CLINICAL PRACTICE GUIDELINE

Obstructive Sleep Apnea

Patient History and Physical

Symptoms
Snoring, snorting, or gasping during sleep; interrupted sleep; excessive daytime sleepiness, tiredness or fatigue; witnessed apnea, night sweats, excessive movements in sleep, sleep maintenance insomnia, sexual dysfunction, morning headaches, morning dry mouth, nocturia or enuresis.

Physical Examination and Traits
Large neck circumference (>17 inches for men, >16 inches for women), elevated BMI, low neuromuscular tone, craniofacial abnormalities (e.g. small or retrognathic jaw, overbite), crowded upper airway (e.g. low hanging soft palate, Mallampati 3-4), large tongue or tongue scalloping, nasal obstruction, enlarged tonsils or uvula

High Risk Groups
History of stroke/TIA, CHF, Atrial fibrillation, severe asthma or other pulmonary condition (e.g., COPD), obesity, neuromuscular disease, mission critical workers

If positive findings, consider screening for Obstructive Sleep Apnea., "OSA", using STOP BANG instrument

STOP

- Do you SNORE loudly?
- Do often feel TIRED?
- Has anyone OBSERVED you stop breathing?
- Do you have/are you treated for high blood PRESSURE?

BANG

- BMI >35
- AGE>50
- NECK circumference (>17 in men, >16 in women)
- Gender= male

STOP BANG Scoring

0-2 Low
3-4 Intermediate
5-8 High

Low Pretest Probability

- STOP BANG <3

Try conservative strategies for 3 months; Then reassess need to test

Moderate Pretest Probability

- STOP BANG 3-4
- Uncontrolled blood pressure ↑ test need

Appropriate to test; Use clinical judgement (see p. 3)

High Pretest Probability

- STOP BANG 5-8

High priority to test

Comorbidities?

- Severe COPD
- Uncontrolled CHF or arrhythmia
- Hypoxemia of unknown cause
- Neurological/neuromuscular (e.g. stroke, ALS, muscular dystrophies)
- Chronic opioid use
- Severe insomnia
- Symptoms of other significant sleep disorder (s)

All Patients with High Risk Comorbidities

High Probability and No Comorbidities

What type of sleep test will insurance cover?

Medicare usually allows for home or in-lab testing.

Medicaid requires in-lab testing for diagnosis.

Commercial insurers may require prior authorization for PSG and sometimes for HSAT. They might cover PSG only for patients with significant comorbidities.

In-Lab Test (Polysmonogram [PSG])

- "Gold standard" OSA test
- Measures many physiological parameters
- Must be performed in testing facility
- Usually overnight
- Labor intensive and costly

Home Sleep Apnea Test (HSAT)

- Measures O2 sat, air flow, body position, respiratory effort
- Possible false-negative for milder OSA
- Negative HSAT in patients with high OSA probability should be followed up with PSG or repeat HSAT

Diagnosis

Respiratory Events per Hour (AHI/RDI)

- Mild OSA: ≥5 to <15 events per hour
- Moderate OSA: ≥15 to <30 events per hour
- Severe OSA: ≥30 events per hour

Treatment Options

- PAP therapy for all levels of OSA
- Oral appliance therapy, for mild to moderate OSA
- Surgical therapy (soft tissue, bony, or upper airway stimulator [e.g. Inspire™], for moderate to severe OSA or symptomatic mild OSA if failed PAP therapy

Adjunctive or conservative strategies:

- Nonsupine position
- Avoid sedatives, alcohol
- Weight loss
- Exercise

*These Clinical Practice Guidelines are guidelines only. In no way should these Clinical Practice Guidelines be used as a substitute for clinical or medical judgement.

