

Supplement:**Supplemental Table 1: Triage Decision Support Tool: New Patients Referred for OSA Evaluation**

<u>Patient Factors</u>	<u>Recommendation</u>
Relevant Medical Conditions:	
o Chronic heart diseases: any heart failure symptoms documented and/or EF<45%; complex cardiac history (myocardial infarction/coronary artery bypass graft/pacemaker) without documentation of EF; atrial fibrillation (limits accuracy of WatchPAT device) ‡	PSG (avoid ASV if heart failure with EF <45%)
o Chronic lung diseases: chronic obstructive pulmonary disease, pulmonary hypertension, interstitial disease ‡	PSG (consider with CO2 monitoring)
o Neurologic diseases: recent stroke, conditions of neuromuscular weakness like amyotrophic lateral sclerosis (ALS) and Duchenne Muscular Dystrophy ‡	PSG (consider with CO2 monitoring)
o BMI >45 ‡	PSG
o Severe insomnia (recorded awake breathing reduces HSAT accuracy) ‡	PSG
Relevant Medications:	
o alpha-blockers (e.g. clonidine, carvedilol, prazosin, terazosin, alfuzosin, tamsulosin, doxazosin, labetalol, tizanidine)	PSG (no WatchPAT, other HSAT ok*)
o phosphodiesterase inhibitors taken on nightly basis (e.g. sildenafil, tadalafil)	PSG (no WatchPAT, other HSAT ok*)
o long acting or scheduled opioid use ‡	PSG
o long acting nitrates (e.g. isosorbide mononitrate, isosorbide dinitrate, nitro patch)	PSG (no WatchPat, other HSAT ok*)
If no to all items above, assess pre-test probability of disease:	
o High pretest probability = snoring, witnessed apneas , fatigue, daytime somnolence, BMI>30. Must have at least snoring or witnessed apnea to be considered high pre-test probability	WatchPAT
o Low pretest probability = does not have above, specifically snoring and/or witnessed apnea	PSG

*- Other HSAT devices were not in use at our institution during the time period in question

‡-Specialist review and co-signature encouraged

Supplemental Table 2: Definitions used to define potentially contraindicated and potentially inappropriate sleep testing based on center criteria.

Contraindications:	Definition/Source for Analysis
General HSAT Contraindications	
Congestive Heart Failure	Charlson comorbidity index ¹
Cerebrovascular Disease	Charlson comorbidity index ¹
Chronic lung disease	Charlson comorbidity index ¹
Disorders of Sleep Related Hypoventilation	ICD-10: E66.2, G12.21, G47.34, G47.36
Body Mass Index ≥ 45 kg/m ² (elevated risk for obesity hypoventilation syndrome)	Vital Signs
Long Acting Opioid Agent	Pharmacy Records (e.g. current prescription of morphine sulfate sustained action, oxycodone extended release, fentanyl patch)
WatchPAT Contraindications (only HSAT used in this time period)	
Nitrate Medications	Pharmacy Records (e.g. current prescription of isosorbide mononitrate, nitroglycerin)
Alpha Blocker Medications	Pharmacy Records (e.g. current prescription of prazosin, doxazosin, terazosin)
Phosphodiesterase Inhibitors	Pharmacy Records (e.g. current prescription of sildenafil, tadalafil)
Atrial Fibrillation	Atrial Fibrillation (ICD-10 I48.0, I48.1, I48.2, I48.3, I48.4, I48.91, I48.92)
Symptoms*	
Snoring	Chart review of referral*
Witnessed apneas	Chart review of referral*
Final Definitions	
Potentially Contraindicated test	1) HSAT ordered or performed if one or more HSAT or WatchPAT contraindications are present
Potentially Inappropriate test	1) HSAT ordered or performed if one or more HSAT or WatchPAT contraindications are present OR 2) HSAT ordered or performed if patient has neither of symptoms above documented

Legend: HSAT-Home Sleep Apnea Test, ICD-10 - International Statistical Classification of Diseases and Related Health Problems, tenth edition, PAT- Peripheral Arterial Tonometry. *-Chart reviews for symptom assessment only available in propensity matched sample of nurses with independent decision-making and matched traditional triages.

