PROMOTING REGULAR SLEEP PATTERNS IN INDIVIDUALS WITH AUTISM

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SLEEP IS A BEHAVIOR!

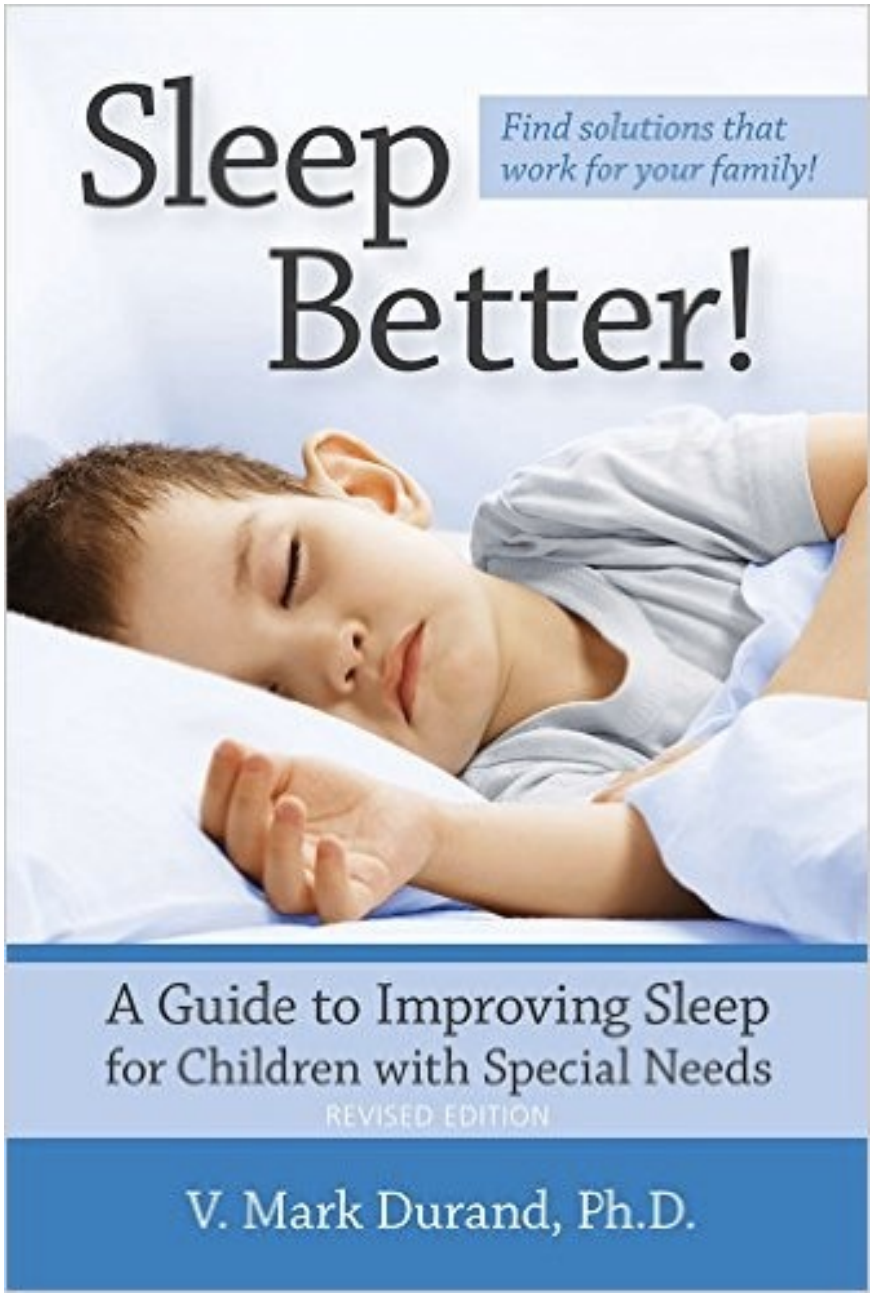
- A behavior is an observable event that can be measured and recorded.
- Sleep behavior can be observed, measured and recorded.
- Sleep disturbances can occur across the lifetime and to anyone!

SOME COMMON EFFECTS ON SLEEP

- Medical- sleep apnea, medication, night terrors, illness
- Anxiety- worry at bedtime and during night
- Environment- heat in room, weight of blanket, noise, lighting
- Diet, exercise, wellness

HELPFUL BOOK!!