Quality Care Network

Obstructive Sleep Apnea (OSA) in Adults:

Goal of this Guide:

- Increase proportion of patients with risk factors who are screened for OSA
- Increase proportion of patients with positive OSA screening who complete diagnostic sleep studies
- Increase appropriate referrals for particular sleep study types
- Improve confidence of primary care providers (PCP) in managing OSA

Obstructive Sleep Apnea (OSA) is characterized by repetitive upper airway collapse during sleep resulting in partial or complete interruption of airflow. Respiratory events include apneas and/or hypopneas. These respiratory events may be associated with arousals and sleep fragmentation, 3-4% oxygen desaturation, and/or hypercapnia. (1)

OSA is one of the most common sleep disorders and the most common type of sleep disordered breathing, with a prevalence that ranges from 9% to 38%. In populations with certain health morbidity, OSA prevalence is much higher. For example, one study showed a prevalence rate of 85% in those with atrial fibrillation. (2)

OSA is an independent risk factor for cardiovascular disease as well as motor vehicle crashes. OSA is also linked to depression, cognitive impairment, type 2 diabetes, stroke, arrhythmias, and sudden cardiac death. OSA can worsen comorbidities such as diabetes, hypertension, COPD, and CHF. (3-9)

Many patients don't know they have Obstructive Sleep Apnea.

It has been estimated that greater than 80 percent of people with moderate-to-severe OSA are undiagnosed. Untreated OSA is linked with morbidity and adverse health outcomes. (10) Many patients and providers have not considered OSA in a differential diagnosis of symptoms such as fatigue or sleepiness, or conditions like uncontrolled hypertension, or poorly controlled heart failure.

Screening

Primary care providers (PCP) should screen patients for OSA based on history, physical assessment, and risk factors. See screening algorithm on first page.

Testing

When OSA is suspected, there are two options for diagnostic testing: 1) the gold standard in-lab-PSG, and 2) Home sleep apnea testing (HSAT). Many patients without significant co-morbidity can undergo HSAT. If negative and OSA is still suspected, an in-lab PSG is indicated.
In-lab PSGs may also be a first line test for those who require it:

- Comorbid non-respiratory sleep disorders requiring in-lab evaluation: See examples in box below
- Conditions that may increase risk of non-obstructive sleep related breathing disturbance: See examples in box below
- Conditions that impair patient's ability to turn on HSAT: Neurodegenerative disease, cognitive dysfunction, or other disability that impacts home testing.
- Mission critical workers (e.g. airline pilots) to ensure accuracy in testing. However, while ideal, many insurers may not cover in-lab PSG even for these patients.

Moderate Pretest Probability Additional Guidance: Snoring alone, controlled hypertension alone, or obesity alone are not necessarily indications for testing. Patients with symptoms, especially those with daytime dysfunction (e.g. sleepiness) have a higher likelihood of poorer outcome and need further evaluation. On the other hand, patients with uncontrolled hypertension, or poorly controlled heart disease (arrhythmia, heart failure) need a higher suspicion when patients do not present with classic symptoms.

Examples of non-respiratory sleep disorders that require PSG:

- Narcolepsy or other hypersomnia disorders
- Severe insomnia
- Periodic limb movement disorder (PLMD)
- REM sleep behavior disorder (acting out of dreams)
- Other parasomnias
- Other movement disorders

Conditions that increase risk of non-obstructive sleep-disordered breathing include:

- COPD, GOLD stage 2, 3, 4
- Heart failure, NYHA class III or IV
- Other CVD
- Atrial fibrillation
- Uncontrolled arrhythmia
- Central sleep apnea (CSA)
- Neurological/neuromuscular (e.g. stroke, ALS, muscular dystrophy)
- Severe obesity, BMI ≥ 50
- Hypoventilation syndromes (e.g. obesity hypoventilation)
- Opioid use

Diagnosis

In a sleep study, an index is derived from the number of apnea and hypopnea per hour of sleep and is known as the apnea-hypopnea index (AHI). In home sleep apnea testing, where sleep by EEG is not recorded, the term respiratory event index (REI) is used. Either an AHI or REI of ≥5 establishes the diagnosis of OSA. The AHI and REI are not the sole indicators of OSA severity in a given patient, as this parameter does not account for oxygen desaturation frequency or oxygen saturation nadir, the duration of the respiratory event, sleep fragmentation, or comorbid illnesses. In general, moderate to severe OSA (AHI/REI ≥15) requires treatment due to associated poor health outcomes. In those with mild OSA (≥5 to <15) who are symptomatic (poor sleep, daytime impairments), treatment is also indicated. Future modalities of treatment decision-making will likely depend on phenotype, with the strongest evidence of outcomes being in those with excessive daytime sleepiness.

