

Implementation of OSA Testing for High-Risk Surgical Patients

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Background

- Increased Risk in OSA Patients:** Obstructive sleep apnea (OSA) significantly raises the risk of postoperative complications and leads to extended hospital stays.¹⁻²
- High Prevalence but Low Diagnosis Rate:** Despite a 68-70% prevalence of OSA among surgical patients, 80-90% of cases remain undiagnosed, which presents challenges in managing surgical risks.³⁻⁶
- STOP-BANG Questionnaire:** The STOP-BANG questionnaire is an effective tool for OSA risk assessment, and patients identified as high risk can undergo a home sleep study for confirmation.⁷ OSA severity is stratified by a patient's apnea-hypopnea index (AHI), which measures the average number of apneic and hypoxic events per hour during a sleep study (Table 1).⁸
- Home Sleep Studies:** The development of home-based sleep study devices allows for convenient diagnosis, reducing the need for traditional sleep center resources, though all results must be interpreted by certified sleep physicians.⁹
- Challenges in Diagnosis:** Diagnosing OSA in surgical patients is hindered by limited screening usage, insurance barriers, equipment shortages, and limited access to sleep medicine specialists. Since 2016, the University of Colorado Hospital (UCH) Pre-Procedure Services Clinic has addressed these challenges by integrating OSA screening into their pre-procedure evaluations.

Purpose

- This clinical pathway (as outlined in Figure 1) aims to reduce perioperative risk for surgical patients with undiagnosed OSA through rapid diagnosis and management of sleep apnea before surgery.
- This model also seeks to accurately measure sleep apnea prevalence in this surgical patient population.
- We seek to outline an efficient process for perioperative OSA management that can help streamline services for other surgical centers and address historical challenges face in this setting.

OSA Severity	AHI (events/hour)
Normal	0-4
Mild OSA	5-14
Moderate OSA	15-29
Severe OSA	30+

Table 1: OSA Severity by AHI

INCLUSION CRITERIA	
High Risk via STOP-BANG	
Patient Interest	
Bluetooth Connected Device	
Surgery Scheduled 5+ Days	
EXCLUSION CRITERIA	
Prior OSA Testing	
Use of Continuous Home O2	
Insurance Requiring Pre-Auth	
Surgery Scheduled 1-4 Days	

