FUTURE OF PEDIATRICS TALKS!
A VIRTUAL SUMMER SERIES

Pediatric Health Network
Children's National
A few notes about today’s Webinar

• All lines are muted throughout the webinar.
• Please use the Q&A box to ask questions or make comments.
• Today’s Webinar recording and slides will be posted to the PHN website following the presentation. You can find past FOP presentations on our website at https://pediatricrehealthnetwork.org/future-of-pediatrics/
Speakers

No conflicts to disclose:

• No financial or business interest, arrangement or affiliation that could be perceived as a real or apparent conflict of interest in the subject (content) of their presentation.

• No unapproved or investigational use of any drugs, commercial products or devices.
# Upcoming FOP Talks!

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<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>SPEAKER</th>
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<td>August 26</td>
<td>Meeting Teens Where They Are: the Contraception Discussion</td>
<td>Brooke Bokor, MD, MPH</td>
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<td>Natasha Ramsey, MD</td>
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<td>School’s Out: Supporting School Attendance and Distance Learning Engagement</td>
<td>Asad Bandealy, MD</td>
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<td>Heidi Schumacher, MD</td>
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PCP Town Halls

Upcoming PCP Town Halls:

• August 18 from 12-1PM
• September 1 from 12-1PM

To access the Zoom information or to review past presentations, please visit
https://childrensnational.org/healthcare-providers/refer-a-patient/covid/covid-19-webinars
PHN 2020 Annual Report Available Now!

Community matters. PHN’s 2020 annual report highlights the network’s commitment to community and the tremendous contributions of our physicians and care teams over the past year. The report summarizes key achievements pertaining to:

- Network growth, leadership and governance
- Quality improvement and information technology
- Network management and finance
- Value-added services, including the vaccine buying group and eCW EHR and data sharing
- COVID-19 response and recovery

To view the full report visit https://annualreport.pediatrichealthnetwork.org/
Obstructive Sleep Apnea: Primary Care Management and When to Refer

Claire M. Lawlor, MD
Attending Pediatric Otolaryngologist
Assistant Professor, Surgery and Pediatrics
Co-Director, Advanced Sleep Apnea Program
Children’s National Medical Center
George Washington University School of Medicine and Health Sciences
Agenda

• Define obstructive sleep disorders
• Who needs a PSG?
• Non-surgical options
• How can a pediatric ENT help?
• Beyond T&A: what comes next?
Objectives

1. Identify children at risk for sleep disordered breathing/OSA
2. Discuss evaluation and management options prior to referral to ENT
3. Know when to refer
Obstructive Sleep Disorders

Normal UAW resistance—no snoring
Increased UAW resistance causing only snoring
Increased UAW resistance sufficient to cause symptoms
Increased UAW resistance sufficient to elevate PaCO₂ or lower SpO₂
Intermittent complete UAW obstruction

Increasing upper airway resistance

None
Snoring not associated with daytime symptoms
UAW resistance syndrome
Obstructive hypoventilation or obstructive hypopnea
Obstructive sleep apnea

Fig. 186.1 Spectrum of upper airway (UAW) resistance and obstruction. (From Carroll JL: Obstructive sleep-disordered breathing in children: new controversies, new directions, *Clin Chest Med* 24:261–282, 2013.)
Obstructive Sleep Disorders


UAW: Upper Airway
Obstructive Sleep Disorders

• Incidence:
  • Snoring: 7.45%
  • SDB: 1-4%

• Peak incidence: bimodal, 2-6 years and adolescence
• More common in: boys, black children, prematurity, asthma
• Known: Obesity, craniofacial anomalies, large tonsils and adenoids
• Maybe: Cigarette smoke exposure, allergic rhinitis, low socioeconomic status
Obstructive Sleep Disorders

**SDB incidence:**
- Obesity: 25-40%
- Trisomy 21: 57%
- Craniofacial anomalies: 40-50%

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**BOX 186.1** Predisposing Conditions for Sleep-Disordered Breathing

