

Rethinking Diagnostic Sufficiency in OSA: Aligning HSAT, Risk, and Access to Care

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Assessing how inconsistent and outdated OSA diagnostic guidelines across countries influences patient access to care, and health system burden.

Diagnostic guidance for obstructive sleep apnea (OSA) was largely written in an era when in-lab polysomnography (PSG) was the only validated method. Since then, home sleep apnea testing (HSAT) has advanced significantly in both availability and performance. OSA is also now recognized as a chronic, relapsing condition, with diagnosis as the gateway to long-term disease management. Yet many current guidelines still reflect an acute care model, with lab-bound diagnostic requirements. OSA should instead be managed under chronic disease frameworks, with fit-for-purpose, risk-stratified diagnostic pathways.

Current variations in diagnostic requirements

In the U.S, UK and Germany, HSAT may refer to multichannel polygraphy, peripheral arterial tonometry (PAT)-based devices or oximetry-led screening. Because guidelines rarely indicate the diagnostic interchangeability of these modalities, ambiguity around what constitutes an acceptable HSAT study for OSA persists.

Additionally, existing guidelines differ in how they define HSAT modalities or subtypes. In Australia, 'portable' devices were first classified by the type and number of signals they recorded but now are grouped by the measurements obtained and measurement

levels. However, the categorization of these devices using the former method persists. Australian guidelines also acknowledge that there is currently no clinical definition of what determines the adequacy (or lack thereof) of a home sleep study.¹

Night requirements are where inconsistency is most evident. For example, current German S3 guidance recommends monitored and supervised PSG as the gold standard for diagnosis.² It also mandates a second titration night when optimal titration criteria are not met the first night. This effectively increases lab-based night requirements for many patients. A polygraphy system is specifically not recommended as a standalone means of diagnosing OSA. These are only deemed appropriate when there is a high pre-test likelihood of confirming OSA.²

These have direct consequences for access to care. When guidelines define diagnostic sufficiency narrowly, patients face unnecessary waits for in-lab testing before therapy can begin. This delays treatment initiation, compounds existing access gaps for rural and lower-income populations, and places additional pressure on already constrained sleep lab capacities. It can also increase drop-off across the pathway, as patients who could have started first-line therapy after an adequate home-based diagnosis are instead required to remain engaged through longer, more complex testing sequences.

Many existing requirements reflect legacy assumptions from an era when PSG was the only viable diagnostic modality. The evidence has since evolved. Modern HSAT systems show acceptable diagnostic performance in adults with moderate-to-severe OSA, although false negatives and weaker performance in mild disease remain important considerations.³⁻⁶ In many routine cases, this level of performance is sufficient to support safe PAP initiation, yet guideline revision cycles have not kept pace, resulting in diagnostic inertia and a persistent bias toward PSG, even where HSAT would be clinically sufficient.

In contrast to Germany, the UK's National Institute for Health and Care Excellence (NICE) [recommends home respiratory polygraphy \(RP\)](#) as the diagnostic test for people suspected to have OSA.⁷ Home oximetry alone is also accepted when RP is unavailable in straightforward cases.

| Why this matters now

Health systems face mounting pressure to decentralize care and optimize resource allocation. HSAT technologies and digital platforms have expanded the ability to diagnose OSA outside of the laboratory, enabling more scalable, and accessible care models.

The cost differential between PSG-heavy pathways and risk-stratified HSAT approaches is substantial. At scale this represents a meaningful opportunity to improve access and efficiency without compromising clinical standards, while reserving laboratory resources for complex cases where they are most needed.

Although some major societies now endorse HSAT for appropriately selected patients, many guidelines still position PSG as the default or final arbiter.

| Are current diagnostic requirements proportionate to treatment risk?

The central question is whether current diagnostic requirements are proportionate to the clinical decision being made. This should shape how diagnostic intensity is applied.

In many OSA pathways, the implicit paradigm is that diagnosis should be as accurate as possible before

treatment is initiated. That principle is appropriate when the treatment decision carries substantial risk, is difficult to reverse or may expose patients to serious adverse effects. In oncology, for example, exhaustive diagnostic confirmation is often clinically justified, even at the cost of delayed access, because the consequences of overtreatment can be significant.

But OSA sits in a different risk category. First-line therapies such as PAP and mandibular advancement devices are non-invasive, low risk, with strong safety profiles. The primary harm actually lies in treatment delays. Untreated OSA is [associated](#) with cardiovascular risk, impaired neurocognitive function, reduced occupational performance, accident risk, and diminished quality of life.⁸ At a system level, delayed OSA diagnosis and treatment also contributes to higher healthcare utilization, motor vehicle and workplace accidents, and productivity loss.^{9,10}

This means the standard should not be diagnostic perfection. It should be diagnostic sufficiency for the clinical decision to be made.

This kind of proportionality is already applied in other chronic conditions. Type 2 diabetes diagnosis typically relies on HbA1c or fasting glucose thresholds, neither of which capture the full complexity of the disease. Nonetheless they are deemed sufficient to support timely intervention and later adjustment of therapy, if needed.

OSA should be treated similarly. But it is currently being managed diagnostically like a high-risk, acute condition while being treated therapeutically as a low-risk chronic disease. Neither of which is true about its nature.

| Recommendations for consideration in upcoming guidelines

Guideline committees are in a unique position to close these gaps identified, and several practical steps are well within reach for upcoming revision cycles.

1. Standardize core terms and thresholds (hypopnea definition, AHI thresholds, diagnostic confirmation criteria) and clearly explain the clinical rationale for any remaining local exceptions.

2. Develop published diagnostic pathways stratified by clinical phenotype. These should specify the minimum testing needed to safely start therapy in high-probability OSA patients, while clearly defining complex profiles that should continue to require PSG.
3. Set out clear equivalency rules that link HSAT types to patient risk profiles and decision thresholds.
4. Remove mandatory PSG requirements for first-line therapy reimbursement where HSAT is diagnostically adequate and associated with equivalent outcomes.

replace “gold standard” language with “fit-for-purpose” diagnostic pathways: Setting out frameworks that define which diagnostic modality is sufficient for which patient profile would reduce unnecessary barriers to care while preserving clinical rigor.

Modernizing diagnostic pathways is not about lowering standards. It is about right-sizing them. Acting now would enable earlier treatment, more equitable access and more efficient use of constrained resources, while ensuring that diagnostic intensity is applied where it adds the greatest clinical value.

A clear path forward for guideline modernization

Guideline committees have a clear opportunity to realign diagnostic requirements with current evidence and system realities. A practical starting point is to

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