

SPECIAL ARTICLES

## The use of telemedicine for the diagnosis and treatment of sleep disorders: an American Academy of Sleep Medicine update

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The COVID-19 pandemic led to widespread use of telemedicine and highlighted its importance in improving access to sleep care and advocating for sleep health. This update incorporates the lessons learned from such widespread utilization of telehealth to build on the American Academy of Sleep Medicine's 2015 position paper on the use of telemedicine for diagnosing and treating sleep disorders. Important key factors in this update include an emphasis on quality and value, privacy and safety, health advocacy through sleep telemedicine, and future directions.

**Keywords:** telemedicine, sleep disorders, sleep medicine, guidance, quality, safety, advocacy

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### BACKGROUND

Telemedicine has grown exponentially since the publication of the American Academy of Sleep Medicine's position paper on the use of telemedicine for the diagnosis and treatment of sleep disorders in 2015.<sup>1</sup> Increasing need for access to specialty care and advancing technologies initially led the change, but it was the novel severe acute respiratory syndrome coronavirus (SARS-CoV-2) that spurred widespread use of telemedicine. The COVID-19 pandemic challenged traditional methods of health care delivery as health systems curtailed nonemergent care at hospitals and sought to provide the safest possible environments for patient care.<sup>2,3</sup> Telemedicine became the cornerstone of providing health care in an environment that was safe for patients, providers, and staff,<sup>2,3</sup> and health care systems reported dramatically increased rates of telemedicine utilization to manage pandemic related stay-at-home orders.

In 2020, the US Department of Health and Human Services made it easier to provide telehealth services by waiving Centers for Medicare & Medicaid Services' restrictions on reimbursement. Novel platforms made care available to patients at any location, from the safety and comfort of their own

homes to public locales. Traditional center-to-home models were expanded to include not only the patient, but also the provider, being out of the center.

In response, the AASM Board of Directors initiated a review and update of the 2015 document. A Telemedicine Presidential Committee was convened, and a review of existing policies, materials and literature was initiated in May 2020. An early finding of the group was that the guidance outlined in the original 2015 document was still relevant and should continue to serve as guiding principles. This current updated document is a supplement to, rather than a replacement of, the original paper, with a summary of the combined guidance listed in **Table 1** and details of the new guidance below.

### UPDATE

A growing body of literature supports effective utilization of telemedicine in the management of patients with sleep disorders. Studies have shown effective use of telemedicine for the diagnosis and management of obstructive sleep apnea,<sup>4-7</sup> most extensively to improve adherence to positive airway pressure therapy.<sup>8-10</sup> Telemedicine has been widely applied in

**Table 1**—American Academy of Sleep Medicine guidance for the use of telemedicine in sleep medicine.

<b>Position Paper for the Use of Telemedicine in Sleep Medicine (2015)<sup>1</sup></b>
Clinical care standards for telemedicine services should mirror those of live office visits, including all aspects of diagnosis and treatment decisions as would be reasonably expected in traditional office-based encounters.
Clinical judgment should be exercised when determining the scope and extent of telemedicine applications in the diagnosis and treatment of specific patients and sleep disorders.
Live interactive telemedicine for sleep disorders, if utilized in a manner consistent with the principles outlined in this document, should be recognized, and reimbursed in a manner competitive or comparable with traditional in-person visits.
Roles, expectations, and responsibilities of providers involved in the delivery of sleep telemedicine should be defined, including those at originating sites and distant sites.
The practice of telemedicine should aim to promote a care model in which sleep specialists, patients, primary care providers, and other members of the health care team aim to improve the value of health care delivery in a coordinated fashion.
Appropriate technical standards should be upheld throughout the telemedicine care delivery process, at both the originating and distant sites, and specifically meet the standards set forth by the Health Insurance Portability and Accountability Act (HIPAA).
Methods that aim to improve the utility of telemedicine exist and should be explored, including the utilization of patient presenters, local resources and providers, adjunct testing, and add-on technologies.
Quality assurance processes should be in place for telemedicine care delivery models that aim to capture process measures, patient outcomes, and patient/provider experiences with the model(s) employed.
Time for data management, quality processes, and other aspects of care delivery related to telemedicine encounters should be recognized in value-based care delivery models.
The use of telemedicine services and its equipment should adhere to strict professional and ethical standards so as not to violate the intent of the telemedicine interaction while aiming to improve overall patient access, quality, and/or value of care.
When billing for telemedicine services, it is recommended that patients, providers, and others rendering services understand payor reimbursements, and that there be financial transparency throughout the process.
Telemedicine utilization for sleep medicine is likely to rapidly expand, as are broader telehealth applications in general; further research into the impact and outcomes of these are needed.
<b>Additional Guidance for the Use of Telemedicine in Sleep Medicine (2021)</b>
High quality, comprehensive sleep care can be provided via telehealth modalities, which are not limited by geographic boundaries.
Synchronous telehealth visits may be performed in lieu of live in-person office visits if they mirror the live visits in quality and process and comply with all licensing, state, federal and HIPAA regulations for both originating and distant sites, even when <i>both</i> sites are located outside of the traditional office.
Asynchronous telehealth modalities may be used to augment clinical care and access to sleep medicine services.
A telemedicine program must maintain a culture of good patient safety encompassing professional accountability, risk assessment, risk management, and infection control, with special consideration for both the physical and psychological safety of the patient at the time of the telemedicine visit.
Telehealth may play a vital role in preserving the continuity of sleep health, but advocacy for greater access to telehealth systems to reduce health disparities is needed.
Moving forward, clinical pathways to diagnose and manage sleep disorders are needed to determine the best way to integrate in-person care with telemedicine, including the incorporation of data from sleep-specific and consumer-based technologies.

