OBSTRUCTIVE SLEEP APNEA IN THE PRIMARY CARE SETTING

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SLEEP MEDICINE FELLOWSHIP

- 1-2 year fellowship
- Open to multiple specialties
  - Pulmonary, Neurology, **Family Practice**, Internal Medicine, Pediatrics, ENT, Psychiatry, Anesthesiology
- Diagnose and treat patients with a wide range of sleep and circadian rhythm disorders.
- Board certified to see adult and pediatric patients
OBJECTIVES

- How to take a brief sleep history
- How to diagnose sleep apnea
- Discuss various treatment options for obstructive sleep apnea
- How to start and manage CPAP/APAP
- When to refer to sleep medicine
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Abbreviations and Descriptions

- **PSG** – Polysomnogram – Diagnostic In-Lab Sleep Study
- **Split Night Study** – In-lab Diagnostic and Basic Titration Sleep Study
- **HSS** – Home Sleep Study – Portable Sleep Study
- **MSLT** – Mean Sleep Latency Test – Day Time Sleep Study to Evaluate for Hypersomnolence/Narcolepsy
- **Actigraphy** – 2 week “watch” study. Records Movement and Light
- **MWT** – Maintenance of Wakefulness Test - Assess ability to stay awake
- **OSA** – Obstructive Sleep Apnea
- **RLS** – Restless Leg Syndrome
- **PLMD** – Periodic Leg Movement Disorder
- **CSA** – Central Sleep Apnea
- **CPAP** – Continuous Positive Airway Pressure
- **Bilevel “BiPAP”** – Bilevel Airway Pressure
- **ASV** – Adaptive Servo-Ventilation
- **APAP** – Automatic Positive Airway Pressure
- **UPPP** – Uvulopalatopharyngoplasty
- **UAS** – Upper Airway Stimulation
Sleep History - Brief

- **CC:** What is main sleep complaint?
- **Bedtime:** What time do they try to initiate sleep?
- **Sleep Latency:** On average how long does it take them to fall asleep?
- **Awakenings:** How many times do they get up? To do what? For how long?
- **Wake Time:** What time do they wake up for the day?
- **Naps:** How many intentional and unintentional naps?
- **Snoring:** Yes or no? Who notices it? The patient? Partner? Family member?
- **Apneic events:** Did a family member or partner witness apneic events?
### Epworth Sleepiness Scale

<table>
<thead>
<tr>
<th>Situation</th>
<th>Chance of dozing or sleeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting and reading</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Watching TV</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Sitting inactive in a public place</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Being a passenger in a car for an hour</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Lying down in the afternoon</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Sitting and talking to someone</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Sitting quietly after lunch (no alcohol)</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Stopping for a few minutes in traffic while driving</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>

**Total Epworth score**

<table>
<thead>
<tr>
<th>UNDERSTANDING YOUR SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–10</td>
</tr>
<tr>
<td>Normal range in healthy adults</td>
</tr>
<tr>
<td>11–14</td>
</tr>
<tr>
<td>Mild sleepiness</td>
</tr>
<tr>
<td>15–17</td>
</tr>
<tr>
<td>Moderate sleepiness</td>
</tr>
<tr>
<td>18 or higher</td>
</tr>
<tr>
<td>Severe sleepiness</td>
</tr>
</tbody>
</table>

[http://healthysleep.med.harvard.edu/narcolepsy/diagnosing-narcolepsy/epworth-sleepiness-scale](http://healthysleep.med.harvard.edu/narcolepsy/diagnosing-narcolepsy/epworth-sleepiness-scale)
Case #1

- 26 yo obese female with a history of hypothyroidism complains of “Sleepiness”
What does Sleepy Really Mean?