Treatment

Positive Airway Pressure (PAP) is the first line and most effective therapy for moderate to severe OSA. (11) Continuous PAP (CPAP) is the simplest and most common approach. CPAP can be delivered by a fixed pressure CPAP mode or by Auto-adjustable CPAP (AutoPAP); other modes include Bilevel PAP (BilevelPAP) and Auto-adjustable BilevelPAP (AutoBilevelPAP). A sleep PSG-titration study allows a prescribed CPAP or BilevelPAP setting on the machine. AutoCPAP therapy does not require a titration study and offers a range of pressure settings from a minimum of 5cmH20 to 20cmH20. Auto CPAP is a common treatment for non-complicated OSA.

PAP treatment prevents airway collapse (apnea) during operation. Health benefits of PAP include lower blood pressure, reduced atherogenic plaques, restored LV function, nocturnal diabetic glucose control, improved daytime sleepiness, quality of life, depressed mood, and cognitive function (12-16).

Non-PAP treatments include:

- Oral appliances (for mild-moderate OSA)
- Surgery to enlarge or stabilize upper airway
- Hypoglossal nerve stimulation, a newer surgically implanted device (for moderate-severe OSA)
- Weight loss (For mild OSA, or adjunctive therapy)
- Positional (non-supine) therapy (for mild positional OSA or when off other therapy)
- Avoidance of sedatives and alcohol
- Exercise

Treatment adherence

PAP has high efficacy when used consistently, without significant side effects. Most patients perceive benefits within 3 months. However, patient nonadherence is common for a variety of reasons. Actions to improve adherence include: (17)

- Early intervention: because the first impression and initial experience with PAP treatment are crucial for successful adherence, provide frequent contact and follow-up in the 1st 2 weeks.
- If the patient describes a negative first impression of PAP, provide additional sleep resources
- Monitor PAP device download to check usage and offer assistance if needed.
- Troubleshoot PAP challenges such as:
    - Poor mask fit and leaks: consider mask fitting education, change in mask to provide better fit, or adjustment in sleep positioning. In some cases, a mask liner may be helpful.
    - Pressure intolerance: reduce level of air pressure, provide exhalation relief options or change from CPAP to BilevelPAP. Consider AutoCPAP for the initial prescription.
    - Dry mouth; adjust humidification, control air leaks, and consider addition of chin strap
    - Aerophagia (swallowing air): lower pressure or changing to BilevelPAP
    - Skin irritation: consider mask change; if mild: mask liner.
    - Nasal congestion: treat underlying rhinitis or other conditions
    - Dry nose: consider saline nasal gel spray (e.g. Ayr™)
- Consider sleep behavioral psychologist to treat co-morbid insomnia or implement desensitization procedures for claustrophobia or anxiety around PAP usage to improve adherence.
- Provide education and support to the patient and their sleeping partner on how to minimize disruption of sleeping routine and sexual intimacy. Couples' interventions may improve PAP adherence. (18)

Coding Do's and Don'ts:

Do:

- Provide appropriate diagnosis and supportive clinical notes to ensure insurance coverage of sleep studies and treatment require appropriate diagnosis and supportive clinical notes.
- Document signs and symptoms, and associated comorbidities (e.g., HTN).