behavioral health to improve access with success in a number of disorders.<sup>11</sup> Several small studies have shown that the benefits from cognitive behavioral therapy for insomnia (CBT-I) and brief behavioral therapy for insomnia delivered via telemedicine are similar to those delivered via traditional in-person office visits.<sup>12,13</sup> Because of the shortage of trained behavioral sleep therapists, online application-based CBT-I programs have been developed and a recent systematic review and meta-analysis found that internet-delivered CBT-I is effective in improving sleep.<sup>14</sup>

Telemedicine has also been used to manage sleep disorders in pediatric populations. Telehealth follow-up visits, primarily via telephone, have been used for chronic management of obstructive sleep apnea and internet delivered CBT-I has been shown to be effective in adolescents with insomnia.<sup>15</sup>

Telemedicine management has not been studied explicitly in other sleep disorders such as restless legs syndrome or

parasomnias. However, studies showing the success of management of other medication-treated disorders, such as asthma, hypertension and diabetes,<sup>16,17</sup> suggest that management of these other sleep disorders via telemedicine would be successful as well.

### TECHNOLOGY-BASED CARE

As detailed in the 2015 position paper,<sup>1</sup> sleep care delivered through telemedicine modalities may occur synchronously or asynchronously. Synchronous telemedicine services occur in real-time with audio and video communications between a patient at the originating site and a provider at the distant site and must mirror live office visits. Other providers, caregivers, and staff may also be included in the telemedicine encounter, as routinely needed during the traditional office visit.

A tele-presenter may be added to assist with the technology and examination at the originating site during a telemedicine visit. Asynchronous telemedicine services in which the patient and provider are separated not only by distance, but also time, include remote interpretation of store-and-forward systems, electronic communications between patients and providers, electronic consultations between providers, and self-directed care mechanisms such as data from health apps. Additional details can be found in the 2015 position paper.<sup>1</sup>

### Updates for synchronous telemedicine services

In addition to the center-to-center and center-to-home models in which the provider is at the health care facility and the patient is at another center or at home, fully out-of-center models may also provide comprehensive care, as long as they mirror live office visits. Out-of-center models incorporate both the originating and distant sites outside of the traditional office, and may occur at any private, safe location of the patient's and provider's choosing. These interactions may be performed utilizing multimedia communications equipment which permit, at a minimum, audio and video two-way, real time, interactive communication. Examples include smart phones and tablets in addition to traditional laptop and desktop computers. In any form of mobile communication technology, both privacy should be ensured, in compliance with the Health Insurance Portability and Accountability Act (HIPAA) and state and federal regulations, as well as the quality of the interaction. Patients should be informed that the telehealth visit is in lieu of the live in-person office visit. Patient safety should be ensured, and procedures for activating emergency services (eg, e-911) should be in place in case an emergency is witnessed during the telemedicine encounter. A backup plan should be developed in advance to address connection troubles or poor signal quality. Consent for synchronous care through a telehealth modality should also be obtained at each visit.

