

# 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://pediatrichealthnetwork.org/future-of-pediatrics/>

# Speakers



Claire Lawlor, MD



Kristina Hardy, PhD



Laura Kenealy, PhD

## 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!

DATE	TOPIC	SPEAKER
August 26	Meeting Teens Where They Are: the Contraception Discussion	Brooke Bokor, MD, MPH Natasha Ramsey, MD
	School's Out: Supporting School Attendance and Distance Learning Engagement	Asad Bandealy, MD Heidi Schumacher, MD

# 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

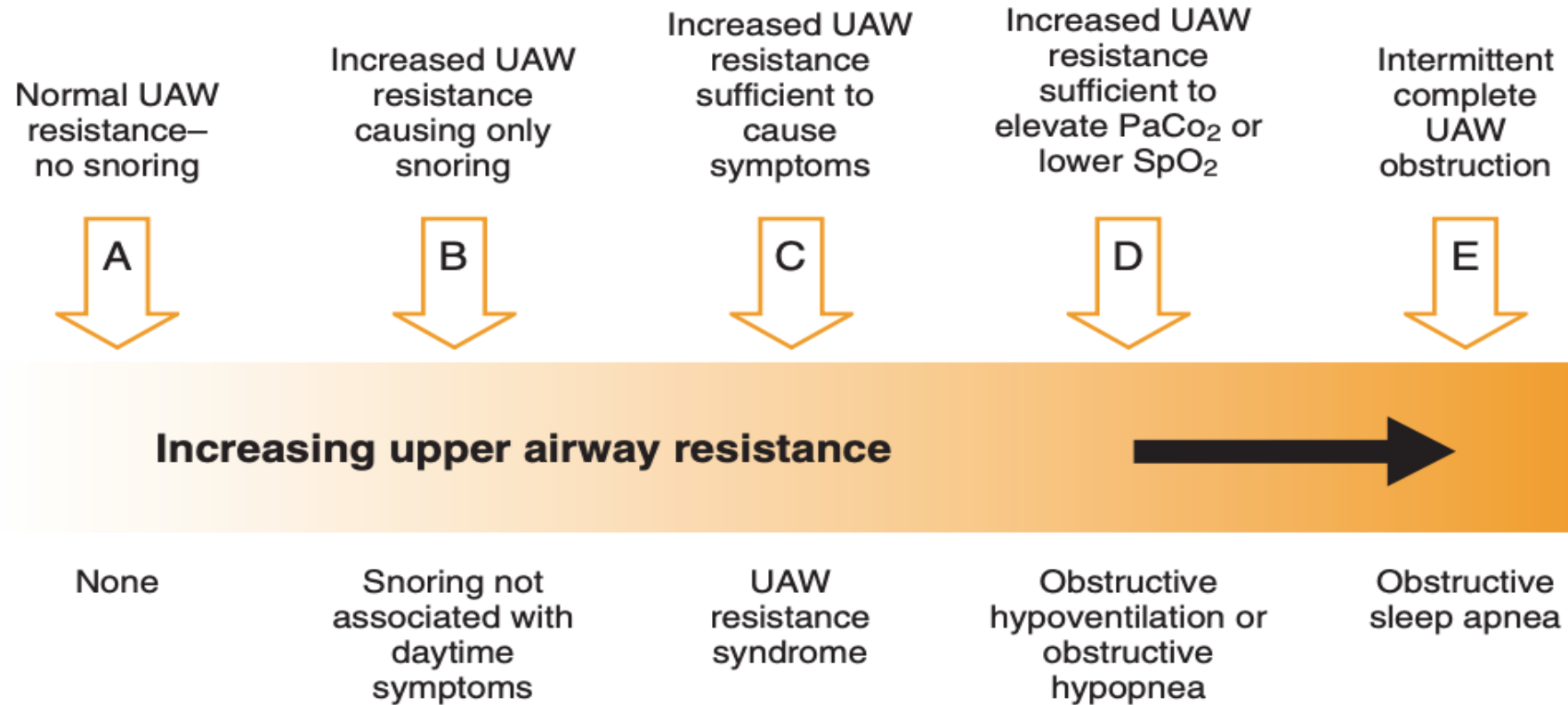
- Define obstructive sleep disorders
- Who needs a PSG?
- Non-surgical options
- How can a pediatric ENT help?
- Beyond T&A: what comes next?



