

בריאות ורווחת הילד בקהילה
Community Child Health & Well Being
صحة ورفاهية الطفل في المجتمع المحلي



Sleep in childhood

ד"ר חוה גדסי

"גושן" לבריאות ורווחת הילד בקהילה



Overview

- Background
- Sleep cycle
- Changes with age
- Sleep hygiene
- Management of common sleep problems



Background

- 1/3 of our life spent in sleep
- Active
- Physiologic process
- Critical to
 - health
 - daytime function
 - development



Sleep importance

- Growth and development
- Immune system
- Cognitive function
- Mental health



Importance

- Optimal sleep important for development
- Inadequate sleep- negative impact
 - Behaviour
 - Cognitive development
 - Academic performance
 - Accidental injuries
- Secondary impact
 - Family well-being and functioning
 - Maternal depression
 - Marital discord
 - Child abuse
- Link : sleep problems-obesity



Parents concerns

Sleep requirements met?

What is “normal”?

When will he “sleep through the night”

Is the infant sleep problematic/age appropriate



Sleep difficulties

Very common

Prevalence in first 3y of life- 20-30%

50% persistence

[Sleep Medicine](#) , March 2010, 274-280



Impact - child

- Decrease cognitive abilities
- Behaviour problems
- Poor emotional regulation

Association

- Perceived difficult infant temperament
- Feeding disturbances
- Increased body weight

Sadeh A. et al. *Sleep Medicine Review* 15(2011) 355-337

Tauman et al. *Pediatrics* .2011 Mar;127(3):e615-21.



Impact- parents

- Exhausted
- Distressed
- Depressed
- Reduce sense of competence
- Poor physical health
- Reduced quality of life

- Compromised infant development

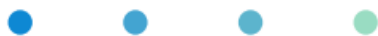
Sadeh A. et al. *Sleep Medicine Review* 15(2011) 355-337





Sleep disorders and shaken baby

- Be aware of possibility of abuse
- Especially in emotional unstable parents
- Sleep deprived parents, unable to deal with prolonged crying needs support
- Consider over night hospitalization for respite



Natural history

50% to 70% of infant sleep problems resolve by 2-3 years

Up to 20% of children develop *new* sleep problems

Persistent sleep problems more likely in
children with extra health care needs (OR 3.2)
families experiencing financial stress (OR 2.2).



Parental believes

Realistic perception of the child's sleep characteristics.

Unrealistic expectations

Lack of developmental knowledge

Cultural norms, beliefs, and attitudes

Parental expectations.

Sadeh A et al, *Sleep Med.* 2011 May;12(5):478-82.



