Sleep in Primary Care

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Faculty Disclosure

The presenters of this session have NOT had any relevant financial relationships during the past 12 months.
Background Information
# Recommended Sleep Time

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Recommended Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toddler (1-3 years)</td>
<td></td>
</tr>
<tr>
<td>Preschoolers (3-5 years)</td>
<td></td>
</tr>
<tr>
<td>School-aged Children (6-13 years)</td>
<td></td>
</tr>
<tr>
<td>Teenagers (14-17 years)</td>
<td></td>
</tr>
<tr>
<td>Adults (18-25 years)</td>
<td></td>
</tr>
</tbody>
</table>

Herskowitz et al., 2015
How Much Sleep Do Children Get?

(National Sleep Foundation, 2014)
Drowsiness = Drunkenness?
Likehood of Injury Based on Hours of Sleep per Night

Athletes who sleep on average <8 hours per night have 1.7 times greater risk of being injured than those who sleep ≥ 8 hours.
Why in Primary Care?

• 96% of pediatricians believe it is their job to counsel caregivers on pediatric sleep hygiene

• 50% of pediatricians screen for sleep problems (bedwetting, bedtime, wake time, snoring)

• 18% of pediatricians have received any type of formal training in sleep disorders
  • Residency programs - average 4.8 hours on sleep. Mode and Median = 0

• <15% felt very confident in their ability to counsel pediatric patients on sleep. Those with formal training felt more confident.
Why in Primary Care?

• 14.8% prescribe medications

• 48.9% of pediatricians report they tell families child will outgrow sleep problems

• Pediatrician test on general sleep knowledge
  • Mean score 71.8% (range 40-93%)
  • Know most about developmental issues and sleep hygiene
  • 29% answered questions correctly related to bed-wetting
  • 13% answered questions correctly related to snoring
  • 8% “narcolepsy”
Assessment
Evaluation Components

• Interview
• Questionnaires  
  • BEARS  
  • Epworth
• Other tools  
  • Sleep diaries  
  • Actigraphy  
  • Polysomnography
Interview

Never ask:
- How many hours do you sleep
- Is your child getting enough sleep

Do ask:
- Bed time
- Time of sleep onset
- Total time awake during night waking
- Wake time

Look for red flags
The BEARS

- Brief, easy to remember pediatric sleeping screening instrument
  - Bedtime problems
    - Difficulty going to bed falling asleep
  - Excessive daytime sleepiness
  - Awakening during the night
  - Regularity of sleep/wake cycles
    - Bedtime, wake time, and average sleep duration
  - Snoring
Epworth Sleepiness Scale

How likely are you to doze off or fall asleep in the following situations?
Answer considering how you have felt over the past week or so.

0 = Would never doze
1 = Slight chance of dozing
2 = Moderate chance of dozing
3 = High chance of dozing

Sitting and reading
Watching TV
Sitting inactive in a public place (e.g., movie theater, meeting)
As a passenger in a car for a hour without a break
Lying down to rest in the afternoon when able

Sitting and talking to someone
Sitting quietly after lunch (without alcohol)
In a car while stopped for a few minutes in traffic

Total Score

If you scored 10 or more please discuss this with your personal healthcare provider.
Clinical Interviews

**Bedroom Environment**
- Familiar, non-stimulating, dark, quiet, comfortable temperature, sharing a room and/or bed, consistency of location

**Bedtime Skills/Interactions**
- Bedtime routine, independent sleep, nighttime awakenings

**Sleep-wake Schedule**
- Total hours, bedtime, sleep-onset latency, wake time, sleep efficiency, naps
Sample Sleep Diary

