**Early Childhood Insomnia**

Question: Should treatment of early childhood insomnia be prioritized to a higher position on the Prioritized List?

Question source: Early Childhood Workgroup of the Children's System of Care Committee of the Health Systems Division of OHA

Issue: Insomnia is currently on Line 609 DISORDERS OF SLEEP WITHOUT SLEEP APNEA. Insomnia was placed on a very low line with the creation of the Prioritized list, and this placement has never been formally reviewed.

Insomnia is defined as difficulty initiating sleep (considered in children as the difficulty to fall asleep without a caregiver's intervention); maintaining sleep (frequent awakenings during the night and difficulty returning to sleep without a caregiver's intervention); or waking up earlier than the usual schedule with inability to return to sleep.

From the Early Childhood Workgroup:

> Early childhood sleep problems have been linked to a range of adverse health outcomes, including behavioral problems, inattention/hyperactivity, depression/anxiety and impaired cognitive development. Childhood sleep problems may have a major impact on the family, resulting in mood disturbances of parents, decreased effective parenting practices, and increased risk of child abuse.
>
> Given the negative impact on family functioning of sleep deprivation, if the sleep problem is still not improving by 6 months of age with guidance regarding developmentally appropriate sleep hygiene from their primary care provider, and by addressing any medical causes for the sleep problem, specialized services are indicated. These services should focus on increasing the child's regulation and providing support, and training to the caregiver(s).

Evidence

1) **Meltzer 2014**, meta-analysis of behavioral therapy for pediatric insomnia (not included due to length) http://jpepsy.oxfordjournals.org/content/early/2014/06/19/jpepsy.jsu041.full.pdf+html
    a. N=16 controlled clinical trials (N=2133) and 12 within subject studies (N=427)
    b. Included studies had a behavioral intervention for insomnia, with or without pharmacologic intervention
    c. Meta-analysis found significant effects for four specified sleep outcomes: sleep-onset latency, number of night wakings, and duration of night wakings, and sleep efficiency, with small to large effect sizes across the controlled clinical trials involving typical children.
    d. Effects in young children
        i. 12 controlled trials (N=1874)

ii. Four studies assessed sleep-onset latency, with a significant overall effect and small to medium effect size [Z=4.06, p<.001; standard mean deviation (SMD)=0.33] at posttreatment
iii. Frequency of night wakings was included in seven studies, resulting in a significant overall effect and small to medium effect size (Z=5.99, p<.001; SMD=0.40).
iv. night waking duration was included in four studies for a significant overall effect and small to medium effect size (Z=5.50, p<.001; SMD=0.44)

e. Effects on school aged children and adolescents
   i. N=3 controlled trials (N=214 participants 4-13 yrs)
   ii. All three studies included night waking duration which was significant at posttreatment (Z=2.67, p=.008; SMD=0.39)
   iii. sleep efficiency was included in two studies and was found to have an overall significant effect at posttreatment with a large effect size (Z=8.88, p<.001; SMD=2.24).
f. Conclusions: Moderate-level evidence supports behavioral interventions for pediatric insomnia in young children. Behavioral interventions are effective at reducing sleep onset latency, night waking frequency, and night waking duration in young children. However, insufficient long term evidence for these changes means limited conclusions can be drawn on the durability of these treatments over time.

2) **Trauer 2015**, meta-analysis of behavioral therapy for adult insomnia
   a. N=20 RCTs (1162 participants)
   b. Approaches to CBT-i incorporated at least 3 of the following: cognitive therapy, stimulus control, sleep restriction, sleep hygiene, and relaxation.
   c. At the posttreatment time point, sleep onset latency improved by 19.03 (95% CI, 14.12 to 23.93) minutes, wake after sleep onset improved by 26.00 (CI, 15.48 to 36.52) minutes, total sleep time improved by 7.61 (CI, -0.51 to 15.74) minutes, and sleep efficiency improved by 9.91% (CI, 8.09% to 11.73%). Changes seemed to be sustained at later time points. No adverse outcomes were reported.
   a. **Conclusion:** CBT-i is an effective treatment for adults with chronic insomnia, with clinically meaningful effect sizes

Reviews

1) **Lahorgue Nunes 2015,** review of insomnia in childhood and adolescence
   a. Prevalence: approximately 15-30% of children meet criteria at some time for insomnia, with the higher rates reported in younger children (3 and under)
   b. Psychiatric (anxiety, depression) or neurodevelopmental disorders (attention deficit disorder, autism, epilepsy) frequently occur in association with or as a comorbidity of insomnia.
   c. The therapeutic approach must include sleep hygiene and behavioral techniques and, in individual cases, pharmacological treatment.
      i. Most behavioral techniques can be taught in the primary care setting
      ii. Cognitive behavioral therapy for the caregiver can be useful

