

## Home Sleep Testing Can Improve Patient Care

The changing reimbursement and acceptance of home sleep testing by insurance payers and sleep professionals will open up opportunities for improved patient care and will provide sleep labs with a means to expand the reach of their sleep services. Many patient populations are well suited for home sleep diagnostic testing, particularly sleep disordered breathing (SDB) patients, those that are tested for occupational reasons, children, the elderly, the home bound and those suffering from chronic pain. As acceptance of home testing continues to grow, new technology will continue to improve diagnostic devices that will increase the reliability of home testing and will expand the number of patients that can be successfully tested in the home.

Typical SDB patients and those that require testing for occupational reasons are ideal for home sleep testing. Medical history and questionnaires can rule out complicating comorbidities that would indicate the need for in-lab testing. The remaining patients can be tested at home with reduced cost to insurance payers and increased convenience and comfort for patients. For certain occupational groups, such as some commercial truck drivers, sleep testing is an employer or state licensure requirement. Home testing for commercial truck drivers, for example, takes drivers' busy schedules into consideration and minimizes downtime, providing a more cost effective solution for employers.

Pediatric and elderly patients are also good candidates for home sleep evaluation, as the unfamiliar in-lab environment can lead to increased anxiety for the patient and inconvenience to those caring for them. Similarly, in-home monitoring will benefit patients with chronic pain who experience difficulty in traveling to a sleep lab. Not only is this form of testing more comfortable for patients already suffering from physical pain, but it also is more convenient for the patient's caregiver who would normally be needed to accompany them during the overnight study. Since the caregiver is oftentimes an aid or a nursing home employee, patient care can then be maintained. Furthermore, moving a patient that requires a paid medical assistant can be expensive for the patient and/or the insurance payer.

Traditional sleep labs can benefit from expanding their sleep services to include home testing. Labs can benefit from an increase in the overall volume of patients, with minimal added overhead expenses. Beds are freed up for those in need of in-lab testing since a subset of the patient population becomes eligible for home testing. Each patient population then can receive faster diagnosis and therefore faster treatment initiation, without the need for additional beds for the sleep lab.

Personnel expenses for home monitoring would be less than the cost of personnel for a full night study. For an in-lab or home study patients need scheduling, interpretation and follow-up. However, it should cost less to demonstrate the system and possibly check on the patient than having a technologist watch the patient for the full overnight study.

With this business model then, patients with suspected central sleep apnea, movement disorders, parasomnias, nocturnal hypoventilation and congestive heart failure can get access to the laboratory sooner and with the attention they need. Also, by testing less complicated patients at home, the lab is able to better utilize the existing capacity not just for those with more complicated sleep disorders, but also for CPAP titrations. The new AASM guidelines<sup>1</sup> for portable monitoring, are an important step toward speedier access to SDB diagnosis and treatment without compromising patient care.

New technologies have and will continue to improve home testing. Current home diagnostic equipment can record most parameters typically recorded in the sleep lab, allowing for consistency in testing. Many systems are easy-to-use, so a patient can put the device on themselves with little training. Some devices have adequate battery power and memory to record multiple night studies without service from the sleep lab, while other systems, such as the ones pioneered by CleveMed, can provide real-time data to the sleep technologist remotely from almost any location. Remote access allows the technologist to verify the recording quality as it is being collected and contact the patient if there is a problem with the data collection. With this system, real-time video also is available to allow the technologist to view the patient for verification of sleeping position and sensor placement. In the future, home diagnostic systems will continue to improve and become even simpler for patients to use and will provide more feedback to clinicians, resulting in improved patient care.

Sarah Weimer  
Clinical Coordinator  
CleveMed Inc  
Cleveland, OH

### References

1. Collop N. Anderson W. Boehlecke B. Claman D. Goldberg R. Gottlieb D. Hudgel D. Sateia M. Schwab R. Clinical Guidelines for the use of unattended portable monitors in the diagnosis of obstructive sleep apnea in adult patients. *Journal of Clinical Sleep Medicine*, Vol. 3, No. 7, 2007.