<table>
<thead>
<tr>
<th>Date</th>
<th>Start Time</th>
<th>End Time</th>
<th>Nap</th>
<th>Time in Bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7:00 AM</td>
<td>9:00 AM</td>
<td></td>
<td>2 hours</td>
</tr>
<tr>
<td>2</td>
<td>9:00 AM</td>
<td>11:00 AM</td>
<td></td>
<td>2 hours</td>
</tr>
<tr>
<td>3</td>
<td>11:00 AM</td>
<td>1:00 PM</td>
<td></td>
<td>2 hours</td>
</tr>
<tr>
<td>4</td>
<td>1:00 PM</td>
<td>3:00 PM</td>
<td></td>
<td>2 hours</td>
</tr>
<tr>
<td>5</td>
<td>3:00 PM</td>
<td>5:00 PM</td>
<td></td>
<td>2 hours</td>
</tr>
</tbody>
</table>

Note: Mark time child gets into bed with a down arrow.

Geisinger Health System
Prevention
## Anticipatory Sleep Guidance

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants</td>
<td>Awake and drowsy</td>
</tr>
<tr>
<td></td>
<td>Back to sleep and other safety issues</td>
</tr>
<tr>
<td></td>
<td>Noises in background</td>
</tr>
<tr>
<td></td>
<td>Nap transitions</td>
</tr>
<tr>
<td></td>
<td>Pacifiers</td>
</tr>
<tr>
<td></td>
<td>Co-sleeping</td>
</tr>
<tr>
<td>Toddlers</td>
<td>Limit setting</td>
</tr>
<tr>
<td></td>
<td>Transitioning from crib to bed</td>
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<tr>
<td></td>
<td>Night feedings</td>
</tr>
<tr>
<td></td>
<td>Routines</td>
</tr>
<tr>
<td></td>
<td>Transitional objects</td>
</tr>
<tr>
<td></td>
<td>Fears</td>
</tr>
<tr>
<td>Pre-schoolers</td>
<td>Co-sleeping/parent presence</td>
</tr>
<tr>
<td></td>
<td>Daytime and night routines</td>
</tr>
<tr>
<td></td>
<td>Appropriate bedtimes</td>
</tr>
<tr>
<td></td>
<td>Second wind “forbidden zone”</td>
</tr>
<tr>
<td></td>
<td>Sleep environment &amp; media</td>
</tr>
<tr>
<td></td>
<td>Reading</td>
</tr>
<tr>
<td>School Aged</td>
<td>Increasing independence</td>
</tr>
<tr>
<td></td>
<td>Social and athletic activities</td>
</tr>
<tr>
<td></td>
<td>Media use</td>
</tr>
<tr>
<td></td>
<td>Caffeine use</td>
</tr>
<tr>
<td></td>
<td>Total sleep</td>
</tr>
<tr>
<td></td>
<td>Health risks</td>
</tr>
<tr>
<td>Teens</td>
<td>Dangers of sleeping in</td>
</tr>
<tr>
<td></td>
<td>Circadian factors</td>
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<tr>
<td></td>
<td>Mood and sleep</td>
</tr>
<tr>
<td></td>
<td>Drowsy driving</td>
</tr>
<tr>
<td></td>
<td>Sleeping in class</td>
</tr>
<tr>
<td></td>
<td>Risk taking behavior</td>
</tr>
</tbody>
</table>
Regular Screening During Well Visits

Snoring
- Pitch, quality, pauses, intensity, onset, frequency, duration

Sleep Patterns
- Timing, restlessness, sleep positions, behavior during sleep, noisy arousals

Functioning While Awake
- Development, school performance, personality, morning headaches, hyperactivity

Growth
- Failure to thrive, obesity
Preventing Sleep Problems

• Put baby to bed drowsy but awake

• Keep a consistent schedule

• Remember that most babies do not need to be fed at night after 6 months of age

• Ensure an appropriate sleep environment

• Wake up and bright light exposure
Intervention
Intervention

Behavioral Treatments Work! (Mindell et al., 2006)

- 80% of children improve
- 94% of studies report intervention was efficacious
- Treatments are typically short-term
Healthy Sleep Habits

75% of sleep problems resolve with improved sleep habits (Durand, 2008)