# Objectives

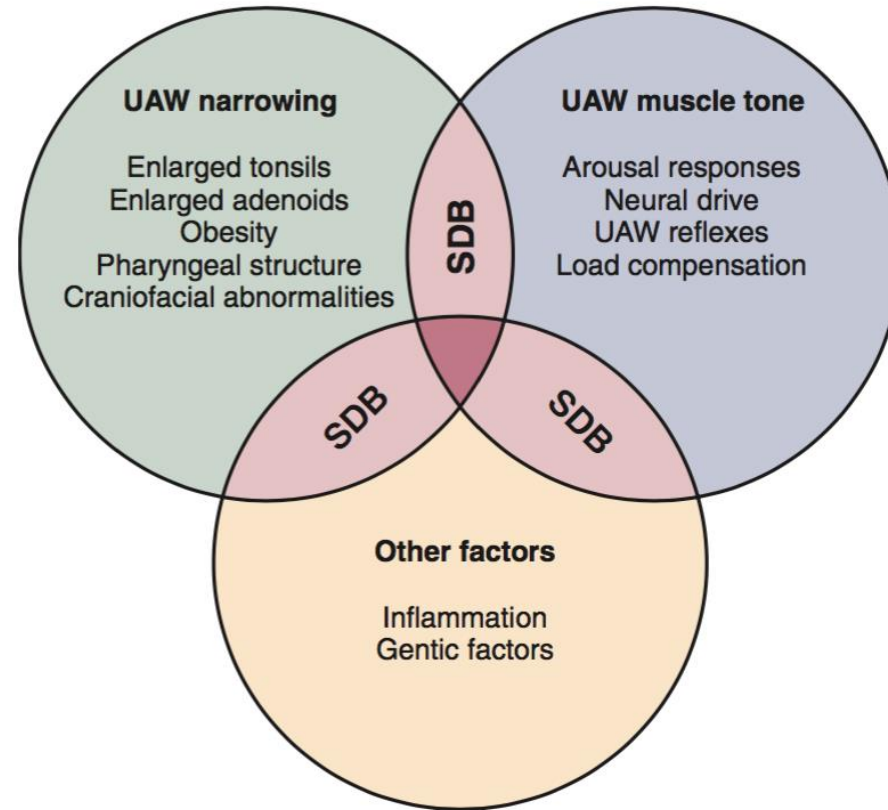
1. Identify children at risk for sleep disordered breathing/OSA
2. Discuss evaluation and management options prior to referral to ENT
3. Know when to refer

# Obstructive Sleep Disorders



**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



**FIGURE 5-2.** Pathophysiology of childhood sleep-disordered breathing (SDB). UAW, upper airway. (From Carroll JL. Obstructive sleep-disordered breathing in children: new controversies, new directions. *Clin Chest Med* 2003;24:261-282.)

# 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

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

Obesity

Down syndrome

Craniofacial syndromes

- Craniosynostoses (Apert, Crouzon, Pfeiffer, and Saethre-Chotzen syndromes)
- Pierre Robin sequence
- Stickler syndrome
- CHARGE syndrome
- Mandibulofacial dysostosis (Treacher Collins syndrome)
- Craniofacial microsomia (hemifacial microsomia, Goldenhar syndrome, first and second branchial arch syndrome)
- Larsen syndrome
- 22q11.3 deletion (velocardiofacial syndrome)
- Fragile X syndrome
- Hallermann-Streiff syndrome

Mucopolysaccharidoses

Achondroplasia

Neuromuscular disease

Cerebral palsy

Beckwith-Wiedemann syndrome

Klippel-Feil syndrome

Prader-Willi syndrome

Arnold-Chiari malformation

Sickle cell disease

Postpharyngoplasty patients

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.

