

Quality Improvement Metrics for Diagnosis and Management of Childhood OSA Syndrome

1. As part of routine health maintenance visits, clinicians should inquire whether the child or adolescent snores and have sign & symptoms of OSAS (Table 1)
 - a. Numerator: Well child visits during which the presence or absence of snoring & sign and symptoms of sleep apnea were documented
 - b. Denominator: Well child visits in patients 2 years
 - c. TABLE 1. Symptoms and Signs of OSAS
 - i. History: Frequent snoring (≥ 3 nights/wk; Labored breathing during sleep; Gasps/snorting noises/observed episodes of apnea; Sleep enuresis (especially secondary enuresis); Sleeping in a seated position or with the neck hyperextended; Cyanosis; Headaches on awakening; Daytime sleepiness; Attention-deficit/hyperactivity disorder; Learning problems
 - ii. Physical examination: Underweight or overweight; Tonsillar hypertrophy; Adenoidal facies; Micrognathia/retrognathia; High-arched palate; Failure to thrive; Hypertension; Enuresis after at least 6 mo of continence."

2. If a child or adolescent snores on a regular basis and has any of the complaints or findings shown in Table 1, clinicians should either (1) obtain a polysomnogram OR (2) refer the patient to a sleep specialist or otolaryngologist for a more extensive evaluation
 - a. Numerator: Children referred for PSG or to ENT or sleep specialist
 - b. Denominator: Children who snore on a regular basis and have any of the complaints or findings shown in Table 1

3. If a child is determined to have OSAS, has a clinical examination consistent with adenotonsillar hypertrophy, and does not have a contraindication to surgery (see Table 2), the clinician should recommend adenotonsillectomy as the first line of treatment.
 - a. Numerator: Children referred for adenotonsillectomy
 - b. Denominator: Children with OSAS and adenotonsillar hypertrophy without contraindications to surgery (Table 2)
 - c. TABLE 2 Contraindications for Adenotonsillectomy
 - i. Absolute contraindications: No adenotonsillar tissue (tissue has been surgically removed)
 - ii. Relative contraindications: Very small tonsils/adenoid; Morbid obesity and small tonsils/adenoid; Bleeding disorder refractory to treatment;

Submucous cleft palate; Other medical conditions making patient medically unstable for surgery

4. Clinicians should monitor high-risk patients (Table 3) undergoing adenotonsillectomy as inpatients postoperatively.
 - a. Numerator: Children monitored as inpatients post-adenotonsillectomy
 - b. Denominator: Children at high risk (Table 3) undergoing adenotonsillectomy
 - c. TABLE 3 Risk Factors for Postoperative Respiratory Complications in Children With OSAS Undergoing Adenotonsillectomy
 - i. Younger than 3 y of age; Severe OSAS on polysomnography (See definition below); Cardiac complications of OSAS; Failure to thrive; Obesity; Craniofacial anomalies; Neuromuscular disorders; Current respiratory infection"
 - ii. Definition: Mild sleep apnea is $AHI > 1.5 \text{ \& } < 5$ /hour, Moderate sleep apnea is $>5 \text{ \& } < 10$ AHI per hour, and severe sleep apnea is described as > 10 AHI per hour.

5. Clinicians should reevaluate high risk patients for persistent OSAS after adenotonsillectomy, including those who had a significantly abnormal baseline polysomnogram, have sequelae of OSAS, are obese, or remain symptomatic after treatment, with an objective test or refer such patients to a sleep specialist."
 - a. Numerator: Children getting repeat PSG or referred to sleep specialist after adenotonsillectomy who are high risk as defined below
 - b. Denominator: children with a significantly abnormal baseline polysomnogram ($AHI > 20$), sequelae of OSAS (defined below), obesity ($BMI > (95\% \text{ile } ?)$), or persistent snoring after surgery
 - c. List of Sequelae: Cognitive deficit, behavioral problems (including hyperactivity, ADHD symptoms, depression, somatization, atypicality aggression, and abnormal social behavior), hypersomnolence, cardiovascular effects (hypertension, tachycardia, left sided cardiac dysfunction, right sided cardiac dysfunction, biventricular cardiac dysfunction), poor growth, etc.

6. Clinicians should refer patients for CPAP management if symptoms/signs (Table 2) or objective evidence of OSAS persists after adenotonsillectomy or if adenotonsillectomy is not performed.

- a. Numerator: Patients referred for CPAP management with persistent symptoms or objective evidence of OSAS persists after adenotonsillectomy or if adenotonsillectomy is not performed.
 - b. Denominator: Children with persistent symptoms/signs or objective evidence of OSAS (AHI>5) after adenotonsillectomy or if adenotonsillectomy is not performed.
 - c. Note: There is no objective data regarding specific AHI for indication for CPAP therapy but AHI should be considered along with clinical presentation of the patient with symptoms such as persistent snoring, witnessed apnea, hypersomnolence, poor academic performance, and presence of other comorbidities such as hypertension, diabetes, etc. Patients with moderate to severe sleep apnea should be offered CPAP therapy. More specifically, CPAP should be considered for AHI > 5, although evidence is lacking.
7. Clinicians may prescribe topical intranasal corticosteroids for children with mild OSAS in whom adenotonsillectomy is contraindicated or for children with mild postoperative OSAS.
- a. Numerator: Children prescribed topical intranasal steroids with mild OSAS in whom adenotonsillectomy is contraindicated or for children with mild postoperative OSAS.
 - b. Denominator: Children with mild OSAS (AHI 1.5-5) in whom adenotonsillectomy is contraindicated (Table 2) or for children with mild postoperative OSAS.