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Clinical practice guidelines

1) **Schutte-Rodin 2011**, American Academy of Sleep Medicine practice guidelines for insomnia for adults (study not included due to length) http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2576317/pdf/jcsm.4.5.487.pdf
    a. Insomnia symptoms occur in approximately 33% to 50% of the adult population; insomnia symptoms with distress or impairment (i.e., general insomnia disorder) in 10% to 15%; and specific insomnia disorders in 5% to 10%.
    b. Behavioral interventions
        i. Psychological and behavioral interventions are effective and recommended in the treatment of chronic primary and comorbid (secondary) insomnia. (Standard)
        ii. These treatments should be utilized as an initial intervention when appropriate and when conditions permit. (Consensus)
        iii. Initial approaches to treatment should include at least one behavioral intervention such as *stimulus control therapy or relaxation therapy, or the combination of cognitive therapy, stimulus control therapy, sleep restriction therapy with or without relaxation therapy*—otherwise known as cognitive behavioral therapy for insomnia (CBT-I). (Standard)
        iv. Multicomponent therapy (without cognitive therapy) is effective and recommended therapy in the treatment of chronic insomnia. (Guideline)
        v. Other common therapies include *sleep restriction*, *paradoxical intention*, and *biofeedback therapy*. (Guideline)
        vi. Although all patients with chronic insomnia should adhere to rules of good *sleep hygiene*, there is insufficient evidence to indicate that sleep hygiene alone is effective in the treatment of chronic insomnia. It should be used in combination with other therapies. (Consensus)
        vii. When an initial psychological/ behavioral treatment has been ineffective, other psychological/ behavioral therapies, combination CBT-I therapies, combined treatments (see below), or occult comorbid disorders may next be considered. (Consensus)

<u>HERC staff summary</u>:
Insomnia is a very common condition in children and adults. Treatment with cognitive behavioral therapy or other behavioral therapies has moderate evidence of effectiveness. Insomnia in young children may be comorbid with or causal for depression, anxiety, ADHD, and other psychiatric conditions.

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HERC staff recommendations:

1) Consider creation of a new line for treatment of early childhood insomnia
    a. May also consider addition of older children, adolescents and adults
    b. If new line is created, adopt a new guideline as shown below

**Line: XXX**
Condition: EARLY CHILDHOOD INSOMNIA (See Guideline Notes 64,65,XXX)
Treatment: MEDICAL/PSYCHOTHERAPY
ICD-10: F51.01 (Primary insomnia), F51.09 (Other insomnia not due to a substance or known physiological condition), G47.00 (Insomnia, unspecified), G47.09 (Other insomnia)
CPT: 90785,90832-90840,90846-90853 (psychotherapy) 96150-96154 (health and behavior assessment codes), 98966-98969,99051,99060,99184,99201-99216, 99341-99350,99366,99408,99409,99415,99416,99441-99449,99487-99498,99605-99607
HCPCS: G0406-G0408,G0410,G0411,G0425-G0427,G0459,G0463,G0466,G0467,G0469, G0470, H0004

Line scoring:
Line XXX EARLY CHILDHOOD INSOMNIA (Line 609 DISORDERS OF SLEEP WITHOUT SLEEP APNEA)
Category 7 (9)
Impact on healthy life: 3 (0) Note: advocates suggested 5
Pain/Suffering: 3 (2) Note: advocates suggested 4
Population effects: 0 (0)
Vulnerable population: 1 (0) Note: advocates suggested 5
Tertiary Prevention: NA
Effectiveness: 3 (3)
Need for services: 0.3 (0.3)
Cost: 4 (4)
Score: 126 (2.7)
Line 516 (609)

**GUIDELINE NOTE XXX, EARLY CHILDHOOD INSOMNIA**
*Lines XXX, 609*
Insomnia (ICD-10 F51.01, F51.09, G47.00, G47.09) is only included on line XXX when all of the following criteria are met:

1) The child is 6 months of age or older, but younger than age 4
2) The sleep pattern or disturbance is significantly out of the range of typical developmental expectations
    a. For age 6-11 months, <10 hours of total sleep and <5 hours for longest duration of sleep
    b. For ages 1-2 years, <9 hours of total sleep and <7 hours for longest duration of sleep

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   c. For age 3 years, <8 hours of total sleep and <8 hours for longest duration of sleep
3) Coexisting medical, developmental, or mental disorders do not adequately explain the predominate complaint of insomnia
4) Symptoms have persisted for at least 4 weeks with 4 episodes per week

Otherwise, these conditions are included on line 609.

Appropriate interventions for this problem include: parent training such as infant massage training, behavioral training, dyadic family therapy such as attachment and bio-behavioral catch-up, and family peer support services.

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