- Sleepy
- Tired
- Groggy
- Can’t Sleep
- Can’t Wake Up
- Difficulty Staying Asleep
- Early Arousal
- Confusion
- Lack of Concentration
Sleep History- Brief

- CC: Sleepiness
- Bedtime: 11:30pm
- Sleep Latency: 10 minutes
- Awakenings: 1 times, to go to the bathroom or get a drink
- Wake Time: 5:30am
- Naps: Occasional unintentional nap
- Snoring: Unknown
- Apneic events: Unknown
She reports increased **fatigue** and increased difficulty staying awake, occasionally falling asleep at work. She admits that she has been stressed and has **gained about 20lbs**. She **lives alone** and is not sure if she snores or has apneic events.

- ESS – 13/24
- Neck Circumference – 42cm
- Mallampati : 3
- Tonsils: 1+
Mallampati Classification

https://www.tms.va.gov/va_content/ModSed01_v2/lesson09/05_005.htm
# Stop Bang Questionnaire

**When to Screen?**
- Patients undergoing preoperative evaluation.
- Patients presenting to a clinic setting with symptoms associated with OSA like: daytime drowsiness, snoring, observed periods of nighttime apnea, noisy breathing, etc.

## Stop Bang Score Criteria

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes/No Options</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you snore? Loud enough to be heard through closed doors or loud enough to disturb your partner?</td>
<td>Select</td>
<td></td>
</tr>
<tr>
<td>Do you often feel tired, fatigued or sleepy during the daytime?</td>
<td>Select</td>
<td></td>
</tr>
<tr>
<td>Has anyone observed you stop breathing, choking or gasping while you were sleeping?</td>
<td>Select</td>
<td></td>
</tr>
<tr>
<td>Are you being treated for high blood pressure?</td>
<td>Select</td>
<td></td>
</tr>
<tr>
<td>What is your Body Mass Index (BMI)? If you don’t know try this calculator</td>
<td>Select</td>
<td></td>
</tr>
<tr>
<td>Are you older than 50?</td>
<td>Select</td>
<td></td>
</tr>
<tr>
<td>Is your neck size larger than 43cm if male or 41cm if female?</td>
<td>Select</td>
<td></td>
</tr>
<tr>
<td><strong>Hint:</strong> To obtain an accurate measurement, measure around your Adam's apple OR answer Yes if your collar size is greater than XL.</td>
<td>Select</td>
<td></td>
</tr>
<tr>
<td>Are you male?</td>
<td>Select</td>
<td></td>
</tr>
</tbody>
</table>

- **High risk of OSA:** Yes 5 - 8
- **Intermediate risk of OSA:** Yes 3 - 4
- **Low risk of OSA:** Yes 0 - 2

[https://www.mdcalc.com/stop-bang-score-obstructive-sleep-apnea#next-steps](https://www.mdcalc.com/stop-bang-score-obstructive-sleep-apnea#next-steps)
Obstructive Sleep Apnea-Diagnosis

- Testing
  - Portable Sleep Study (Home Sleep Study)
  - Diagnostic Polysomnogram (In-lab sleep study)

https://www.paloalto.va.gov/services/pulmonary/homesleep.asp
Can a home sleep study tell you how long a patient was asleep?
Obstructive Sleep Apnea Classification (Adults)

- **AHI Classification**
  - Mild (5-15)
  - Moderate (15-30)
  - Severe (30+)

- **Portable Sleep Study**
  - <15 No evidence of Moderate or severe sleep apnea
  - 15+ (Moderate or Severe)

- **Polysomnogram (PSG)**
  - Mild-Severe (AHI 5-30+)
Are there non-CPAP alternatives for treating OSA?
Obstructive Sleep Apnea: Treatment

- Weight Loss
- Positional Therapy
- Non-Invasive Ventilation
  - CPAP
  - APAP
  - BiPAP
  - ASV
- Mandibular Advancement Device
- Surgery
  - Mandibular Advancement Surgery
  - Upper Airway Stimulation
  - Uvulopalatopharyngoplasty (UPPP)