- Mark Durand, Sleep Better! (2013)
  - Book on how to treat sleep problems
  - Great resource for more information on various sleep issues



GOOD PLACE TO START

Annotation

Sleep problems in autism: prevalence, cause, and intervention

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Autism, Asperger's disorder (AD), and pervasive developmental disorder not otherwise specified (PDDNOS) are commonly referred to as 'autistic spectrum disorders' (ASD)[1] and are classified as pervasive developmental disorders (PDD) in the fourth edition of the Diagnostic and Statistical Manual on Mental Disorders (DSM-IV)[2]. Deviant and delayed development in social and communication skills and the presence of restricted routines and interests, and stereotypic behaviours are variously present in ASD[2,3]. The majority of children with

disturbing in some way to the child, the child's family, or both; and is distinct from a sleep 'disorder' which implies an underlying abnormal physiological function[10].

There are a range of sleep problems which occur in children: settling difficulties and night waking are common in infancy and the preschool years, with around 30% or more of children in this age group reported to have problems[11,12]. During this period, nightmares, confusional arousals, and night terrors also begin[13]. During middle childhood, sleep

RICHDALE (1999) SLEEP PROBLEMS IN AUTISM: PREVALENCE, CAUSE AND INTERVENTION

- Much more research is needed in this area!
- Stress for the families…
- Typically developing- Preschool age- aboout 30% of children have sleep problems- improvements typically seen in childhood
- Children with ASD- rates reported range from 44%-83% (more often than in children with other disabilities)
  - Occurs across all IQ levels

RICHDALE (1999) SLEEP PROBLEMS IN AUTISM: PREVALENCE, CAUSE AND INTERVENTION

- Most often difficulty with sleep onset and maintaining sleep
  - Irregular sleep-wake patterns, not falling asleep, early waking, poor sleep routines
- Shortened night sleep, alterations in onset and waking, and night waking
- CONTINUES as they get older!

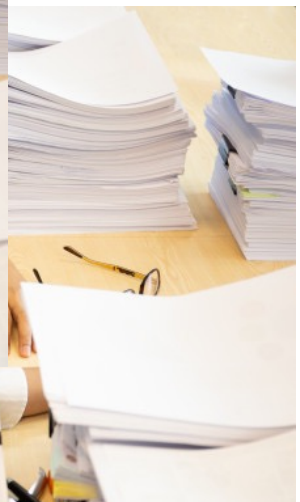
REFUSAL, CRYING, OUTBURST AT BEDTIME?

- Extinction – parents ignore the behavior and direct the child to bed. This proves to be VERY difficult for most parents.

- Graduated Extinction- parent ignores the behavior for specified periods but goes to check on the child intermittently.

"JUST LET HIM GO BACK TO SLEEP!"

- Famous words said by an exhausted parent- what is the scenario here?



- He's just a baby- what could possibly go wrong here?

DAYTIME BEHAVIOR ….ZZZZZZ?

- Behavior during the day- may affect sleep pattern at night-
- More energetic behavior during the day- associated with sleep difficulty
- Higher scores on autism rating scales have been associated with shorter sleep schedules
- And lack of sleep affects daytime behavior as well- memory, learning, and challenging behavior can all be affected

CAUSES OF SLEEP ISSSUES IN ASD?

- Social behavior- has an effect on circadian rhythm-
  - Routines and social cues thought to help infants develop stable sleep-wake patterns…
- Melatonin levels in children with autism may be reduced or elevated- melatonin is also involved in circadian rhythm
- May be more easily woken – hyper arousal
- Anxiety could be a factor as well for some children
- Sleep EEG research- starting to note some differences between people with autism and people without- future area of more research

INTERVENTION

- Less than 50% of families – get help
- Medication more often but parents reported behavioral treatment as more effective
- Begin with history and sleep diary
- Behavioral intervention
- Must be consistent!
- Parent training is key


Don't be
AFRAID
To Ask For
HELP

WHO OFTEN INITIATES THE IDEA OF A SLEEP PLAN?

WHAT'S THE BIGGEST ISSUE WITH IMPLEMENTATION?

https://www.nationaljewish.org/healthinfo/lifestyle/health-infographics/child-sleep

TWO WEEK SLEEP DIARY

INSTRUCTIONS:

1. Write the date, day of the week, and type of day: Work, School, Day Off, or Vacation.
2. Put the letter "C" in the box when you have coffee, cola or tea. Put "M" when you take any medicine. Put "A" when you drink alcohol. Put "E" when you exercise.
3. Put a line (I) to show when you go to bed. Shade in the box that shows when you think you fell asleep.
4. Shade in all the boxes that show when you are asleep at night or when you take a nap during the day.
5. Leave boxes unshaded to show when you wake up at night and when you are awake during the day.