<table>
<thead>
<tr>
<th>Condition</th>
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<tbody>
<tr>
<td>Obesity</td>
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<tr>
<td>Down syndrome</td>
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<tr>
<td>Craniofacial syndromes</td>
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<tr>
<td>- Craniostenoses (Apert, Crouzon, Pfeiffer, and Saethre-Chotzen syndromes)</td>
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<tr>
<td>- Pierre Robin sequence</td>
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<td>- Stickler syndrome</td>
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<td>- CHARGE syndrome</td>
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<tr>
<td>- Mandibulofacial dysostosis (Treacher Collins syndrome)</td>
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<tr>
<td>- Craniofacial microsoma (hemifacial microsoma, Goldenhar syndrome, first and second branchial arch syndrome)</td>
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<td>- Larsen syndrome</td>
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<td>- 22q11.3 deletion (velocardiofacial syndrome)</td>
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<tr>
<td>- Fragile X syndrome</td>
</tr>
<tr>
<td>- Hallermann-Streiff syndrome</td>
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<tr>
<td>Mucopolysaccharidoses</td>
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<tr>
<td>Achondroplasia</td>
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<tr>
<td>Neuromuscular disease</td>
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<tr>
<td>Cerebral palsy</td>
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<tr>
<td>Beckwith-Wiedemann syndrome</td>
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<tr>
<td>Klippel-Feil syndrome</td>
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<tr>
<td>Prader-Willi syndrome</td>
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<tr>
<td>Arnold-Chiari malformation</td>
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<tr>
<td>Sickle cell disease</td>
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<tr>
<td>Postpharyngoplasty patients</td>
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</tbody>
</table>

Modified from Richardson MA. Sleep apnea in children: history and physical exam. In Richardson MA, Friedman NR, editors: Clinician’s guide to pediatric sleep disorders, New York, 2007, Informa Healthcare USA, p 65.
Obstructive Sleep Disorders

• Complications of SDB/OSA
  • Neurocognitive and behavioral
  • Cardiac
  • Pulmonary
  • Endocrine
  • Inflammatory
  • Failure to thrive vs worsening obesity
Obstructive Sleep Symptoms

• OSA extremely unusual in kids who don’t snore.
• Daytime sleepiness less common in kids.
• Most common in REM, so may be asymptomatic for much of the night.
Obstructive Sleep Symptoms

• History
• Duration: >4 months!
• Nighttime symptoms:
  • Snoring, witnessed gasping/pausing, restless sleep, frequent awakenings/trouble waking in AM, odd positions/many pillows, bruxism, enuresis (age >7)
• Daytime symptoms:
  • Hyperactivity, daytime sleepiness, difficulty with attention/behavior, “snoring while awake,” headaches, systemic hypertension
• Weight gain
Obstructive Sleep Symptoms

• Physical Exam
  • General appearance/neuro
  • Respiratory/voice
  • BMI
  • Craniofacial assessment
  • Nasal exam
  • Oral cavity/oropharynx
PSG: When to Order

Clinical Practice Guideline: Tonsillectomy in Children (Update)

5. Indications for polysomnography

Before performing tonsillectomy, the clinician should refer children with obstructive sleep-disordered breathing (oSDB) for polysomnography (PSG) if they are <2 years of age or if they exhibit any of the following: obesity, Down syndrome, craniofacial abnormalities, neuromuscular disorders, sickle cell disease, or mucopolysaccharidoses.

Recommendation

6. Additional recommendations for polysomnography

The clinician should advocate for polysomnography (PSG) prior to tonsillectomy for obstructive sleep-disordered breathing (oSDB) in children without any of the comorbidities listed in Key Action Statement 5 for whom the need for tonsillectomy is uncertain or when there is discordance between the physical examination and the reported severity of oSDB.

Recommendation
PSG: When to Order

• AAP, ATSCC, and AASM say get one on everyone
• Any child that still has symptoms after T&A
Non-Surgical Management

- Intranasal steroids
- Montelukast
- Reflux regimen
- Watchful waiting?
Non-Surgical Management

• CPAP/BiPAP
Non-Surgical Management

• Rapid Maxillary expansion
When to Refer to Peds ENT?

- Significant daytime/nighttime symptoms
- Failed medical management
- PSG-proven OSA
- Complex patients
- Anytime you aren’t sure!
How can Peds ENT help?

• Flexible fiberoptic laryngoscopy
How can Peds ENT help?

• Tonsillectomy and adenoidectomy
Persistent OSA

- OSA after T&A
- Always get a PSG
- CPAP vs more surgery
- ASAP clinic!
Questions?
References

