testing is needed, the physician assistant may initiate a treatment plan with follow-up by a physician. The integrated durable medical equipment program allows for the provision of PAP clinics, staffed by sleep technologists, for PAP initiation visits, follow-up visits at two and four weeks, and a visit at nine weeks to assess adherence. An integrated dental program also allows for the on-site provision of oral appliance therapy by a dentist who is board-certified in dental sleep medicine.

Cardiology practice (Dr. Weingarten)

A sleep center partnered with a cardiologist who functions as a primary care doctor for many of his patients. The cardiologist recognized the importance of treating OSA in his patients and provided HSAT studies directly from his office during patient visits. HSAT training was provided by the sleep center to the cardiologist and staff, who, in turn, supplied the HSAT devices and uploaded completed tests to the sleep center server. Test results were scored by a registered sleep technologist who was employed and trained by the sleep center. Although not endorsed by the AASM, the cardiologist reviewed the raw data, interpreted the test, and initiated appropriate patients on PAP. The cardiologist recognized the challenges associated with chronic PAP management; he would reach out to the sleep center physicians for support and refer all patients initiated on PAP, and patients with other sleep complaints, to the sleep center for further evaluation and management. Admittedly, the program involved numerous administrative challenges and thus was discontinued after a few years. Despite the unconventional arrangement, it was noted that this program did help increase identification of patients with undiagnosed OSA.

DISCUSSION

AASM Past President Dr. Timothy Morgenthaler moderated a panel discussion with the lecturers and additional small-group breakout discussions with all attendees. The following summary highlights some of the key ideas identified during these discussions.

Medical education

More time needs to be devoted to education on normal sleep and sleep disorders in medical school curricula.²³ Despite significant efforts to address this problem across multiple decades, sleep-related instruction during medical education and training remains inadequate.^{24–28}

Professional education

The AASM should collaborate with other primary care, pediatric, and specialty societies to present sleep-related lectures at their annual meetings and to make other educational content

available to their members for CME credit and maintenance of certification points.

Advanced practice provider specialties

There was support for the development of a sleep medicine specialty for advanced practice registered nurses and nurse practitioners and the creation of a certificate of added qualification in sleep medicine for physician assistants.

Collaborative models

There was agreement that collaborative models need to be developed so that primary care providers and specialists can receive education and training to provide HSAT and manage routine OSA care while referring complex cases to an accredited sleep facility. Attendees underscored the need to leverage technology and telemedicine in these models.^{29–30} However, it was emphasized that the same model will not work for all specialties or practice settings. In particular, attention to regional and national coverage policies will be required to ensure patient-centered models are supported and allow access to care for all, including typically marginalized patients. Clear expectations need to be established for a collaborative partnership between the primary care provider/specialist and the accredited sleep facility.

Technological advances

The sleep field should develop artificial intelligence algorithms to identify patients who are at-risk for OSA. Consumer sleep technology can be used to screen at-risk patients, especially if a referral mechanism is embedded in the device. Telemedicine also should be used to improve patient access to sleep care.³¹

Public relations

Public relations programs need to be implemented nationwide to raise awareness about the health risks associated with undiagnosed and untreated sleep disorders and to encourage patients to discuss their sleep problems with a medical provider.

CONCLUSIONS

The prevalence of undiagnosed OSA is a serious public health problem in the U.S. With workforce shortages expected in both primary care and specialties such as sleep medicine, access to high quality care for patients who have OSA will require continued, open dialogue to promote the development of multidisciplinary, collaborative health care delivery models. The success of these strategies will require open dialogue and a patient-centered focus among key stakeholders. New technological advances also may lead to improvements in OSA risk stratification, screening, and diagnosis. It is hoped that the Sleep-Disordered Breathing Collaboration Summit will be a springboard for ongoing partnerships that will promote the expansion of high quality, patient-centered care for OSA. The AASM board of directors has appointed an Intersociety Collaborations Presidential Committee that will recommend strategies to foster these partnerships. The establishment of enduring models for collaborative sleep care with other care partners is also a key component of the AASM strategic plan, which the board of directors approved in October 2019.³²

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DISCLOSURE STATEMENT

The authors were members of the 2018-2019 AASM board of directors. An organization's participation in the Sleep-Disordered Breathing Collaboration Summit does not represent an endorsement of the summit or of the specific strategies that were discussed by an organization's representatives.