

# UIHC Home Sleep Apnea Testing (HSAT)

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## Home Sleep Apnea Test (HSAT)

Sometimes called OCST (Out of Center Sleep Test)

- A sleep test for patients with high probability of moderate-severe obstructive sleep apnea (OSA)
- Takes place in comfort of patient's home
- Easy to use
- Worn for one night
- Provides equivalent results to in-lab sleep testing
- Mandated by many 3<sup>rd</sup> party payers

(Wait time for UIHC sleep lab has been approximately 3-4 months)

## Why Test?

Comorbidities associated with OSA

- Hypertension
- Heart disease
- Stroke
- Depression
- Excessive Daytime Sleepiness (EDS)/Hypersomnia (ICD-10-CM G47.19):  
memory loss, lack of concentration, morning headaches
- Impotence

Epic 2017; Spriggs, W. H. (2010)

- Recent literature associating Lewy Body Dementia (Alzheimer's Disease)

Emamian et al., (2016)

## Process for ordering HSAT

### Work Flow

- 1. Ordering practitioner has high suspicion of OSA and orders HSAT in EPIC.
- 2. Order reviewed by Sleep Disorder Center (SDC) Medical Director.
- 3. If HSAT scheduled, patient picks up device at IRL East. Demonstration and instructions for use by the sleep technician. Two week follow-up scheduled at clinic at IRL. Device returned next morning.
- 4. Results interpreted by sleep physician.
- 5. Results and recommendations shared with patient at 2 week follow-up at IRL East.

## Qualifications for HSAT

EPIC order is straight-forward

1. Excessive Daytime Sleepiness *and* two of the following:
  - Snoring
  - Witnessed Apnea (gasping, choking)
  - Hypertension
2. No significant co-morbidities
3.  $\geq 18$  years

## Intent of HSAT

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- HSAT is intended to rule OSA *in* (not rule it out)

## Next steps...

### 1. Negative HSAT

- If clinical suspicion for OSA remains we consider in-lab polysomnography (PSG)
- Consider other causes of excessive daytime sleepiness and refer appropriately

### 2. Positive HSAT

- Order Auto Positive Airway Pressure (APAP) therapy

3. DME (durable medical equipment) provides patient with PAP machine/equipment

4. Patient returns to OSA clinic in 1-3 months

# Watch PAT™

Resource: Itamar Medical on-line

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## Peripheral Arterial Tonography (PAT)

Resource: Itamar Medical product information

- Proprietary PAT signal is a surrogate of changes in the sympathetic nervous system that are associated with sleep disordered breathing
- Embedded actigraphy differentiates between wake and sleep
- PAT signal attenuation and accelerated pulse rate directly reflect immediate digital artery vasoconstriction and increased heart rate
- Embedded pulse oximeter

## Watch PAT™

Yalamanchali et al. JAMA Otolaryngol Head Neck Surg, 2013.5338

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- Objective: Assess correlation between sleep indexes measured by a portable sleep-testing device (Peripheral Arterial Tonometry [PAT®]) and those measured by PSG.
- Methods: 14 studies qualified for inclusion criteria, 909 patients >18, studies reviewed by 2 independent reviewers: AHI (apnea hypopnea index), 0.893 (0.857-0.920;  $p < .0001$ )
- Takeaway: PAT demonstrated high degree of correlation of sleep variables compared to PSG with convenience and low cost

## AHI

Berry et al. (2012)

- A= apnea (no breathing)
- H= hypopnea (shallow breathing)
- I= index (As and Hs added together divided by # hours asleep)
- 0-5= normal
- 5-15= mild
- 15-30= moderate
- >30= severe

## After one year on the job...

- Be careful of preconceived phenotype



## Not just old, not just fat, not just men

Neither gender or BMI is part of Epic order

- Thin women have OSA too



- And so do kids--Alexandra Iannone, DO (peds sleep)
- (\*not diagnosed by HSAT)

## So Clean machines

Just my perspective...

- Convenient?
- Effective?
- More effective than standard cleaning?
- Evidence of becoming ill with “dirty” machine?



## Summary

### Home Sleep Apnea Testing

- Cost effective
- More accessible
- Convenient
- Reduced time to diagnosis
  
- Process following new diagnosis of OSA at UIHC is evolving

## References

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