Table 2: Inclusion and Exclusion Criteria

Methods

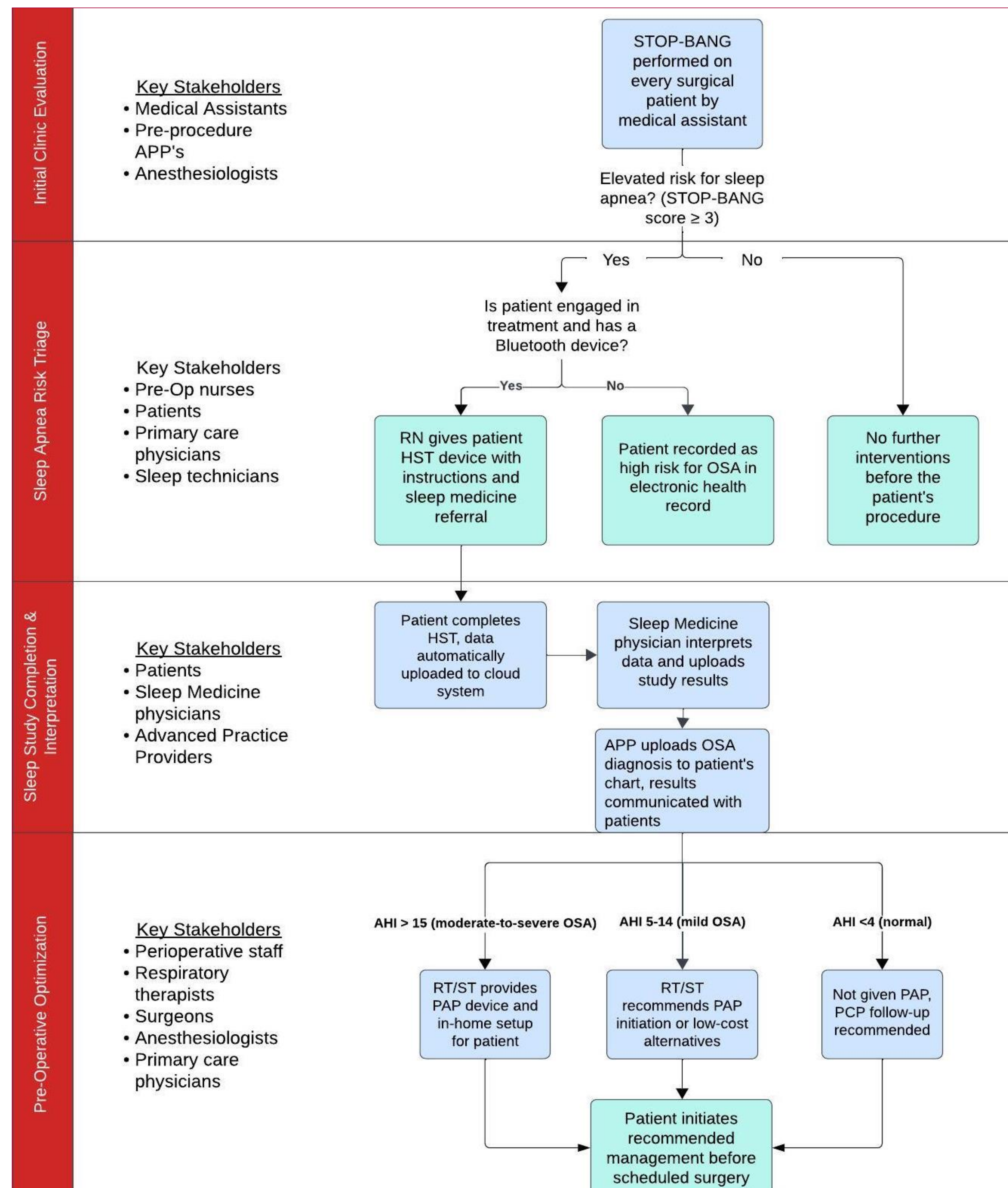


Figure 1: Pathway for Sleep Apnea Screening, Diagnosis, and Management in Surgical Patients