Parent's expectation

Expect infant (<2y old) to sleep

9.6 ± 3.4 h

The shorter expected

- The more children in the family
- Lower SES

Parent's definition of sleeping through the night

20:00- 06:30

Henderson JM, Motoi G, Blampied NM. J Paediatr Child Health 2103 June 12

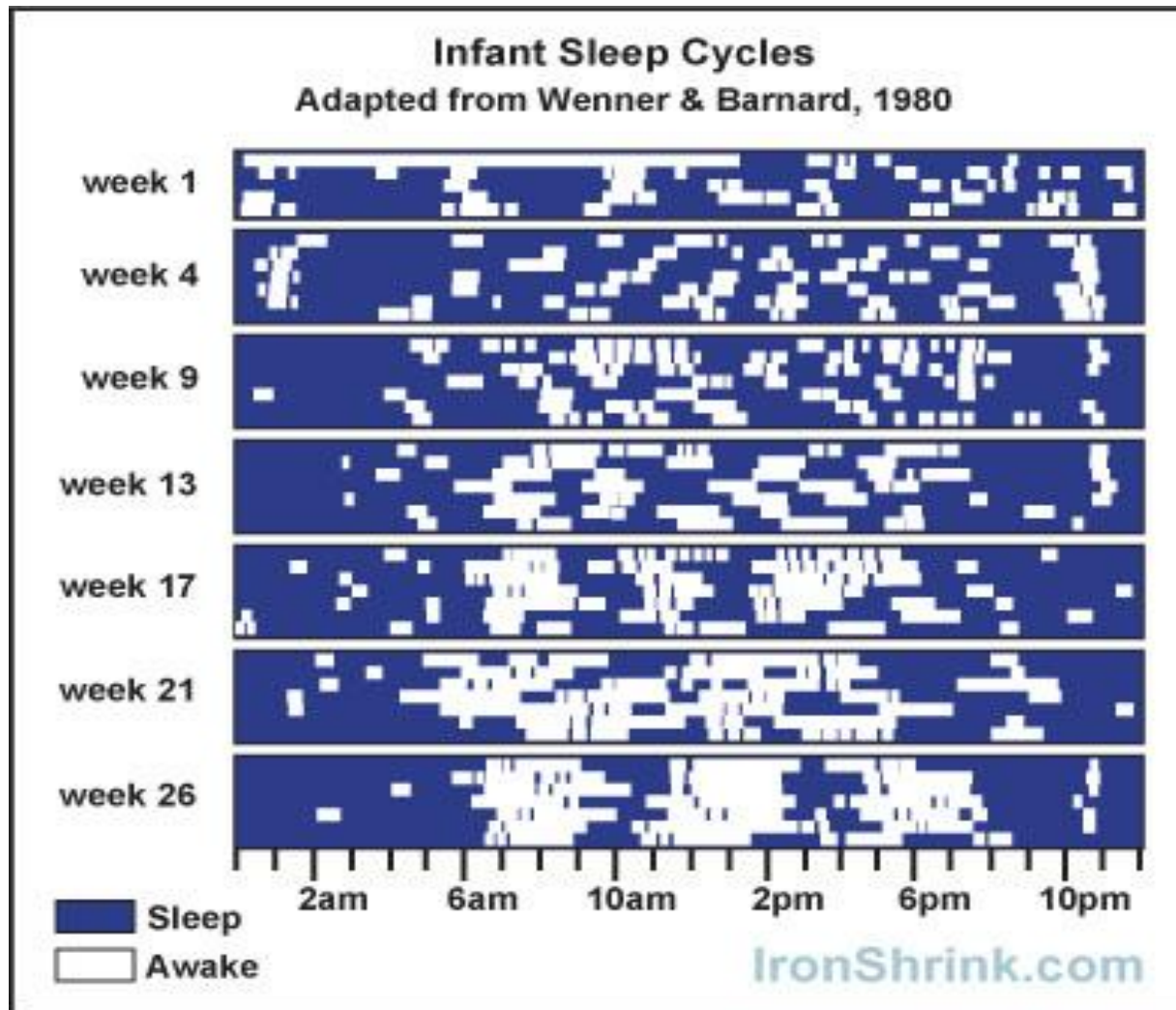




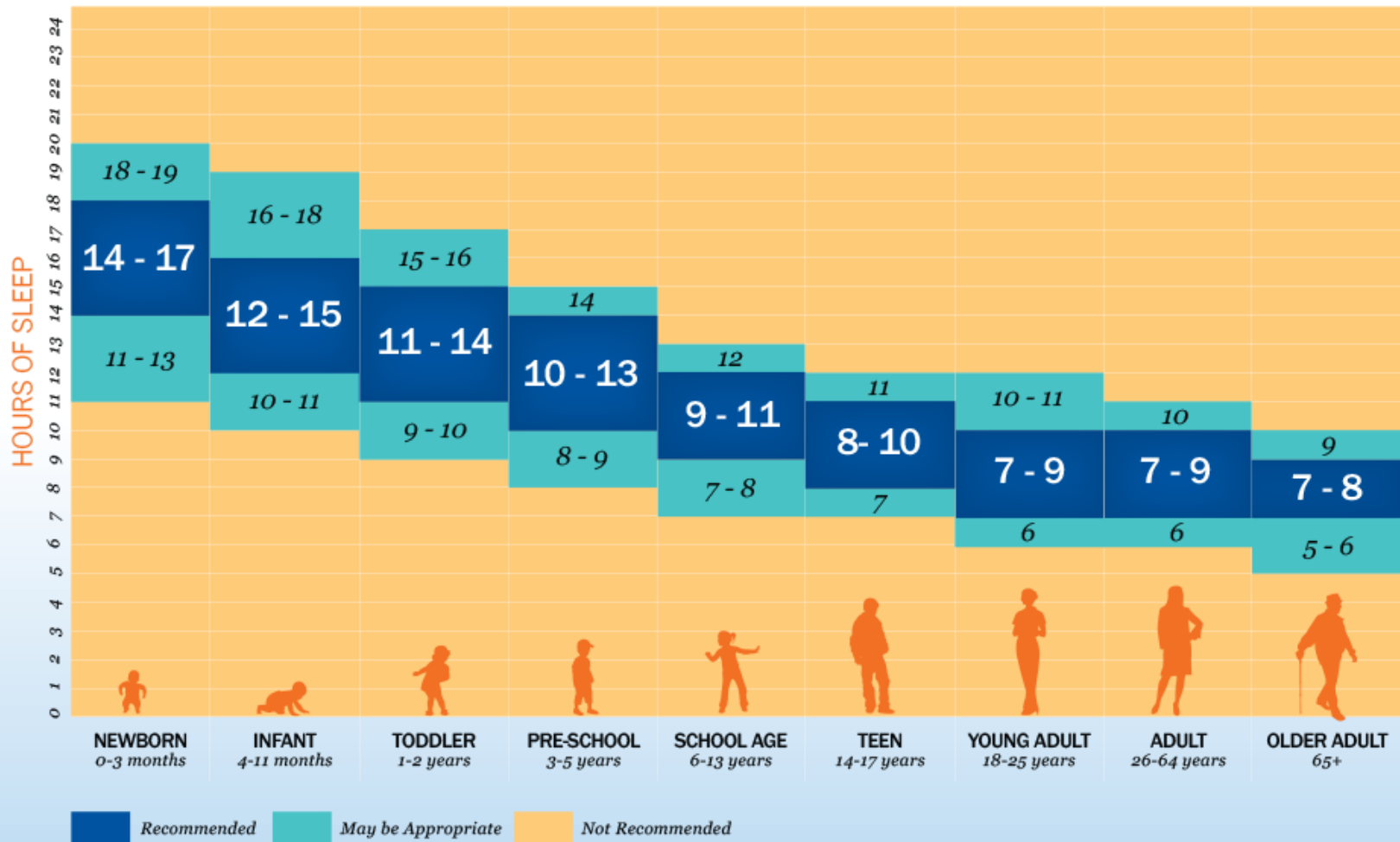
Normal sleep development

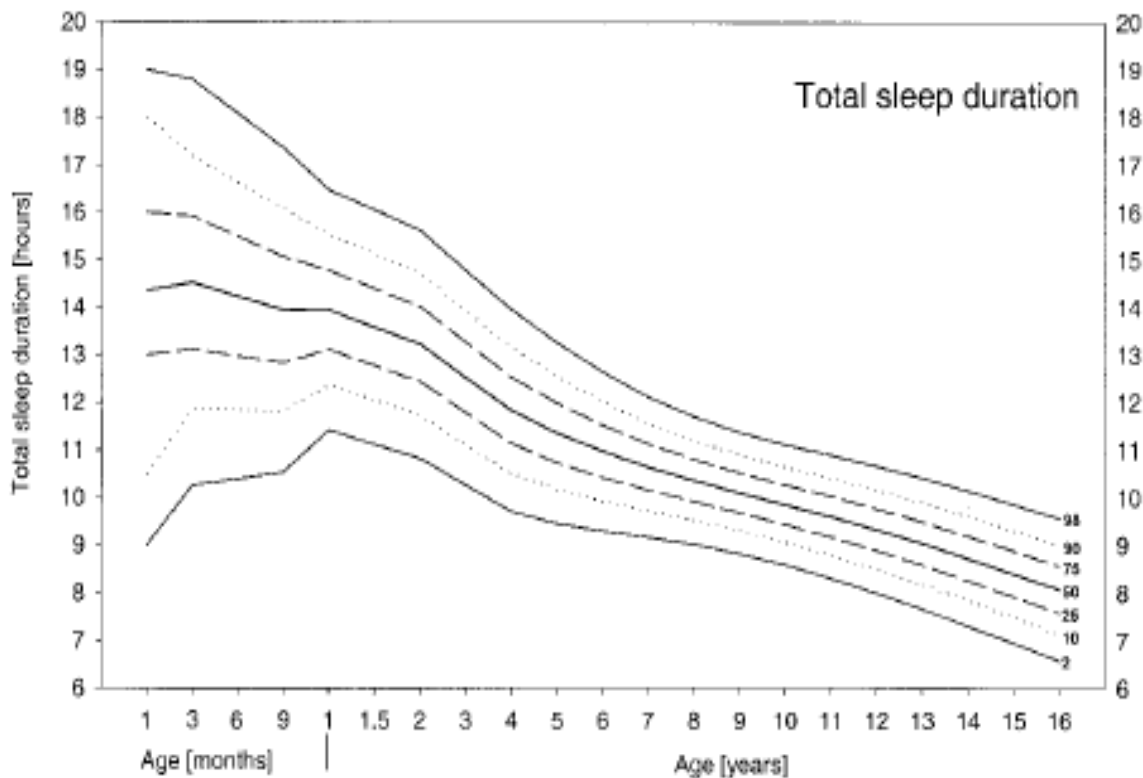


Development of sleep-awake patterns