1. Deyo RA, Cherkin DC, Ciol MA. Adapting a clinical comorbidity index for use with ICD-9-CM administrative databases. *J Clin Epidemiol.* 1992;45(6):613–619.

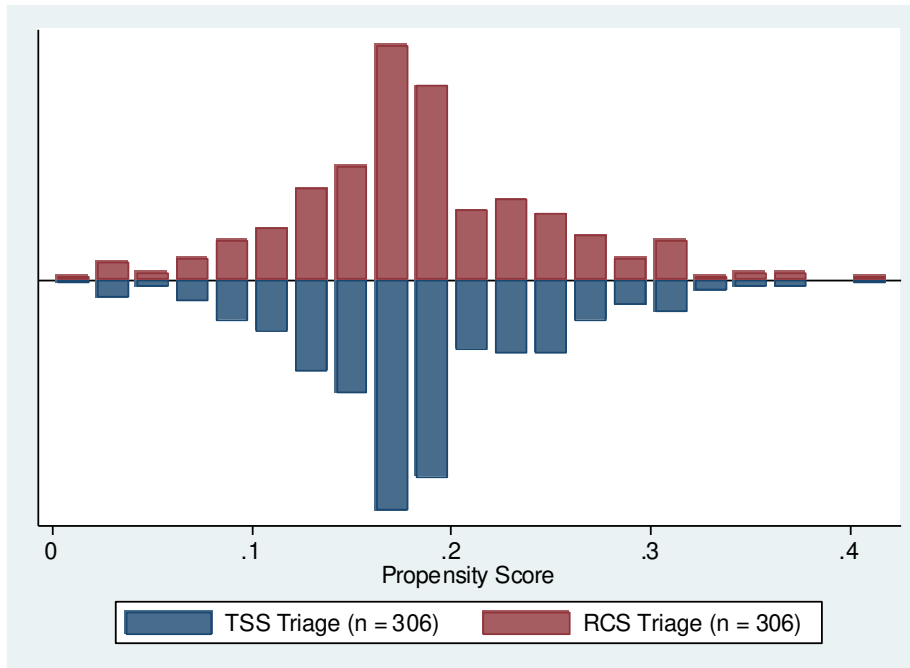
Supplemental Table 3: Baseline characteristics of propensity matched sub-sample.

	TSS Triage n=306	RCS Triage n=306	
	Mean (SD)/ N (%)		Std Diff
Age (years)	46.3 (14.7)	46.8 (13.7)	0.03
Male (%)	263 (85.9)	266 (86.9)	0.03
White (%)	195 (63.7)	196 (64.1)	0.01
Hispanic (%)	26 (8.5)	32 (10.5)	0.07
BMI Category (%)			0.08
<30 kg/m ²	104 (34.0)	97 (31.7)	
30-34.9 kg/m ²	66 (21.6)	76 (24.8)	
35-39.9 kg/m ²	54 (17.6)	51 (16.7)	
>=40 kg/m ²	19 (6.2)	20 (6.5)	
Missing BMI	63 (20.6)	62 (20.3)	
BMI (kg/m ²)*	32.0 (5.9)	32.0 (5.3)	0.01
Hypertension (%)	70 (22.9)	78 (25.5)	0.06
Myocardial Infarction (%)	2 (0.7)	2 (0.7)	0.00
Congestive Heart Failure (%)	2 (0.7)	2 (0.7)	0.00
Atrial Fibrillation (%)**	0 (0.0)	0 (0.0)	0.00
Stroke (%)	4 (1.3)	4 (1.3)	0.00
Chronic Lung Disease (%)	18 (5.9)	14 (4.6)	0.06
Sleep Disturbance Unspecified (%)	10 (3.3)	13 (4.2)	0.05
Restless Leg Syndrome (%)	2 (0.7)	2 (0.7)	0.00
Insomnia (%)	53 (17.3)	48 (15.7)	0.04
Opioid Prescription (%)	12 (3.9)	10 (3.3)	0.04
Alpha Blocker Prescription (%)	10 (3.3)	7 (2.3)	0.06
PDE-5 Inhibitor (%)**	0 (0.0)	0 (0.0)	0.00
Charlson Score (points)	1.0 (1.4)	1.0 (1.5)	0.02
Drive Time (minutes)*	56.5 (35.3)	59.0 (29.2)	0.08