### Updates for asynchronous telemedicine services

Store-and-forward systems are now used routinely in sleep medicine. Communications through patient portals, remote patient monitoring incorporating review of data obtained remotely from a positive airway pressure device, and remote interpretation of home sleep apnea tests are examples of store-and-forward technologies commonly used in the care of sleep medicine patients. Electronic consultations incorporating review of medical data with clinical decision-making communicated to referring providers, electronic communications with patients, and virtual patient check-ins through the electronic health record platforms are also examples of asynchronous telemedicine services. As with synchronous telemedicine, asynchronous services require patient consent, and consent for asynchronous care should be obtained at least annually. As a result of the COVID-19 pandemic, more asynchronous telemedicine services have become reimbursable; however, providers should consult payers regularly to ensure ongoing reimbursement for these services.

### Updates to technology-based requirements

Technical requirements for performing telemedicine visits will continue to change as technology evolves. However, any

telehealth technology used should ensure privacy and security of protected health information in compliance with HIPAA. Some present-day examples include password or biometric-ID protection of the device and/or platform used to deliver care, encryption of data transmitted or stored, and access to telehealth platforms restricted to authorized users. Popular, audio-video chat applications used to provide synchronous telehealth services during the current pandemic emergency must be "non-public" facing to limit participation to only the intended parties (patient, provider, caregiver, etc.) and require HIPAA business associate agreements with the technology vendor to ensure compliance with HIPAA.<sup>18</sup> Whether their use will continue postpandemic will depend on regulatory changes.

## REGULATORY GUIDELINES

Regardless of the mode of telemedicine used, adherence to federal and state regulations and compliance with HIPAA are vital. Providers practicing across state lines are subject to requirements in all states in which the provider and patient are located at the time of the encounter. This includes clinical encounters, sleep testing, as well as the prescription of controlled substances. Providers are encouraged to consult state and federal regulatory bodies routinely for updates. Interstate compacts have been developed to ease the process of applying for licenses in multiple states.<sup>19</sup> Telemedicine offers the unique opportunity to also practice across international borders. In such cases, providers will also need to ensure licensure and compliance with regulations of the country in which the patient is located at the time the care is provided.

## PATIENT SAFETY

The COVID-19 pandemic accelerated the use of telemedicine to minimize risk to patients and their health care teams from the SARS CoV-2 virus, avoid exposures during transit or at in-person appointments, and prevent spread of disease. Although center-to-home and out-of-center models offer great advantages and convenience over center-to-center models, more diligence is needed by providers and provider organizations to ensure patient privacy, safety, and compliance with HIPAA.

Competence in the use of telemedicine is fundamental in providing ethical and safe health care. Providers need to understand the limitations of telemedicine care delivery, including impact on diagnostic capabilities, that may affect care. Education, training, preparedness, and awareness are key factors in mitigating patient safety risk. Moreover, quality assurance plans for telemedicine should be in place to maintain a culture of good patient safety encompassing professional accountability, risk assessment and risk management related to its use. The ideal model needs to incorporate strategies to ensure provisions are in place for patients who are technologically challenged, those who do not have access to broadband/internet, or those with lower levels of digital health literacy. Providers also need to ensure accommodations are in place for patients with language barriers or those with visual or hearing impairments.

The safety of the patient and provider at the time of the visit should always be considered. For example, care should not be delivered in a moving vehicle while the patient or provider is driving. Ideally, telemedicine should mirror and meet the quality and standards of in-person visits. Providers must also be cognizant of the limitations of telemedicine as they relate to patient safety.<sup>20</sup> They need to ensure all data security and encryption protocols are up-to-date and all possible risks are disclosed to the patient prior to enrollment (eg, informed consent). There is concern that virtual visits can increase the risk of medical error by missing something that could have been caught in an in-person visit, particularly in relation to physical examination findings. In addition, the psychological safety and well-being of patients pose unique challenges when care is delivered through telehealth modalities, as factors out of sight of the camera (eg, abusive partner/household member) influencing the patient encounter may not be visible. As such, telemedicine in the home setting puts the onus on the patient (or personal caregiver) to participate in and manage their own health care needs which can impact patient safety. Lastly, escalation protocols should be developed (personalized to the sleep medicine practice) to dictate when a patient receiving telehealth services should be transitioned to urgent in-person follow-up care or receive emergency services.