SAMPLE ENTRY BELOW: On a Monday when I worked, I jogged on my lunch break at 1 PM, had a glass of wine with dinner at 6 PM, fell asleep watching TV from 7 to 8 PM, went to bed at 10:30 PM, fell asleep around Midnight, woke up and couldn't got back to sleep at about 4 AM, went back to sleep from 5 to 7 AM, and had coffee and medicine at 7:00 in the morning.

Today's Date	Day of the week	Type of Day Work, School, Off, Vacation	Noon	1PM	2	3	4	5	6PM	7	8	9	10	11PM	Midnight	1AM	2	3	4	5	6AM	7	8	9	10	11AM
sample	Mon.	Work		E					A				I									C M				

week 1

week 2

Sleep tracker

urbanmommies.com
YOUR ONLINE BABY RESOURCE

Month _____

time / date	12am	2am	4am	6am	8am	10am	12pm	2pm	4pm	6pm	8pm	10pm	12am
	11.30 pm - 5.30 am						11am - 12.30 pm		2.30pm - 3.30 pm		7pm - 11pm		
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http://www.datemplate.com/post_printable-charts-for-newborns_367631/

SOME SPECIFIC SLEEP PATTERN ISSUES

- Difficulty falling asleep
- Waking in the middle of the night
- Only will sleep in parents bed or with parent

FALLING ASLEEP

DIFFICULTY WITH ONSET OF SLEEP

- We will focus on
  - Bedtime routine
  - Bedtime and the number hours of sleep needed
  - The bed… as a place to sleep

BEDTIME ROUTINE

- Should consist of a sequence of behaviors that will result in going to sleep.

- Begin routine half hour before scheduled sleep time

BEDTIME ROUTINE

- Calming activities
- Sometimes routine is enough to change behavior
- Specifics (no snacks, take to bathroom)

HOW MANY HOURS OF SLEEP DOES HE NEED?

- This will need to be factored in- the child needs to be sleepy in order to go to bed… otherwise he will lay in bed or "get into trouble"

ASSESS THE NUMBER OF HOURS NEEDED

- Sleep diary
- No naps (unless child of napping age then this would be considered)
- Total hours slept (when waking on own)
- Research:
- Piazza & Fisher, 1991- Faded bedtime with response cost (JABA)

WHAT'S AN SD?

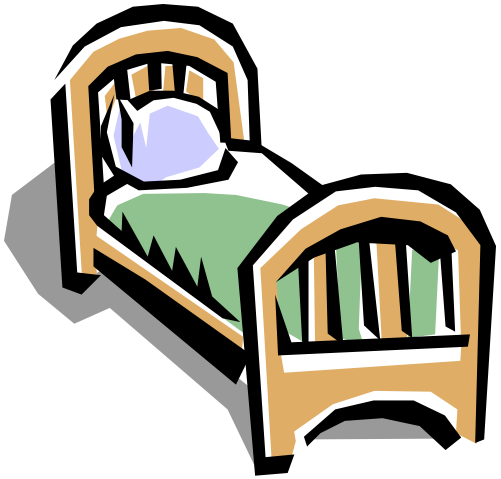
- Red light-
- Green light-
- Yellow light-