Consistent sleep-wake schedule and bedtime routine
No caffeine, alcohol, cigarettes after 3pm
No screen time an hour before bed
No daytime naps
Comfortable cool room
Get enough physical activity
Limit light and noise
Don’t spend time in your bed awake (Stimulus Control)
# Practices to Promote Sleep Regulation

<table>
<thead>
<tr>
<th>Practice</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organized and consistent sleep-wake pattern</td>
<td></td>
</tr>
<tr>
<td>Set and enforce a consistent bedtime</td>
<td></td>
</tr>
<tr>
<td>Set and enforce a consistent wake time</td>
<td></td>
</tr>
<tr>
<td>Keep regular daily schedule- including meals, physical activity</td>
<td></td>
</tr>
<tr>
<td>Avoid evening direct light exposure</td>
<td></td>
</tr>
<tr>
<td>Increase morning light exposure</td>
<td></td>
</tr>
<tr>
<td>Room Temperature</td>
<td></td>
</tr>
<tr>
<td>Age appropriate napping/strategic napping</td>
<td></td>
</tr>
</tbody>
</table>
Practices that Promote Sleep Conditions

- Regular and consistent bedtime routine (3-4 activities in same order)
- Limit activities that promote wakefulness while in bed
- Don’t use bed for punishment or staying up as reward
- Avoid sleeping anywhere else
- Bed is only for sleep...
## Practices that Reduce Arousal and Promote Relaxation

<table>
<thead>
<tr>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep electronics out of bedroom and limit use before bedtime*</td>
</tr>
<tr>
<td>Reduce stimulating play at bedtime</td>
</tr>
<tr>
<td>Avoid heavy meals 1-2 hours before bed</td>
</tr>
<tr>
<td>Reduce cognitive and emotional stimulation before bedtime</td>
</tr>
<tr>
<td>Limit/eliminate caffeine...and theophylline &amp; theobromine... and nicotine*</td>
</tr>
<tr>
<td>Calming activities at bedtime- reading!</td>
</tr>
<tr>
<td>Bed and Bedroom Environment</td>
</tr>
</tbody>
</table>
Practices that Promote Adequate Sleep Quantity and Quality

- Age appropriate bedtime and waketime (Magic 9 under 10)
- Safe and comfortable sleeping environment
- Limits on extracurricular activities
Plugged in and Wired Up

97% of adolescents have at least 1 electronic device in their bedroom

Music players- 90%
Televisions- 57%
Video game consoles- 43%
Cell phone- 43%

Landline- 34%
Computers- 28%
Internet access- 21%

Why not? Directly displaces sleep, replaces good sleep and health practices, increased mental/emotional/physiological arousal. Blue light exposure, electromagnetic radiation cell phones delay melatonin onset and alter sleep architecture
Tips for Selling

• Understand and appreciate the significance of each recommendation

• Find what they are doing well and heavily praise and discuss why it’s important

• See what habits family self-identifies are problematic

• Choose 1-2 to work on and problem solve

• Spiels
Bedtime Problems

Behavioral Insomnia of Childhood, Limit setting type
- Arguing about going to bed, stalling
- Curtain Calls (e.g., One more hug, can I have a drink?)
- Leaving the bedroom
- 10-30% of preschoolers; 15% of children 4-10yrs
Bedtime Resistance

• Conceptualized as problem of parent-child interaction
  • Look for noncompliance, tantrums, etc.

• “Second wind”

• Natural circadian rhythm - 9 pm
<table>
<thead>
<tr>
<th>Bedtime and waketimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedtime Fading</td>
</tr>
<tr>
<td>Evaluate daytime sleep habits</td>
</tr>
<tr>
<td>Bedtime routine</td>
</tr>
<tr>
<td>Transitional object</td>
</tr>
<tr>
<td>Bright morning light</td>
</tr>
<tr>
<td>Use positive reinforcement</td>
</tr>
<tr>
<td>Avoid punishment</td>
</tr>
<tr>
<td>Do not ask questions</td>
</tr>
<tr>
<td>Ignore complaints/protests</td>
</tr>
<tr>
<td>Drowsy and awake</td>
</tr>
</tbody>
</table>
Prolonged Night Awakenings - SOA

