



## **AMBULATORY SLEEP TESTING: IS IT HERE TO STAY?**

*by Duane Johnson PhD*

**A**mbulatory sleep testing controversies are in the forefront of today's sleep issues; sleep professionals debate the quality of patient services and results; commercial third party payors and CMS are trying to decide if they should reimburse it; hospital and independent sleep lab leaders are in a quandary about whether they should offer this service.

I recently asked SCMI Advisory Team Member Kathryn Hansen, BS REEGT, CPC, questions about her professional evaluation and research on ambulatory sleep testing. Ms. Hansen is a nationally respected sleep service consultant, educator and management professional.

### ***What issues have caused recent controversies about ambulatory sleep testing?***

The issue of access to sleep testing is one of the key issues. Traditional minded sleep professionals who want to keep in-laboratory testing are slow in opening new beds to meet the demand. Waiting lists for diagnosis and treatment are too long.

As well, we have clinical specialties such as ENT, Cardiology, and Internal Medicine who are pursuing their own subspecialty certifications to expand their clinical expertise to include sleep testing. This creates a movement to specialize sleep testing and push for complementary standards for testing based on their specialty.

The changes in our population is driving the need for increased access: aging population increases prevalence of sleep problems; increasing demands have added to increasing sleep deprivation adding to sleep complaints; increased obesity, cardiac diseases, and diabetes are increasing in prevalence and exaggerate the likelihood of developing sleep apnea. These health risks add to the challenge of meeting the increasing demands for sleep testing.

There is a lack of technical standardization among the recording equipment that is available on the market to complete ambulatory monitoring.

There is limited research conducting agreement studies between traditional in-lab testing and ambulatory systems.

### ***Why do you believe ambulatory sleep testing is here to stay?***

We have a need to increase the access to sleep testing because the lack of sleep makes life difficult. Most of us struggle with sleep deprivation, which affects our health and our work. Untreated sleep disorders causes sleep debt and decreased alertness, strained relationships, and mood changes. As well, prolonged sleep deprivation

due to untreated sleep disorders causes a number of health risks, which impacts our health status, our safety on the roadway, and our productivity at work.

We can no longer ignore the financial costs of untreated sleep complaints. More attention is being paid to the loss of sleep across the age continuum and we are the clinical experts practicing sleep medicine therefore, we must act to address these issues to improve our health and well-being.

### ***How do you evaluate the available ambulatory sleep equipment?***

Currently we have very few research studies to review that compare the agreement between and among sleep monitoring systems and in-lab testing. As well, we lack technical standardization among the available sleep systems. We still lack agreement regarding what clinical parameters need to be recorded to meet clinical standards. Therefore, my evaluation process includes conducting agreement studies between each ambulatory system and in-lab testing to obtain an understanding of the technical parameters.

Another factor to evaluate is the performance of each portable system in the ambulatory recording environment, either the home, an intensive care unit in the hospital, or a long-term care facility. Again, performing simultaneous monitoring for agreement of clinical data is required to know how the systems function.

If I am a sleep service professional/physician, sleep technician, or sleep DME technician, what should I do to prepare to provide ambulatory sleep services?

Now is the time to decide how you wish to expand your clinical practice to include ambulatory monitoring. This requires completion of business plans to determine the financial opportunities you have in your referral network. Identify potential partners to merge resources to expand your referral base. Increase the educational standards in your practice. Attend classes in sleep education to increase your understanding of sleep technology. Plan to increase your credentials to include completion of certification in sleep technology. Plan to accredit your clinical program to be in compliance with regulatory agencies such as Joint Commission and the Academy of Sleep Medicine. Now is the time to think outside the box to grow your business and make yourself more valuable in this expanding healthcare arena. As a sleep lab owner or manager either in a

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hospital, an independent diagnostic treatment facility or a physician practice setting, what do I need to do to integrate it into our current sleep services? Begin by evaluating your referral network and decide how you wish to expand your business. Solicit a physician who will be your champion for this new venture. Then complete an evaluation of the ambulatory monitoring systems available on the market. Talk to your Insurance contracts to open the dialogue about the clinical value of ambulatory monitoring. Complete a business plan. Then start expanding your education.

### *How do I market ambulatory sleep services?*

We market these services in much the same manner we market our current services; to physician networks, payor sources, and to the public. But, in marketing the service, keep integrity in the forefront. We still lack approved standards for performing ambulatory studies. Be honest and address the expansion into this market by using available research data or bonafide agreement studies you have completed to support your initiatives. Know your limitations and your strengths on the front end so you are successful in the end.

As Kathryn Hansen has said, ambulatory sleep services are here to stay. In summary, it is important that qualified sleep specialists use the best ambulatory sleep equipment that meets all the essential sleep study requirements, including being HIPAA compliant. Also, that clinical guidelines insuring appropriate utilization be developed. This will result in greater patient access for the 80-90% of estimated OSA patients who have not received clinical diagnosis and create greater cost effectiveness.

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Clinical observations suggest that gas exchange tends to improve when the good lung is down, as gravity-aided perfusion improves to the lower lung, which is better able than its upside counterpart to accomplish appropriate V/Q matching. Furthermore, as already noted, the upper (more compromised) lung is better recruited and drained in the LDP. "Down with the good lung" seems logical enough--so far. Yet, not all patients respond in this way; even though spontaneously breathing patients are believed to ventilate dependent lung zones better than they do their non-dependent ones, those who are partially or completely ventilator assisted may not. Moreover, hypoxic pulmonary vasoconstriction operates to varying degrees in different individuals, so that any position-associated alterations of gas exchange may prove inconsequential. In addition, any initial advantage may be gradually lost. In part this happens because over time, the lower lung may accumulate secretions slowly discharged into it from nondependent regions; if not stretched periodically, these dependent regions are predisposed to undergo absorptive collapse. It is even possible for secretions that are infected or laden with inflammatory mediators to spread disease originally confined to the upper lung into previously healthy tissues.

Now with all these competing considerations in mind, which of the very different lungs should go up—if either? (Prone or supine, rather than decubitus positioning, may be a preferable option for some.) Although drainage effects are predictable, gas exchange responses are not. When regional secretion clearance is the priority, as in the intermediate or later stages of acute illnesses, the diseased lung logically goes uppermost, but again, this must be executed carefully to avoid iatrogenic complications. Conversely, when preventing injury extension is top priority, as in the earliest stages of ARDS or pneumonia, just the opposite approach (placing the "bad" lung down) seems more prudent, assuming that gas exchange impairment can be easily and safely offset. Minor adjustments are needed for comfort and prevention of skin ulcers. However, from the standpoint of lung function and protection, extreme hour-by-hour variations of position make little sense in the setting of highly lateralized disease. So in the end, which 'end' goes up? Unfortunately, there is no foolproof, universally applicable and simple answer. In the absence of strong observational data, finding an optimal combination of ventilatory parameters and position that best suits the individual under treatment remains an empirical exercise—at least for now. As is often the case in complicated management scenarios, mastery of physiological principles aids our guesswork immeasurably.

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