- Phone ringing-

- Someone enters a room-

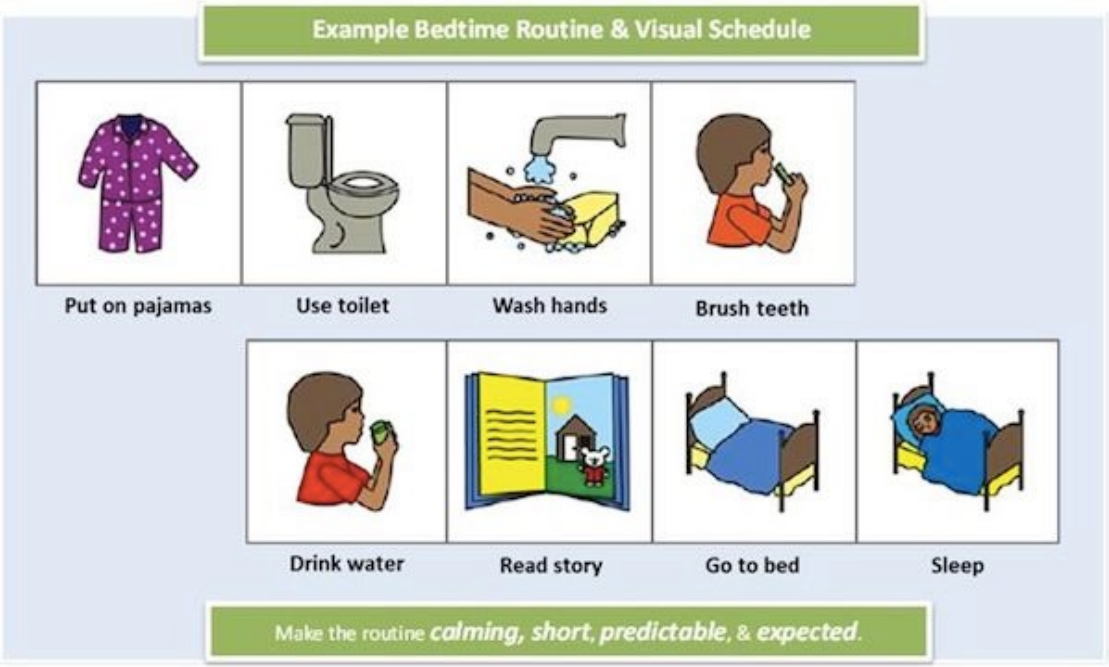
WHAT IS THE SD TO GO TO SLEEP?

- Some components of the discriminative stimulus to sleep: Bed, darkness (night time)
- Varies slightly by person
- Chain of behavior that leads up to sleep



BEHAVIOR CHAIN THAT LEADS TO SLEEP

- Bedtime routine is a chain of behaviors that leads to sleep.
- The completion of each behavior serves as an SD for the next behavior.
- If there is no clear chain, there may not be a clear SD for sleep to occur.
- If the child plays in bed- then bed is not an SD for sleep…



DO NOT DO THIS!

WAKING DURING THE NIGHT

NIGHT WAKENING'S

- Child went to sleep too early?
- Child doesn't "need" ---- hrs of sleep?
- Child is having urine/BM accidents during the night and does not wake up to go to the bathroom?
  - this becomes it's own goal
  - Alarm toileting system to wake child if urinates during sleep
- Child is a light sleeper and wakes up to household noises?

CASE STUDY~ DANNY

ASSESSMENT

- Danny was referred due to difficulty with falling asleep and waking at night

- ASPS (Albany Sleep Problem Scale) Durand, 1996

- Scale that gives information regarding the person's sleep patterns

CASE STUDY~ ASSESSMENT

- Baseline data- to determine typical sleep patterns and amount of sleep required each night and average overall

- History & Behavior Log- to track any maladaptive behavior associated with sleep time

CASE STUDY~ ASSESSMENT

- Sleep Diary- to record information such as time went to bed, when he actually fell asleep, any night awakenings, naps etc…

CASE STUDY~ PROCEDURE

- Bedtime routine: A routine was set up that was followed each night- consistently

CASE STUDY~ PROCEDURE

- Sleep restriction- child was kept awake (later than usual) so that he was "tired" and was then put to bed.
- It was expected that he would fall asleep quickly when put to bed.
- Bedtime and wake time based on hours slept per night and necessary wake up time for school.

CASE STUDY~ PROCEDURE

- Faded bedtime (sleep schedule)- bedtime was then faded systematically

- Typically fade the bedtime; can faded sleep schedule from either or both ends as you move through

CASE STUDY~ RESULTS

- Baseline: Range of time to fall asleep:
  - 15 minutes to 2 hrs and 20minutes.

- Treatment:
- Range of time to fall asleep: continued to decrease over sessions
  - 1 minute to 15 minutes (at most)
  - This is a GREAT improvement- the bed is becoming an SD for sleep!!!!!!!
  - THIS is what we are looking for.

SAMPLE SLEEP PLAN- FOR NIGHT AWAKENINGS (ANTHONY)

Anthony's Ideal Sleep Goal:

Bedtime: 10:00 pm
Wake-up time: 7:00 am
Total time asleep: 9 hrs.

Starting Bedtime: 12:00 (midnight)
Starting Wake time: 7:00 am

NOTE: This is proposed but may be changed dependent on data collected on sleep hours per night and how the plan progresses.