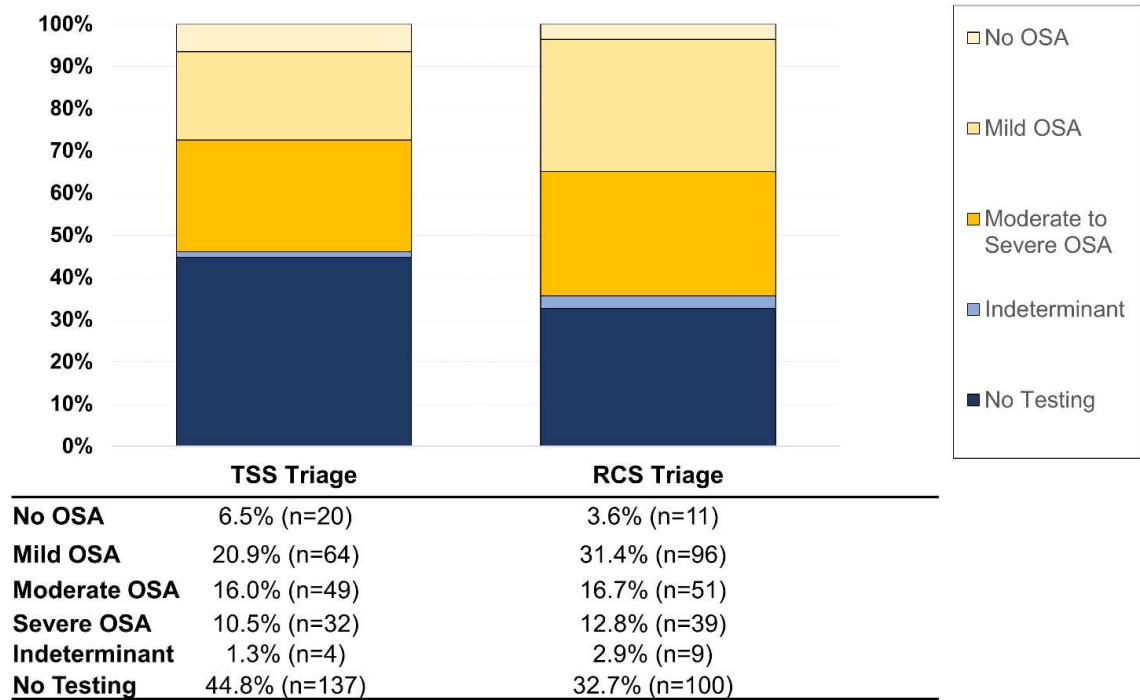
Legend: TSS-Traditional Specialist-Led System, RCS-Referral Coordination System, Std Diff-Standardized difference; BMI-Body Mass Index. *-Drive time and Continuous measure of BMI not used in propensity score model due to missingness, included here for purposes of description. **-Atrial fibrillation and PDE-5 inhibitors not used in propensity score due to collinearity, included here for purposes of description.

Supplemental Figure 1:

Histogram of propensity scores in matched groups.



Legend: TSS-Traditional Specialist-Led System, RCS-Referral Coordination System.

Supplemental Figure 2: Diagnostic outcome by group in the propensity-matched sub-sample.

Legend: TSS-Traditional Specialist-Led System, RCS-Referral Coordination System, OSA: Obstructive sleep apnea. Indeterminant refers to a home sleep apnea test that did not meet criteria for OSA without confirmatory testing in-laboratory.