SLEEP DURATION RECOMMENDATIONS

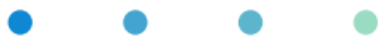
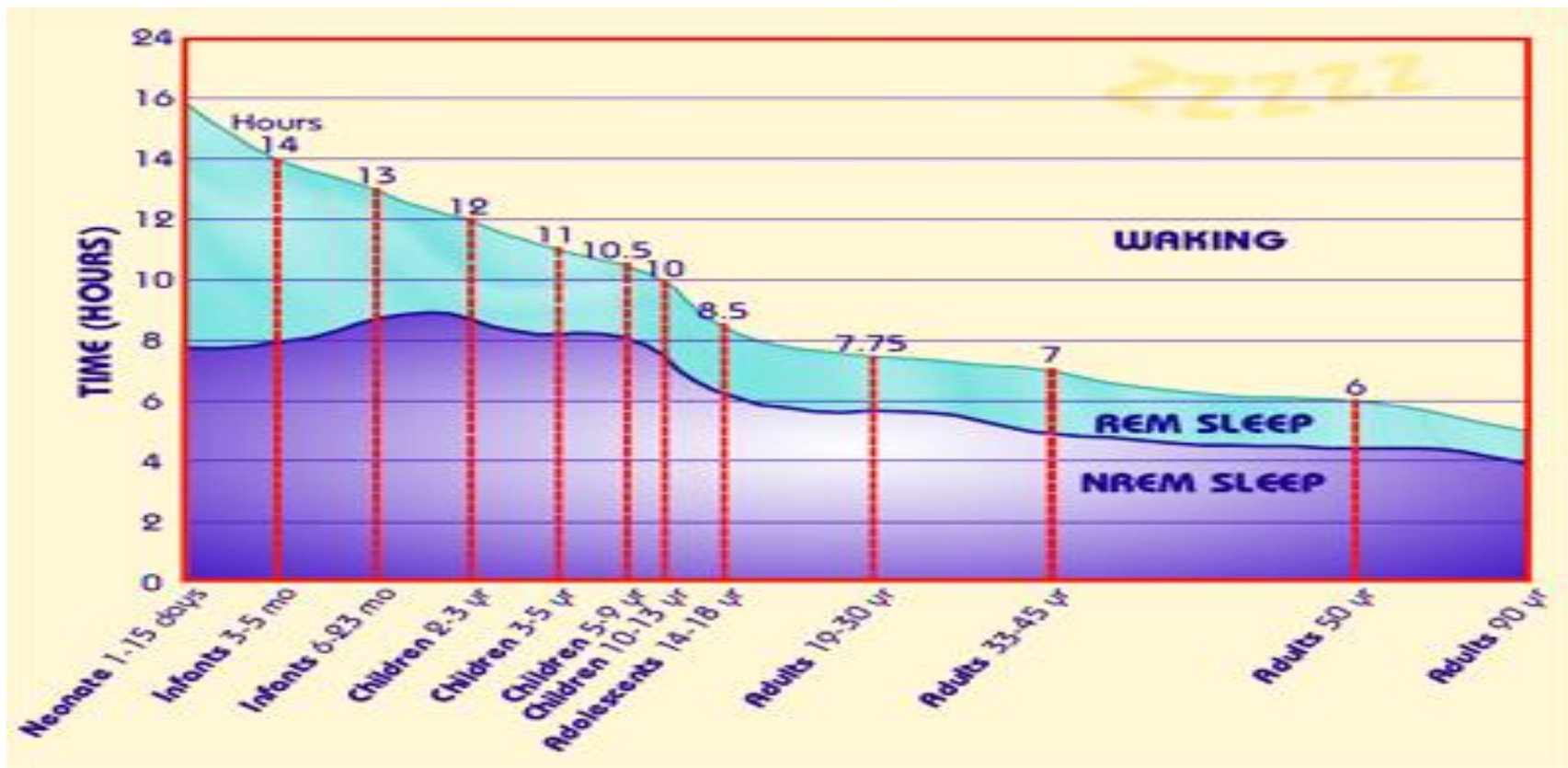




Iglowstein I, Jenni OG, Molinari L, Largo RH. Sleep duration from infancy to adolescence: *Pediatrics* 2003; 111:302