## ADVOCACY

The COVID-19 pandemic has shown us that telemedicine can be used to provide comprehensive care to patients with sleep disorders, and sleep medicine has shown itself to be a specialty that can offer complete and quality care remotely. Telemedicine increases access to sleep care to geographically remote and underserved areas, to vulnerable populations, and to all in times of national emergencies or natural disasters. Vulnerable populations who may benefit from telehealth services include the elderly, children, lower socio-economic groups, high risk immunocompromised or sleepy patients, those with physical or mental limitations, and those lacking a safe means of traveling to or from medical appointments. In fact, telehealth may help reduce some of the health disparities and inequities associated with the traditional health care model. However, a clear digital divide exists today based on geographic and socio-economic factors,<sup>21</sup> and telehealth care delivery is highly dependent on access to high-speed internet/broadband. It is important to identify and address the potential to worsen health disparities, especially in highly rural areas with limited internet connectivity and high poverty/low-income areas with limited financial resources to afford internet or smart electronic devices.

In addition, state licensing regulations have posed significant barriers to the widespread utilization of telemedicine, creating inequities in access to specialized expertise. Medical licensing falls under the purview of individual states, and while some states allow for cross-border care, others forbid it. Providers are required to be licensed in the states where they practice (distant site) as well as the states in which their patients reside at the time of the telehealth encounter (originating site). Although Interstate Medical Licensure Compacts<sup>19</sup> may help facilitate and

expedite medical licensure across states, multistate licensing can still be onerous and expensive. In the age of telemedicine, in which geographical distance no longer limits access to care, these regulations impose unnecessary restrictions that curtail access. While many state licensure requirements were waived during the COVID-19 pandemic, allowing for providers to care for patients irrespective of the location of the provider or patient, such waivers need to become permanent, or new regulations implemented that permanently allow for cross-border care, as is the case for the Department of Veterans' Affairs.

We need to continue to move forward to provide safe, compassionate, and potentially cost-effective quality care through telehealth modalities without introducing new health inequities or exacerbating existing health inequities. Improved connectivity and increased access to high-speed internet need to grow together with telehealth expansion. Telehealth may play a vital role in preserving the continuity of sleep health, but we will need to advocate for greater access to telehealth systems to reduce health disparities.

## FUTURE DIRECTIONS

An important area of research is to look at the efficacy of telemedicine when compared to traditional in-person models of care. Clearly telemedicine is a viable way to deliver care, but we must examine how clinical outcomes compare to in-person interactions. Equivalence or noninferiority needs to be demonstrated. Additionally, novel models of care, such as shared medical appointments, may be conducted more easily via telemedicine since barriers, such as physical space and multiple simultaneous patient check-ins, are obviated.

Most of the discussion about using telemedicine for sleep disorders has focused on how to diagnose and manage patients with sleep apnea remotely. The next step is to look at other common sleep disorders such as insomnia, narcolepsy, restless legs syndrome, parasomnias and circadian rhythm sleep-wake disorders to create recommended workflows and templates to diagnose and manage those conditions. It will be important to determine which elements of a sleep disorder can be assessed virtually and which require in-person care. Once these elements are identified, telemedicine can provide more options to interact with patients, either synchronously or asynchronously. Using the quality measures that were published in 2015 by the AASM for sleep disorders would be one method to compare telemedicine versus in-person visits.<sup>22</sup>

Consumer sleep technologies such as mobile apps and wearables have already found widespread use among patients, and the large volumes of data generated by medical devices and consumer wearables may aid in developing algorithms for remote patient monitoring. More research is needed to evaluate not only their validity, as new technologies emerge, but also their impact on sleep behaviors and their potential role in the sleep care of patients.

More research is needed regarding the impact of telehealth on access to care, health care navigation, resource mobilization, and health inequities to influence health policy and create systemic change. The role of industry and consumer technology

in diagnosing and managing sleep patients should also be examined. We must identify and share successes in telemedicine during the COVID-19 pandemic to secure broader and more flexible policies to support the expanded use of telemedicine in medical care.

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