Weight Loss

- Low risk, high reward

- Weight Loss Strategies
  - Counseling
  - Medical Management
  - Bariatric Surgery
    - Gastric Sleeve
    - Lap Band Surgery
    - Roux-en-Y gastric bypass surgery

[Image of a diagram showing the factors contributing to obesity and the effects of increased hunger and energy expenditure on sleep deprivation, increased ghrelin, and obesity.]
Frequent patient question

Will weight loss cure OSA?
Positional Therapy

- Great initial approach
- Strategies
  - Elevation of bed 30 degrees
  - Avoiding supine sleep

https://www.patientsleepsupplies.com/slumber-bump-sleep-belt.html?source=googleshopping&category_id=91&gclid=CjwKCAjw3cPYBRB7EiwArs-uSh8qzSkkpj9ErJn3D9piN9D370WI-MWNAbvXFLPqlV1.5ATMFOyzC2QQAvD_BwF
Mandibular Advancement Device

- Mild to moderate sleep apnea
- Great alternative for CPAP intolerant patients
- Easy for travel
- Can be combined with CPAP

- Mechanism: Lower mandibular advancement
- Cautions:
  - Good dental condition
  - 3 anchoring teeth upper and lower bilaterally
  - Follow up with dentist every 6 months to evaluate for Movement

https://www.google.com/search?q=oral+appliance&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjt_dLO
Surgical Options

- Mandibular Advancement Surgery
- Uvulopalatopharyngoplasty (UPPP)
- Upper Airway Stimulation
Mandibular Advancement Surgery

- Severe anatomical defect
- Intolerant to CPAP
- Mechanism: moves the upper (maxilla) and lower (mandible) jaws forward
Uvulopalatopharyngoplasty (UPPP)

- Mechanism:
  - All or part of the uvula
  - Parts of the soft palate and tissue at the sides of the throat.
  - Tonsils and adenoids, if they are still there.
Upper Airway Stimulator

- Mechanism: Senses breathing and stimulates hypoglossal nerve to activate the tongue, opening the oropharynx
- 70% effective
Non-Invasive Ventilation

- CPAP
- APAP
- BiPAP (Bilevel)
- ASV
- AVAPS
Interpreting the Home Sleep Study

- AHI
  - Obstructive
  - Central
- Lowest SpO2
- Time SpO2 was less than 89%

- AHI Classification
  - Mild (5-15)
  - Moderate (15-30)
  - Severe (30+)
Treatment of Simple OSA with NIL

- CPAP Titration
  - CPAP
- APAP Trial
  - 5-15 cwp
- BiPAP
  - IPAP
  - EPAP
Which mask is the best?
Monitoring – Data Download

- **Compliance**
  - Goal: >4 hours of usage on 70% nights
  - Address the issue
    - Fear of the mask – Mask Desensitization (Sleep Psychologist)
    - Leak – new mask/mask fitting
    - CPAP malfunction/damage – DME request
  - (AHI - > 10
    - Address significant leak
    - Initially- consider increasing pressure
    - Persistently- CPAP titration

- **Leak - > 40 L/min**
  - Consider mask fitting
  - Education
Distractors

- Sleep Fragmentation Disorders
  - Movement Disorders
    - RLS
    - Periodic Limb Movement Disorders
    - Hypnic Jerks
  - Parasomnias
    - Sleep walking
    - REM based disorder
    - Nightmares
- Poor Sleep Hygiene
- Circadian Rhythm Disorders
  - Shift workers
  - Jet Lag
WHEN TO REFER TO SLEEP MEDICINE

- Resistance to primary treatment
- Need for sleep testing (PSG/HSS/Titration/Actigraphy/MSLT/MWT)
- Suspect advanced sleep disorder (i.e., Narcolepsy)
Sexsomnia

- Fatal familial insomnia
- Menstrual-related hypersomnia
- Non-24-hour sleep-wake disorder (non-24)
- Catathrenia
- Exploding Head Syndrome

KLEINE-LEVIN SYNDROME
Thank you!
Questions?