Behavioral Insomnia of Childhood, Sleep Onset Association Type

- Inability to initiate or maintain sleep unless certain circumstances exist (e.g., the parent) being present in order to initiate sleep
- Negative sleep associations (e.g. parents, feeding, lights)
- Most of the time, if you fix the problem at bedtime, prolonged awakenings stop
- 15-20% of preschool and school-age children
Sleep Onset Association
Clinical Interventions

- Unmodified extinction (Cry it out, Ferber)
- Graduated extinction (Walking chair)
- Bedtime pass
- Sleep fairy
- Excuse-me drill
- Extinction with parental presence
- Bedtime fading with response cost
Extinction and Attachment?

Price et al., 2012

- 5 year follow-up of 225 children
- No evidence of iatrogenic effects on any outcome
  - Children’s emotional ($P = .8$) and conduct behavior scores ($P = .6$)
  - Sleep problems (9% vs 7%, $P = .2$)
  - Parent- ($P = .7$) and child-reported ($P = .8$) psychosocial functioning,
  - Chronic stress (29% vs 22%, $P = .4$)
  - Child-parent closeness ($P = .1$) and conflict ($P = .4$),
  - Global relationship ($P = .9$) and disinhibited attachment ($P = .3$)
  - Parent depression, anxiety, and stress scores ($P = .9$)
Insomnia – Beyond Habits

**CBT-Insomnia** (DeBruin et al., 2015)
- Clock Watching
- Sleep Restriction
- Stimulus Control
- Cognitive Restructuring
- Relaxation
Nightmare or Sleep Terror?

**Nightmares:**
- Last a third of night
- Often awakened from sleep
- Good recall

**Sleep terrors:**
- First few hours of night
- Agitation, confusion, disorientation
- Amnesia for the event
Sleep Terrors

Good sleep hygiene

Scheduled Awakenings

- Parents need to collect data. Parents awaken the child about 30 minutes before they would typically awaken.
- Do not fully awaken the child, just enough to until they open their eyes.
- Let them fall back asleep.

No need for discussion in the morning.
Nightmares

- 75% of children have at least 1 nightmare
- Peak nightmare prevalence is between 6 to 10 years of age
- 5% of children between 5 to 15 experience weekly nightmare
- Nightmare frequency same until puberty then girls > boys

Causes
- Usually within 3 months of trauma
- Insufficient total sleep leads to rebound REM sleep
- Anxiety/stress
- Insomnia
- Parent history
- Medications (nicotine, Wellbutrin (also avoid for insomnia), alcohol)
- REM
Nightmares

Nightmare problems lasting longer than 3 months
- 41% for ages 6-10

Treatment
- Increase total sleep
- Avoid frightening or overstimulating shows
- Reduce stressors
- Imagery Rehearsal Therapy (IRT)
  - Create new dream
  - Rehearse during day (Act, Draw, etc)
  - Exposure!!!
Delayed Sleep Phase

Light avoidance (e.g., television)

Melatonin

Normal (desired) circadian sleep phase

Delayed sleep phase: pretreatment

Delayed sleep phase: posttreatment

Bright light exposure
Delayed Sleep Phase Syndrome

Persistent delay in circadian timing system by several hours

1-10% of adolescents

If parent has it 44% chance adolescent has it as well

**Treatment**
- Treat with Chronotherapy if delay >3 hours
- Or Gradually advancing schedule
- Timed light exposure
- Exogenous melatonin
Sleep Medications
Medication

• Prescriptions

• Melatonin

• Antihistamines

• “Natural” Remedies

• No sleep medications including hypnotics FDA approved for children under 16
• Pediatric sleep psychopharmacology one of most poorly researched areas
Session Evaluation

Use the CFHA mobile app to complete the evaluation for this session.

Thank you!
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