Results

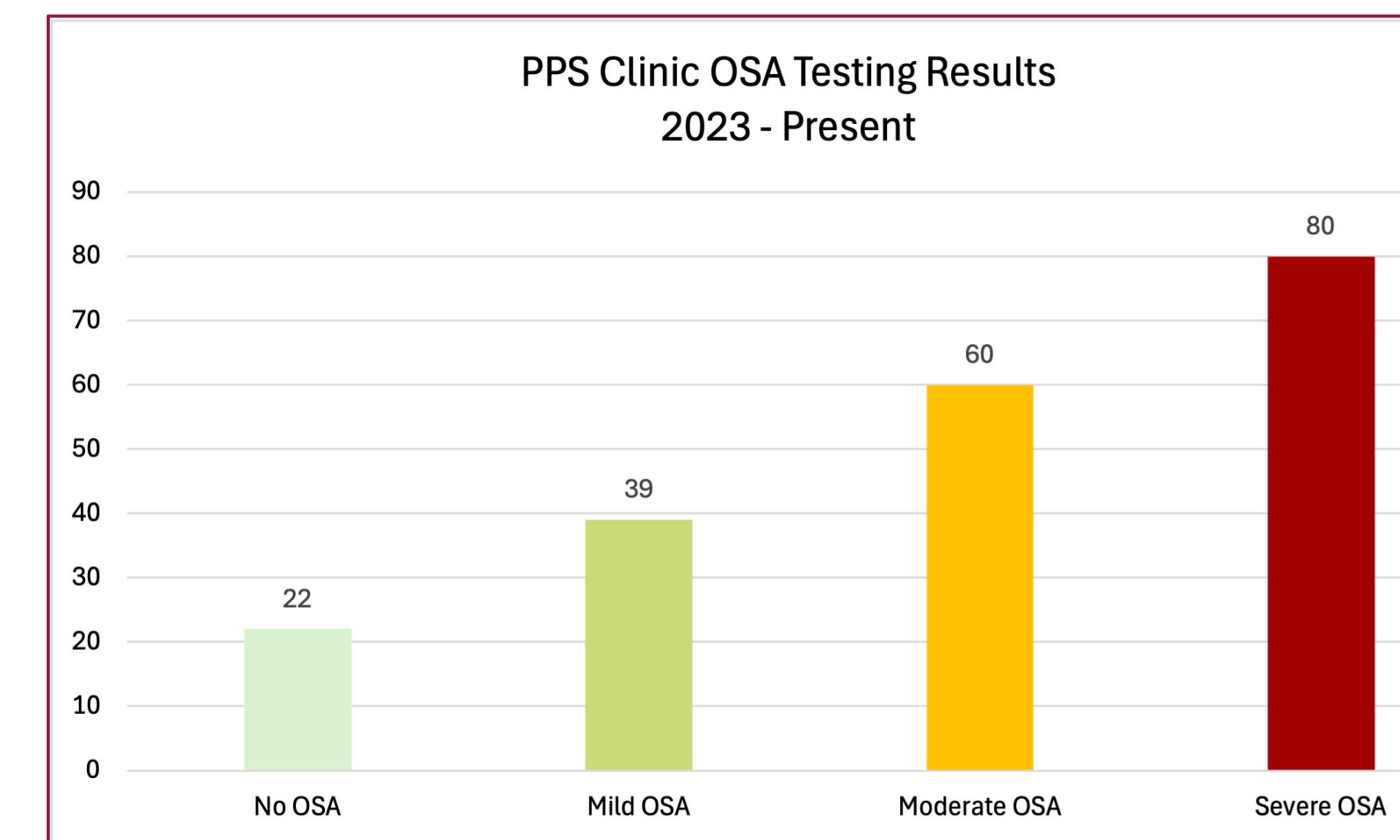


Figure 2: OSA testing results by severity

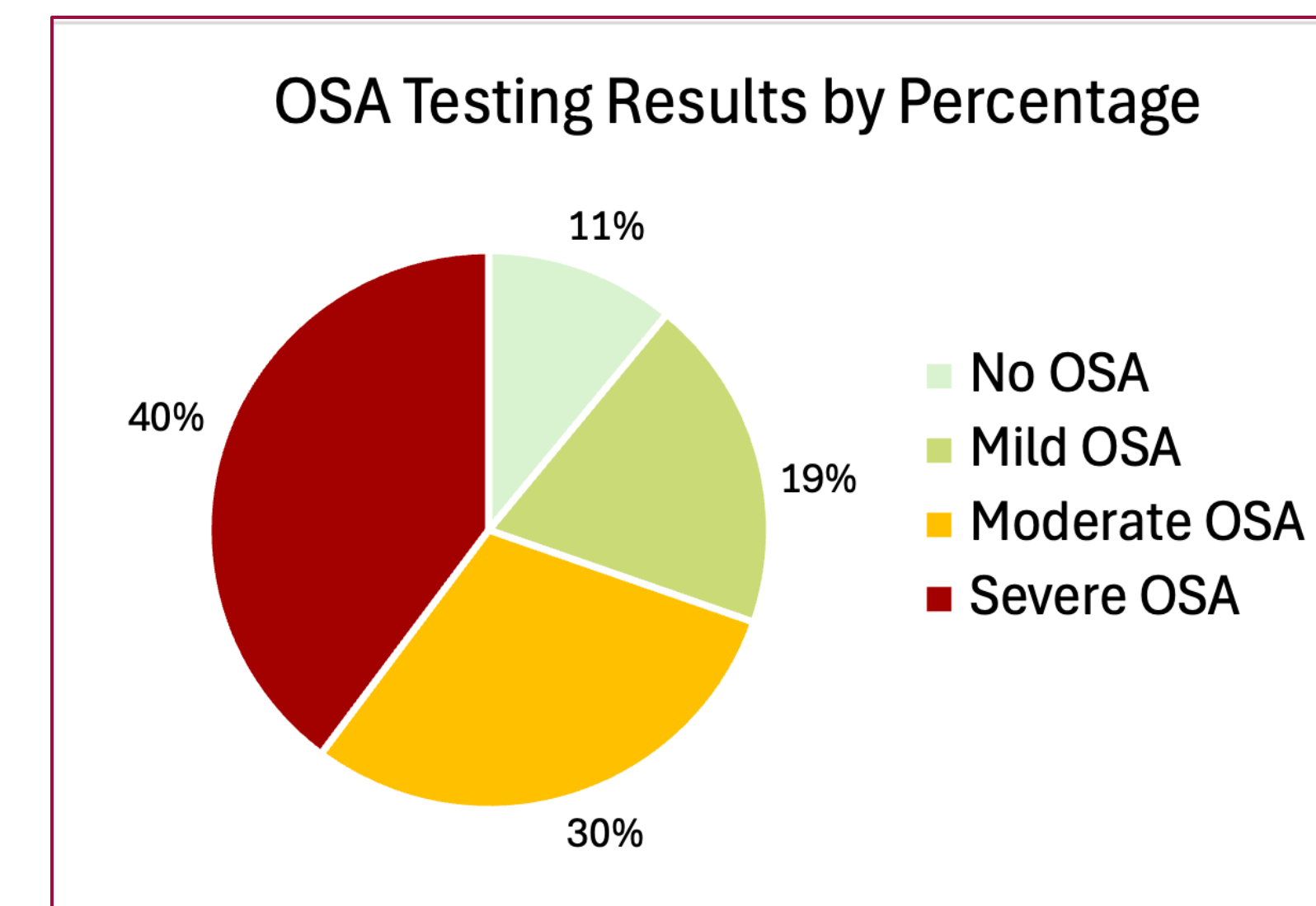


Figure 3: OSA testing results as a percentage of all sleep study patients

Discussion & Conclusions

- Value of Expanding Preoperative OSA Screening:** Implementing preoperative OSA screening at more surgical centers can help reduce perioperative risks with increased detection, especially as OSA becomes more prevalent due to rising US obesity rates.¹⁰
- Teachable Moment in Perioperative Care:** The perioperative period is a critical time to educate patients, as they are often motivated to improve their health to minimize surgical complications, making OSA education and testing impactful.¹¹
- Collaboration for Success:** A successful program requires close coordination between preoperative clinics and sleep medicine specialists to ensure sufficient devices, timely test interpretation, and follow-up care with respiratory therapy.
- Barriers to OSA Management:** Limited time between preoperative evaluation and surgery (often only 2-3 days) and reliance on phone evaluations (~60% of UCH surgery patients) reduce the opportunity to test and manage OSA prior to surgery.
- Sleep Study Compliance:** Despite challenges, 11% of patients did not complete home sleep studies, which is a significant improvement over the 69-82% non-completion rates in similar settings, highlighting progress in patient compliance.¹²⁻¹³
- Conclusions:** The preoperative clinic is a valid clinical setting to screen and diagnose patients with OSA.
- Next Steps:** The next phases of the project focus on implementing expedited Positive Airway Pressure (PAP) therapy for OSA patients prior to surgery, evaluation of PAP compliance in this patient population, and follow-up surveying for eligible patients who declined sleep study testing.

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