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By I.A. Barot, MD

Improve Care and Reduce Costs for Sleep Apnea

Effectively use technology for ambulatory sleep testing and PAP therapy.

The traditional model of diagnostic testing for sleep disorders occurs in sleep labs, where overnight and daytime testing (polysomnography) are performed for a variety of indications. The most common reason for evaluation at sleep labs is a suspected diagnosis of a sleep-related breathing disorder (i.e., sleep apnea). Emerging technology, however, has produced new options for this disease, and new coding guidelines have evolved to report them.

There's No Place Like Home

Ambulatory (home) sleep testing has recently emerged as an alternative to expensive in-lab sleep studies, allowing the patient to sleep in a familiar environment (without the discomfort of wires, sensors, etc. used in the lab). Ambulatory studies are unattended—meaning that a technologist or qualified health care professional is not physically present with the patient during the recording session.

First-generation home sleep testing (HST) devices had limited ability to collect details about sleep-related breathing disorders, but advancing technology has promoted increased sensitivity. For most patients who are at moderate or higher risk for sleep-related breathing disorders such as obstructive sleep apnea-hypopnea syndrome (OSAHS) (327.23 *Obstructive sleep apnea (adult) (pediatric)*), HST devices, when used appropriately, have substantial value for screening and basic diagnostic purposes. In 2008, the Centers for Medicare & Medicaid Services (CMS) adopted the stance that ambulatory sleep testing is an acceptable alternative to the traditional sleep lab. Other government and commercial payers have since followed suit.

The reduction in test paraphernalia compared to a traditional sleep lab, however, renders HST devices unable to consistently or reliably detect complex types of sleep apnea. These devices also are not as useful in diagnosing the less common narcolepsy, sleep-related movement disorders, and other conditions.

HST Code Assignment

When CMS first began coverage of HST for obstructive sleep apnea, CPT® did not contain codes to report the services. For billing purposes, CMS created the following G codes:

G0398 Home sleep study test (HST) with type II portable monitor, unattended; minimum of 7 channels: EEG, EOG, EMG, ECG/heart rate, airflow, respiratory effort and oxygen saturation

G0399 Home sleep test (HST) with type III portable monitor, unattended; minimum of 4 channels: 2 respiratory movement/airflow, 1 ECG/heart rate and 1 oxygen saturation

G0400 Home sleep test (HST) with type IV portable monitor, unattended; minimum of 3 channels

The American Medical Association (AMA) has since modified its CPT® code set to allow for HST reporting using the following Category I codes:

95806 Sleep study, unattended, simultaneous recording of heart rate, oxygen saturation, respiratory airflow, and respiratory effort (eg, thoracoabdominal movement)

95800 Sleep study, unattended, simultaneous recording; heart rate, oxygen saturation, respiratory analysis (eg, by airflow or peripheral arterial tone), and sleep time

95801 minimum of heart rate, oxygen saturation, and respiratory analysis (eg, by airflow or peripheral arterial tone)

Both code sets are still active and which code set you use to report such services depends on the payer's requirements.

Within each code set, proper code selection depends on the recorded parameters (e.g., heart rate, oxygen saturation, etc.). The most commonly used HST devices are type III monitors (G0399/95800) that typically record oximetry, flow signal, and respiratory effort. More advanced type II devices (G0398/95806) may record additional parameters, including electroencephalogram (EEG) or brain wave activity and a basic electrocardiogram (EKG) signal. Type IV HST devices (G0400/95801) have little use in a well-integrated sleep diagnostic ecosystem beyond basic detection of severe obstructive apneic events and profound oxygen desaturation. All devices measure total recording time, but only type II devices (EEG detection) can reliably record sleep time.

Per CPT® guidelines, all sleep services include interpretation and report. Results must total at least six hours of recording; if fewer than six hours are recorded, you must append modifier 52 *Reduced services* to the appropriate ambulatory testing code. For example, if home sleep testing is used to measure heart rate and

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oxygen saturation, with respiratory analysis for eight hours, the appropriate CPT® coding is 95801. If, instead, the test measures heart rate, oxygen saturation, respiratory airflow, and respiratory effort for five hours, the appropriate coding is 95806-52.

When reporting sleep studies you should not code separately for cardiovascular monitoring (93041-93229 and 93268-93272), according to CPT® instructions.

Positive Pressure to Improve Health

The gold standard of treatment for sleep-related breathing disorders (sleep apnea), which comprise the majority of overall sleep issues and subsequent associated health care disease burden, is the use of positive airway pressure (PAP) devices. These machines deliver compressed air via nasal or oronasal interfaces to create an upper airway "splint" eliminating airway collapse and snoring. The most widely used PAP devices deliver continuous positive airway pressure (CPAP).