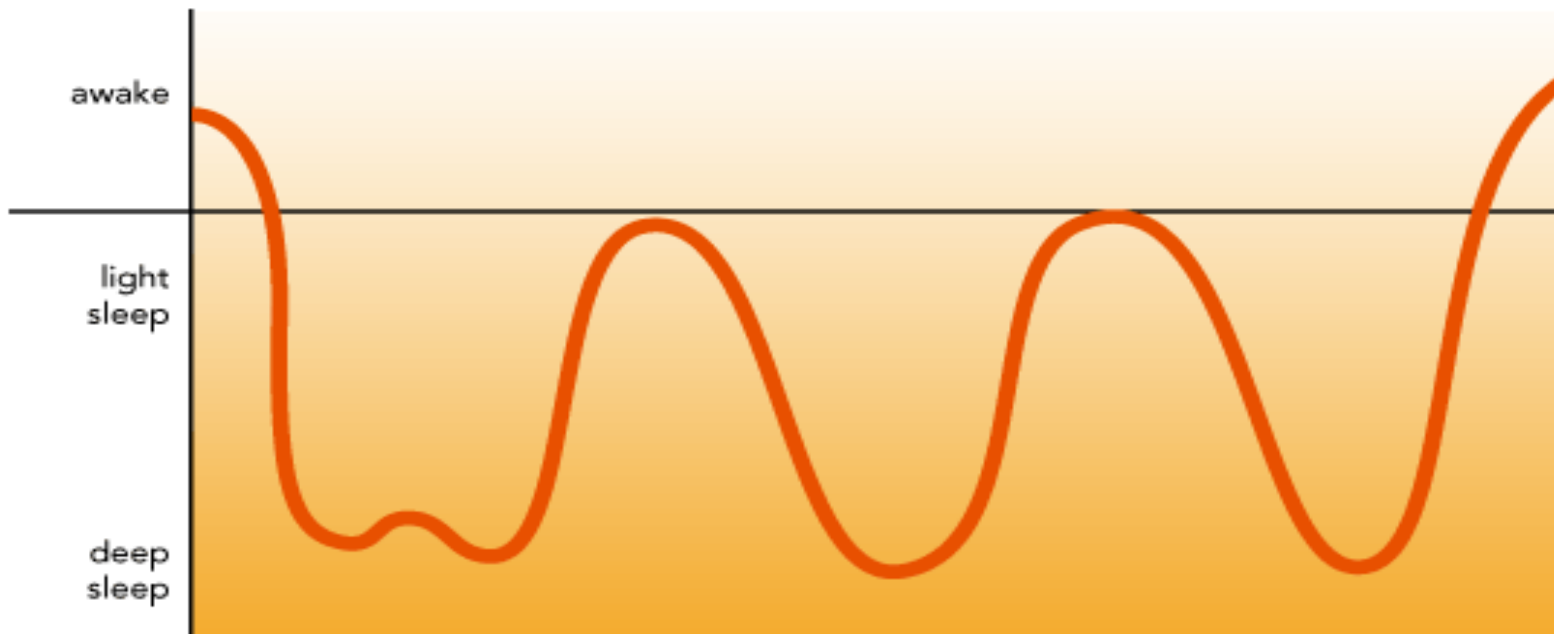


Sleep changes with age



Sleep Cycles

- Active to quiet sleep
- Light to deep sleep



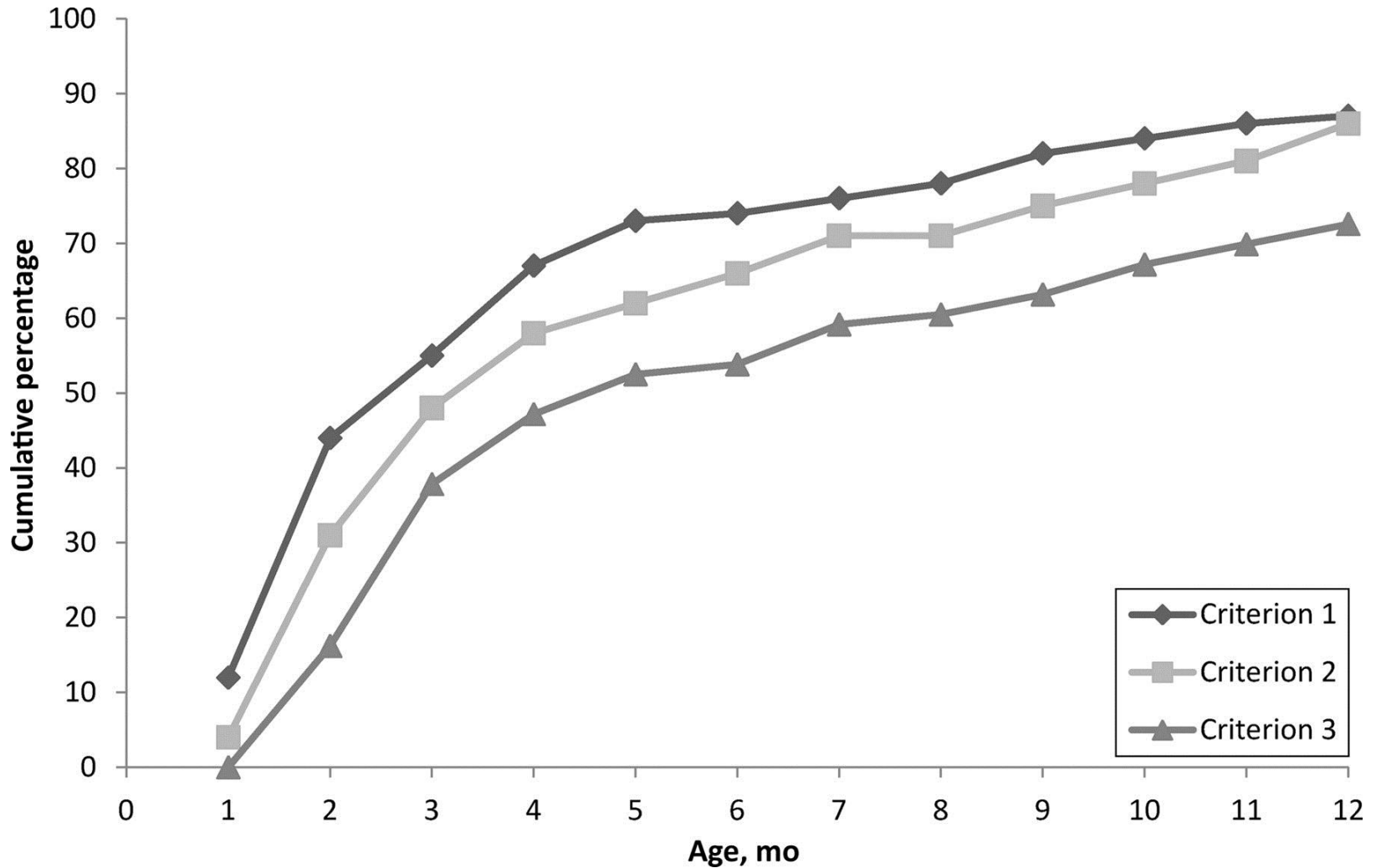
When will my baby sleep through the night?