## SDB incidence:

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

# 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 <u>without</u> 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



Fig. 2: HYRAX expander

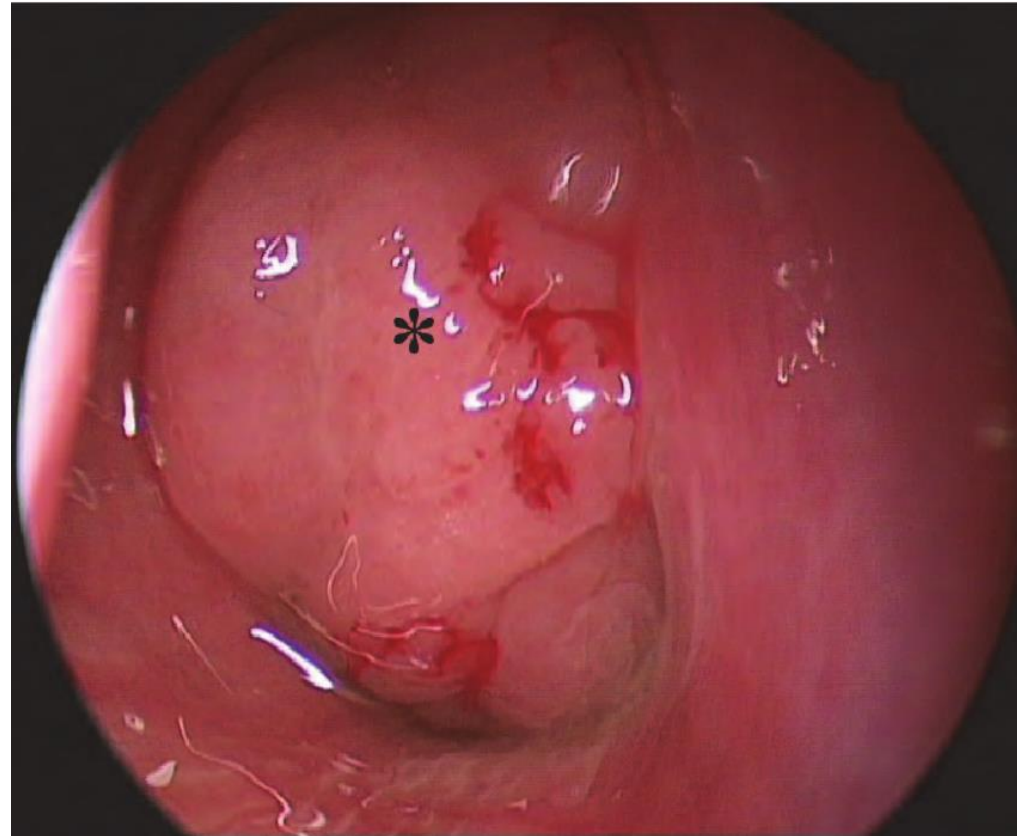
# When to Refer to Peds ENT?

- 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

Ehsan Z, Ishman SL. Pediatric Obstructive Sleep Apnea. *Otolaryngol Clin North Am.* 2016;49(6):1449-1464.

Mitchell RB, Archer SM, Ishman SL, et. Al. Clinical Practice Guideline: Tonsillectomy in Children (Update). *Otolaryngol Head Neck Surg.* 2019 Feb;160(1\_suppl):S1-S42.

Goldstein N: Evaluation and Management of Pediatric Obstructive Sleep Apnea. In: PW Flint, ed. *Cummings otolaryngology head & neck surgery.* Vol. 3, 7th ed. Philadelphia, PA: Mosby Elsevier, 2020:2798-2807.