Less commonly used PAP devices include bi-level positive airway pressure (BiPAP) and servo-ventilator (SV) machines. These devices are reserved only for patients with complex types of sleep apnea who have either very high-pressure demands or no respiratory effort (central apneas).

More recently, PAP device manufacturers have introduced auto-titrating devices. These devices are able to detect all subtypes of sleep-related breathing events (obstructive, central, mixed apneas, and hypopneas) and adjust machine pressure settings accordingly. They are also able to calculate 90th or 95th percentile therapeutic pressures and deliver specifics about usage, leak, and residual sleep apnea index in detail.

CPAP machines can also now be fitted with a wireless modem for data acquisition and adjustment of therapy. Information is stored in a database, and can be tracked for compliance and treatment optimization. In a comprehensive model for optimal management and cost reduction of chronic disease states, this data may be tracked with other markers of chronic conditions (blood pressure, blood sugar, weight, etc.).

Coding PAP Services

Initiation and management of PAP is reported using 94660 *Continuous positive airway pressure ventilation (CPAP), initiation and management*. The physician can bill this code multiple times for separate visits (depending on payer utilization restrictions), but 94660 should not be reported in addition to an evaluation and management (E/M) code for the same patient service. Alternatively, the physician could bill an E/M code (rather than 94660) based on the amount of time spent with the patient.

If the physician is reviewing data gathered by the CPAP machine, but not meeting face-to-face with the patient, consider 99090 *Analysis of clinical data stored in computers (eg, ECGs, blood pressures, hematologic data)* or 99091 *Collection and interpretation of physiologic data (eg, ECG, blood pressure, glucose monitoring) digitally stored and/or transmitted by the patient and/or caregiver to the physician or other qualified health care profession-*

Sleep Disorders: Quiet Killers

Sleep-related breathing disorders, such as sleep apnea and snoring, are implicated causally in the development and progression of high blood pressure, heart disease, and diabetes, along with other common and costly medical conditions. According to the most recent report of the Joint National Committee (JNC) related to hypertension, the number one identifiable cause of high blood pressure is sleep apnea. At least half of all patients with high blood pressure have underlying sleep-related breathing disturbances (and most patients are unaware of these disturbances).

Sleep disorders (including sleep apnea and insufficient sleep) also directly trigger:

- Insulin resistance, which is the precursor to diabetes
- Impaired fat metabolism, causing and aggravating obesity
- Mood changes, leading to conditions such as depression and mania
- Strain on the heart, resulting in cardiac arrhythmias and heart failure
- High blood pressure and atherosclerosis, both of which are the major contributors to heart attacks and stroke
- Poor sleep, including most complaints of chronic insomnia
- Fatigue and sleepiness, which result in poor daytime performance
- Impaired short-term memory, eventually resulting in memory loss
- Diminished libido, with resultant sexual dysfunction
- Chronic systemic complaints, including headaches, body aches, and fibromyalgia symptoms

Plus, according to the National Highway Transportation and Safety Administration (NHTSA), there are more fatal auto accidents annually in the United States caused by sleep deprivation and disorders than there are related to alcohol and drugs combined.

Appropriate and aggressive screening, diagnosis, and treatment of sleep disorders will reduce complaints, health care disease burden, and associated cost. Most cases of sleep apnea could be effectively managed via non-sleep health care providers, including family physicians and internists. It is likely that with time, continued discovery of the relationship between sleep apnea and other medical conditions will reveal sleep disorders to play a more intimate causative role than previously thought. Early identification and targeted therapy of sleep-related breathing disorders will become increasingly important for improving quality of life and decreasing health care-related costs.

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al, requiring a minimum of 30 minutes of time, as appropriate. Note, however, that Medicare and other payers may not separately pay for these services.

Don't forget to report the appropriate HCPCS Level II codes for supplies, provided your practice supplies them at its own expense. A partial list of relevant supply codes includes:

E0470 Respiratory assist device, bi-level pressure capability, without backup rate feature, used with noninvasive interface, e.g., nasal or facial mask (intermittent assist device with continuous positive airway pressure device)

E0471 Respiratory assist device, bi-level pressure capability, with backup rate feature, used with noninvasive interface, e.g., nasal or facial mask (intermittent assist device with continuous positive airway pressure device)

E0472 Respiratory assist device, bi-level pressure capability, with backup rate feature, used with invasive interface, e.g., tracheostomy tube (intermittent assist device with continuous positive airway pressure device)

E0561 Humidifier, non-heated, used with positive airway pressure device

E0562 Humidifier, heated, used with positive airway pressure device

E0601 Continuous airway pressure (CPAP) device

Sleep testing facilities will benefit by staying abreast emerging technology and updating tired coding practices.

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