“sleeping through the night”

- 24:00-5:00
- Any 8 h a night
- 22:00-06:00



The cumulative percentage of infants who met criterion 1 (24:00–05:00 hours), criterion 2 (8 hours), and criterion 3 (22:00–06:00 hours) each month across the first year of life.



Henderson J M T et al. Pediatrics 2010;126:e1081-e1087

Preventive parent education

- Parents are informed how
- Sleep-behavior development during infancy
- Which factors may impact infant's sleep.
- Disassociate feeding and other associations from sleep-wake transitions
- Establish a stable sleep pattern early in the infant's life.



Establishing good sleep practice

- Establish regular sleep schedule and routine
- Appropriate sleep environment
- Encourage infant to fall asleep in own crib
- Encourage falling asleep with minimal parental assistance
- Gradually increase feeding intervals/ stop feeding at night

Sadeh & Sivan, *Eur J Pediatr* 2009



Sleep hygiene

Bedtime preparation

- Set bedtime and bedtime routine
- Bedtime and wake-up time should be consistent
- Shared quiet time- 1h before bedtime
- Food – not hungry but not to full
- Avoid caffeine before bedtime
- Warm bath/shower
- Reading books



Sleep hygiene

Physical environment

- Quiet and dark bedroom.
 - Low-level night light acceptable.
- Comfortable temperature
- Child's bedroom \neq time-out/punishment.
- TV/computer out of child's bedroom!

- Regular exercise during the day.



Sleep disorders and **shaken** baby

- Be aware of possibility of abuse
- Especially in emotional unstable parents
- Sleep deprived parents, unable to deal with prolonged crying needs support
- Consider over night hospitalization for respite



Management

- **Explain**- nighttimes arousals normal.
- Clarify **Parental goals**.
- Discuss **sleep association** at bedtime
- Develop **sleep schedule**
- Discuss **parental response**
- Build a “**sleep plan**”
- Institute **sleep training** at bedtime first



Sleep problems

- Common 25-40%
- Common problems:
 - bedtime resistance
 - delayed sleep onset
 - frequent night waking
 - nightmares



Common sleep problems- Infancy

Excessive night waking

Difficulties with sleep initiation

Usually related

Affect

Sleep quantity

Sleep quality



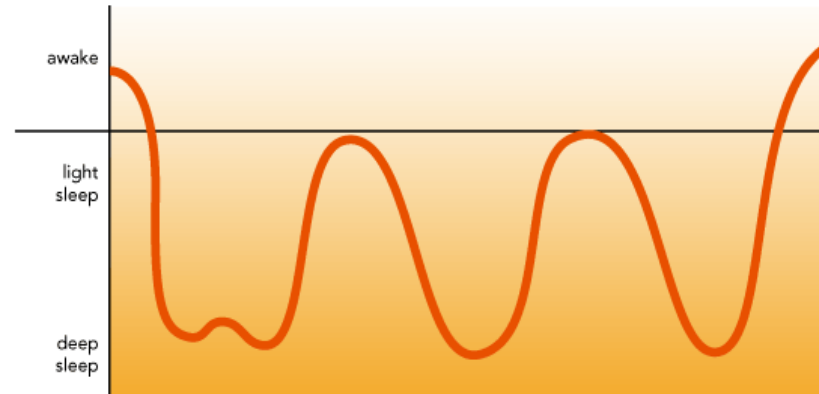
Excessive night waking

- Most often- no medical cause
- Associated with parental bedtime behavior
- “behavioral insomnia”
- Sleep onset association