Don't:

- If oxygen supplementation is the patient's primary need, a sleep study or OSA diagnosis can increase challenges in acquiring oxygen. Consult with Sleep Medicine for evaluative pathways.
- Primary snoring [R06.83] or any insomnia diagnosis alone is likely to yield a denial for a sleep study.
- [R29.818] for suspected sleep apnea is not accepted by most payors for sleep studies.

CODING for Sleep Testing	ICD10
Sleep apnea symptoms (e.g., sleep disordered breathing)	G47.30
Obstructive sleep apnea, mild/moderate/severe	G47.33
CODING for OSA Treatment	
Mild OSA + documented symptoms in note prior to sleep test (sleepiness, waking, insomnia, apnea, gasping)	G47.33 + ICD10 for documented symptoms
Moderate or severe OSA per test: even without symptoms is usually acceptable for PAP therapy coverage	G47.33

When to refer to a sleep specialist:

1. If the clinician feels they would like support from the sleep medicine team at any time during the care process: evaluation prior to testing, after testing, or after treatment initiation. Some PCPs are comfortable evaluating and managing straightforward OSA, while others are not.
2. If the patient has unclear testing and treatment in the past, and clarification or additional guidance is needed.
3. Challenges with PAP Therapy
    a. The sleep medicine team works closely with the patient on ways to overcome barriers to adherence.
    b. In select circumstances, a PAP-NAP procedure, performed by sleep specialists, is used. This is a daytime abbreviated sleep study that enhances PAP adherence through physical desensitization and emotion focused therapy to overcome aversion. (19).
4. Discussion of non-PAP treatment alternatives
5. Central sleep apnea or emergence of central sleep apnea after PAP therapy initiation
6. Comorbid insomnia or another sleep disorder (comorbid insomnia is in up to 50% of cases and may pose additional challenges to adherence)
7. Baseline severe excessive daytime sleepiness (can use ESS of >18/24) or if residual sleepiness is present despite OSA treatment
8. Concern for other co-morbid sleep disorders

To refer a patient to UH Sleep Services:
call 216-844-REST (7378)

Patient Behavior Changes to Manage OSA (10)

- Weight loss if overweight or obese
- Exercise (has been shown to reduce OSA burden in adults, even without weight loss)
- Sleep on side instead of supine
- Avoid alcohol
- Caution with medications such as benzodiazepines and opioids; inform prescribers of OSA diagnosis

Social Determinants of Health Assessment:

Patients' belief about OSA and adherence to treatment can be influenced by socioeconomic and cultural factors. Keep this in mind and assess accordingly, to provide proper referrals to encircle the patients with support to achieve optimal health.

Consider the following:

- Financial barriers around the cost of testing and treatment
- Geography such as travel distance from a sleep lab, specialist, or equipment provider
- Cultural beliefs about OSA that might differ from biomedical belief systems (20)
- Low health literacy around understanding OSA and treatment adherence
- Comorbidities such as depression that can hinder self-care
- Patient concern for effect of PAP on sleeping partner (21)

Epworth Sleepiness Scale (ESS) in adults

The ESS is a validated scale that can be used to measure patient sleepiness symptoms over time; effective OSA treatment should improve scores. (22) Rate the chance of dozing in the following situations:

Points	0 No chance of dozing	1 Slight chance of dozing	2 Moderate chance of dozing	3 High chance of dozing
Situation				
1 Sitting and reading	0	1	2	3
2 Watching television	0	1	2	3
3 Sitting inactive in a public place	0	1	2	3
4 Sitting for an hour as a passenger in a car	0	1	2	3
5 Lying down in the afternoon to rest	0	1	2	3
6 Sitting and talking to another person	0	1	2	3
7 Sitting quietly after a lunch (without alcohol at lunch)	0	1	2	3
8 Sitting in a car, stopped for a few minutes due to	0	1	2	3
TOTAL SCORE	____/24			

Scoring:

1 to <11 points: Normal; Remember that some populations have a normal ESS but still at risk for OSA (e.g. CHF)

11 to 24 points: Abnormally sleepy

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