Sleep onset association disorders

- Most common problem
- When child had learned to fall asleep with a specific association:
 - Rocking
 - Feeding
 - Dummy
 - Driving the car etc
- Child anticipate same association over night awakening





Sleep associations- solutions



Limit Setting

- Inadequate enforcement of bedtime limits resulting in bedtime stalling or refusal
 - Typically ≥ 2 yo, capable of leaving bed
 - Examples:
 - Bedtime resistance – refusal to stay in bed/room
 - Curtain calls
 - Demanding to fall asleep in parents bed
 - May lead to sleep associations and fragmented sleep



Limit setting

- Can represent anxieties
- Timing
- Bedtime routine
- Quick check before light off
- Remind child what expected
- Stay quietly in bed
- Will be no answers to calling out
- Good night/I love you/sweet dreams/kiss...



Interventions

Modifying parents:

Sleep related cognitions

Sleep related behaviors



Behavioral Sleep interventions

Effectively reduce infant sleep problems

Reduce associated maternal depression

Standard practice for infant sleep problem- American
Academy of Sleep Medicine

Mindel JA et al, Sleep 2006; 29(10):1263-1276



Behavioral Sleep interventions

5 years f/u after infant sleep interventions:

No evidence of harmful effect on:

Child

Parent-child interaction

Mother mental health

Price et al. Pediatrics 2012 130 (4):643-651



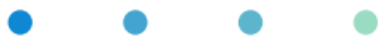
Management

- Prognosis – good – most methods & cases
- Strategies
 - Consistency
 - Positive reinforcement
 - Avoid punishments
 - Consequences
- Improve sleep hygiene
 - Light / dark cues
 - Calm activity before bedtime
 - Consistent, short, bedtime routine
 - Break sleep associations – awake in bed
 - Avoid caffeine (breast feeding)
 - Avoid electronics



Parental response

- Phase out association
- Controlled crying/modified extinction
- Camping out
- Parental presence
- +/- bedtime fading



Controlled comforting

- Aim to teach infant to self-settle
- Healthy babies aged >6 months
- Parents to put baby in cot awake
- Give chance for baby to settle alone
- Parent briefly resettle baby if cries in timed interval
- Time intervals increases (2,4,6,...min)



Controlled comforting

- Takes 3-14 nights
- Works in 70-80% of babies
- Only for babies >6 months old
- Needs parent's motivation
- Parents respond to cry and not grizzling
- Use of a watch to time intervals
- Walk away during waiting time
- Try to use during the day as well
- Not suitable to all parents



Is it harmful?

- No evidence of psychological or physical harm
- Babies are more likely to sleep better
- Well adjusted as their peers (short/long term)
 - Behaviour
 - Sleep
- Parents- less depressed

Hiscock et al, *Pediatrics* 2008





search ID: cpa0031

© Original Artist
Reproduction rights obtainable from
www.CartoonStock.com

CG Patterson

Parental presence

- “Camping out”
- Better accepted by families
- Better for children with anxieties
- Gradual fading of parental presence
 - Lying together in bed
 - Sitting on bed
 - Sitting on chair close to bed
 - Sitting at room door
 - Sitting outside of the room
 - Leaving room area



Parental presence

- During night- parent get back to chair/bed as in evening
- Parents to remain boring and not interactive



Free pass

- Issue one “pass” for acceptable request
 - Drink
 - Kiss
- Will be answered only for the pass
- Reward if pass not used



Bedtime fading

Temporarily moving the bedtime later into the evening to get closer to the child's natural sleep onset time.

Bedtime is systematically moved earlier into the evening until reaching the goal



The next day...

- Start a new day- positive attitude
- Praise good behaviour
- Don't mention calling out



Night fears

- Common
- 73% of children 4-12y
- Developmental pattern of childhood fears
- Younger- monsters, ghosts
- Older- realistic fears related to physical danger, health and injury



Consequences

- Emotional and behavioural disturbances
 - Crying, panic, tantrums at bedtime
- Disruptive behaviour
 - night waking, call for parental/sibling comfort
- Refusal to camp out/sleepover – impairing social development
- Poor quality sleep
 - Daytime sleepiness/irritability
 - Concentration difficulties at school



Children's coping strategies

- Seeking support from parents
- Avoidance
- Distraction
- Trying to sleep
- Active control
- Clinging to stuffed animals

Muris P., Merckelbach H., Ollendick T.H., King N. J., Bogie N. (2001)



Parent's strategies

- Co-sleeping
 - Parental presence at bedtime
 - Relief
-
- Create sleep-association problem
 - Can hamper the development of self-soothing skills and increase fears





*I feel that this lot should sleep in their own beds
before we consider having another.*

Management

- Cognitive behaviour strategies
- Self control training
 - Muscle relaxation
 - Breathing control
 - Emotive imagery
 - Positive self statements
- Reinforcement
 - Verbal praise
 - Physical contact
 - Toys/treats/token
- Use of a transitional object
- Bibliotherapy- Story telling and discussion- content dealt positively with dark.



Relaxation

- **Relaxation response**
- Lying or sitting comfortably.
- Eyes are closed.
- Relaxation spread throughout the body.
- Relaxed, abdominal breathing.
- Redirected thoughts to neutral focusing device
 - a peaceful word
 - image.



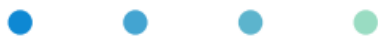
Cognitive self instruction

- Emphasizing child's control/competence
 - “I'm a brave boy/girl- I can take care of myself”
- Reducing fear stimulus value of the dark
 - “the dark is a fun place to be”
- Neutral sentences
 - “Mary had a little lamb”
- Positive thinking
- Practice repeating well before bedtime



Parasomnias

- Disorders of arousal from sleep or other unpleasant experiences occurring out of sleep or during the sleep-wake transition.
- Undesirable motor or verbal phenomena which occur during sleep and result in abnormal arousals.
- Occur out of all sleep stages or during transitions between sleep and awake



Arousal Disorders

Confusional Arousals

- confusion on arousal, typically early in the night
- More common in children
- Disorientation to time and space
- May have automatic behavior
- Attempt to wake up- unsuccessful.
- Last few minutes



• Confusional Arousals

- mainly a childhood problem
- Family history- common
- occur out of deep slow-wave sleep (stages III and IV)
- last just a few minutes.
- DD- seizures
 - Video-EEG
- SDB as a trigger
- Mx
 - reassurance
 - Benzodiazepine (diazepam)
 - Tricyclic antidepressant (imipramine)



Confusional Arousals

- Mx- ensuring patient safety
- Reassurance
- Leave them alone!
- Resolve spontaneously
- Tends to improve with age



Sleep terrors

- Common
- Agitation
- Vigorous physical activity and violent behavior may occur.
- Autonomic activation
 - tachycardia
 - Tachypnea
 - Sweating
 - pupillary dilation



Sleep terrors

- Inconsolable , won't respond to soothing or comforting
- Deep sleep
- Few minutes-40 minutes
- Don't cause any harm to child



Sleep terrors

Mx

- Avoid waking your child
- Wait
- Keep environment safe
- Redirect gently to bed
- No need to be concerned
- Make sure your child has enough sleep



Sleepwalking

- somnambulism
- arousal from slow-wave sleep followed by ambulation.
- Complex, repetitive acts
- reduced responsiveness
- attempts to abort by calling or restraining the patient
 - usually fail
 - may result in aggressive/violent behavior



Sleepwalking

- Last 10-15 minutes
- Amnesia to episode
- Family history
- Sleep deprivation- increase yield
- DD- nocturnal complex partial seizures

- Mx
- Safety precautions
- Removal of social stressors
- Adequate sleep
- BDZ if needed (low doses of clonazepam or diazepam)
- Adverse effect- morning somnolence



REM sleep parasomnias

Nightmares

- dreams with a frightening content
- may or may not be associated with arousal
- usually occur during REM sleep.
- Once awake, patients have immediate recall of the dream content
- may have difficulties going back to sleep.
- Occur later in the night

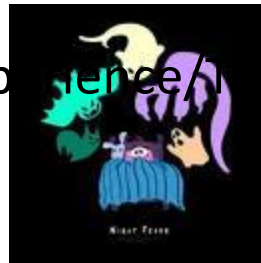


- DD- PTSD nightmares
- Accompanied by autonomic activation
- Recurrent nightmares may result in significant sleep disturbance
- Mx- Relaxation and desensitization therapies



Management

- Comfort
- Explain that it was only a dream
- Child is now OK and safe
- Kiss & cuddle
- Don't make fun of dream
- If recurrent- try to explore day experience/



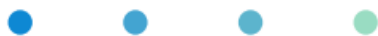
Bruxism

- stereotyped movements
- grinding or clenching of the teeth during sleep.
- may result in
 - significant dental attrition
 - tooth pain sensitivity
 - jaw pain
 - Headache
- Mx
 - mouth guards
 - Antipsychotic, antidepressant



Summary

- Sleep is the most important part of the day!
- Sleep patterns and needs change with age
- Changing sleep patterns is hard
- Get support
- Refer to specialist if concerned
- Most kids will grow out of their sleep difficulties




© Original Artist
Reproduction rights obtainable from
www.CartoonStock.com



search ID: cwin1848

"It's easy. I just tell her about all the boring meetings I've sat through today and she immediately falls asleep."



תודה
ולילה טוב

[havaga@
hadassah.org.il](mailto:havaga@hadassah.org.il)