*The goal is for Anthony to sleep through the night in his bed without waking or going back to sleep in parent's bed.

Total Sleep Hours:

1. We want to determine approximately how much sleep Anthony might need per night.
2. Please complete the sleep log for 5 nights to see how long he sleeps in total and when he wakes during the night etc.
3. Once you have the information on the sleep log please send to Mary for review and to discuss the plan before initiating.

Bedtime Routine:

1. Relaxing activities before bed. Follow nighttime routine- same every night before bed.
2. No exercise before bed, limit any excitable physical activities (e.g., running).
3. Limit eating before sleep.
4. Avoid laying in bed and watching shows etc… once he goes to bed –he goes to sleep.
5. All foods and drinks that contain caffeine (e.g., chocolate) should be eliminated at least **3** hours before bed.

SAMPLE SLEEP PLAN- FOR NIGHT AWAKENINGS
(ANTHONY)

Bedtime Fading and Sleep Restriction Procedures:

1. Typical bedtime is between 9:30-10:30.
2. For this plan he must be kept awake until the time indicated below in the fading schedule. Be sure he stays awake until the stated time even if tired for the first phase. This may be difficult but it is very important.
3. The idea is to keep him up and yes he may be tired and may become even more tired over a few days but that will help him to develop a new sleep pattern of sleeping through the night without waking.
4. If needed you can use a cool washcloth to wipe his face to help keep him awake. Remember you will be fading the bedtime back so this is only temporary.

Nighttime Awakening Procedure:

1. If he wakes up during the night, he should stay in bed and go back to sleep.
2. If he attempts to leave his bed/room- walk him back to his bed/ don't allow him to leave the room.
3. Do not let him sleep in parent's bed. If needed, lock parent's bedroom so that he cannot enter.
4. If he continues to wake up during the night we will need to consider modifications to the plan such as adjusting the sleep schedule or add a night wakening to the plan.
5. Be sure that is not sleeping at any other time during the day – napping/ sleeping on the bus etc. as this will certainly affect the night wakenings.

Morning Wake-up Procedures:

1. An alarm must be set for 7:00 am each morning. He must get up at 7:00 am- you cannot let him go back to sleep or stay in bed – this is true even on weekends.
2. No naps during the day. Not even a short catnap. He cannot sleep on the bus. He should not sleep anywhere but his own bed.
3. If he wakes up within 15 minutes before the scheduled wake up time, he can get up. If it is more than 15 minutes but less than an hour- before the scheduled wake up, for that day he will stay up, but we will possibly need to change the sleep schedule.

- **Note:** Bedtime and wake-up time should be consistent and the same every day, including weekends based on the step that he is on. This is crucial to success.

- **Note: Data should be collected using sleep log.**

SAMPLE SLEEP PLAN- FOR NIGHT AWAKENINGS
(ANTHONY)

Data Collection:

1. Sleep history and diary should be completed prior to plan development
2. Data should continue to be collected using the sleep logs.
3. Data- includes time child went into bed, time child fell asleep, any night wakenings and time woke up or woken up. The time the child went to bed and the time they fell asleep can be graphed by time on one graph or total sleep hours. The number of awakening can be graphed separately.
4. Anecdotal data should be taken for any important changes (e.g. new foods, new workers, different routines in the day, day of excessive physical activity, etc) that could possibly affect sleep.

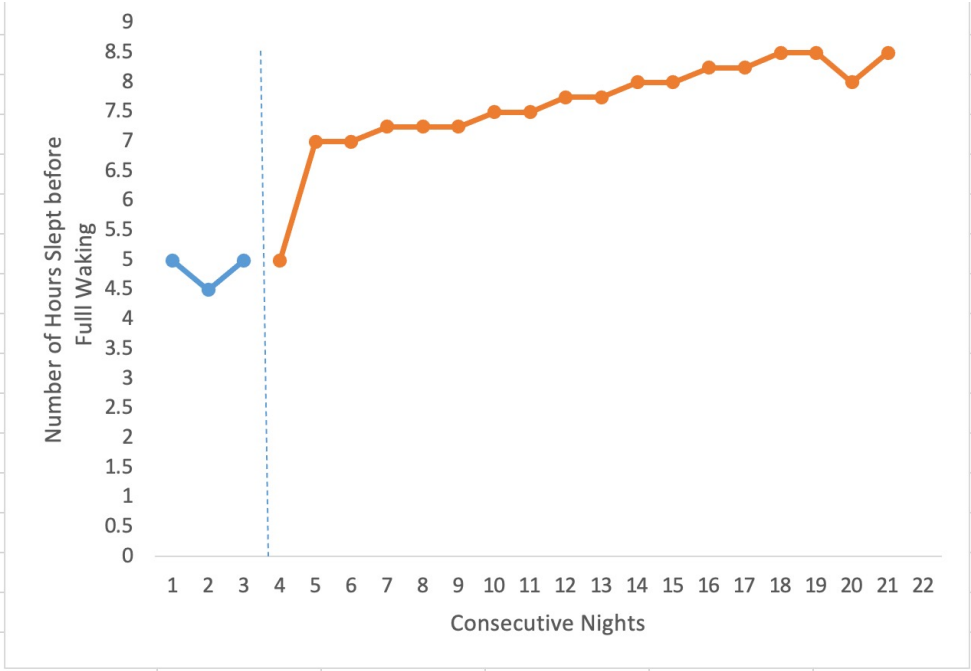
Fading Steps:

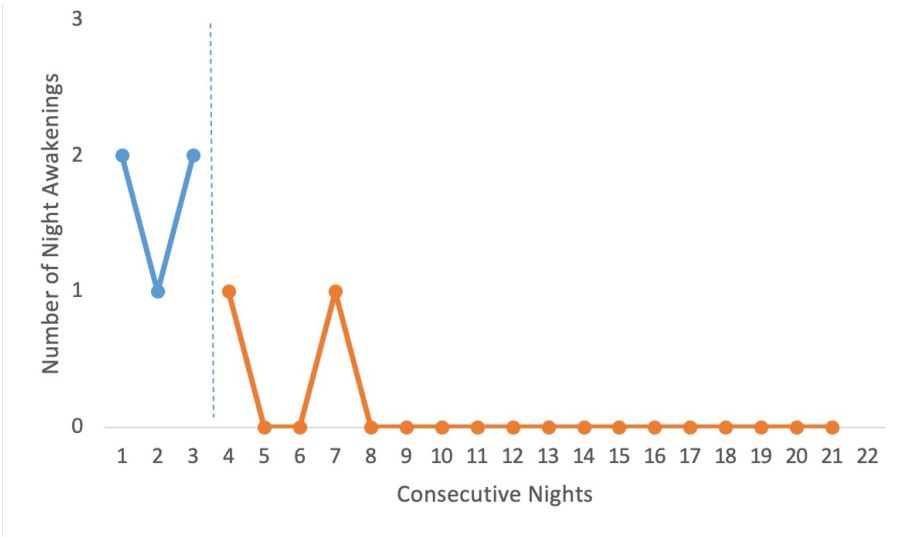
He will move through steps based on the data- recorded on the sleep log. Please check with Mary before moving onto a next step he should sleep the expected amount without waking for 2 consecutive nights before moving to next step.

Step	Bedtime	Wake up time	Total hours sleep
1	12:00	7:00	7
2	11:45	7:00	7.25
3	11:30	7:00	7.5
4	11:15	7:00	7.75
5	11:00	7:00	8
6	10:45	7:00	8.25
7	10:30	7:00	8.5
8	10:15	7:00	8.75
9	10:00	7:00	9

Note:
If he is moving through steps and begins to awaken again during the night it may be that he needs less sleep than 9 hours per night. He may only sleep 8 hrs per night. The chart above is shaded to show where he would be if he only slept a total of 8 hrs per night and had a 7:00 wake up time. If that would result in too late of a bedtime we can also shift and fade wake up time so he goes to bed earlier but wakes up earlier.

SAMPLE GRAPHS (ANTHONY)





SCHEDULED NIGHT AWAKENINGS

- In some cases it may actual be helpful to wake the child before they typically wake (15-30 min before) during the night on their own.
- You gently wake them just enough for them to wake up and console them if needed and then fall back to sleep.
- They then may not wake up at all during their usual "night awakening" time.
- This can be faded back and out over time.

SLEEPING IN PARENT'S BED

SLEEPING IN MY OWN BED!

- Let's not forget about this issue-if it is an issue….

HAVING MY CHILD SLEEP IN HIS OWN BED

- Follow bedtime routine/
- Set bedtime/
- Child sleepy when put to bed
- If child falls asleep and then wakes up and comes to parent bedroom then this would be an area to address- proactively
- Station parent or staff outside of child's bedroom
- If child comes out of bedroom- they are redirected to back to bed immediately.

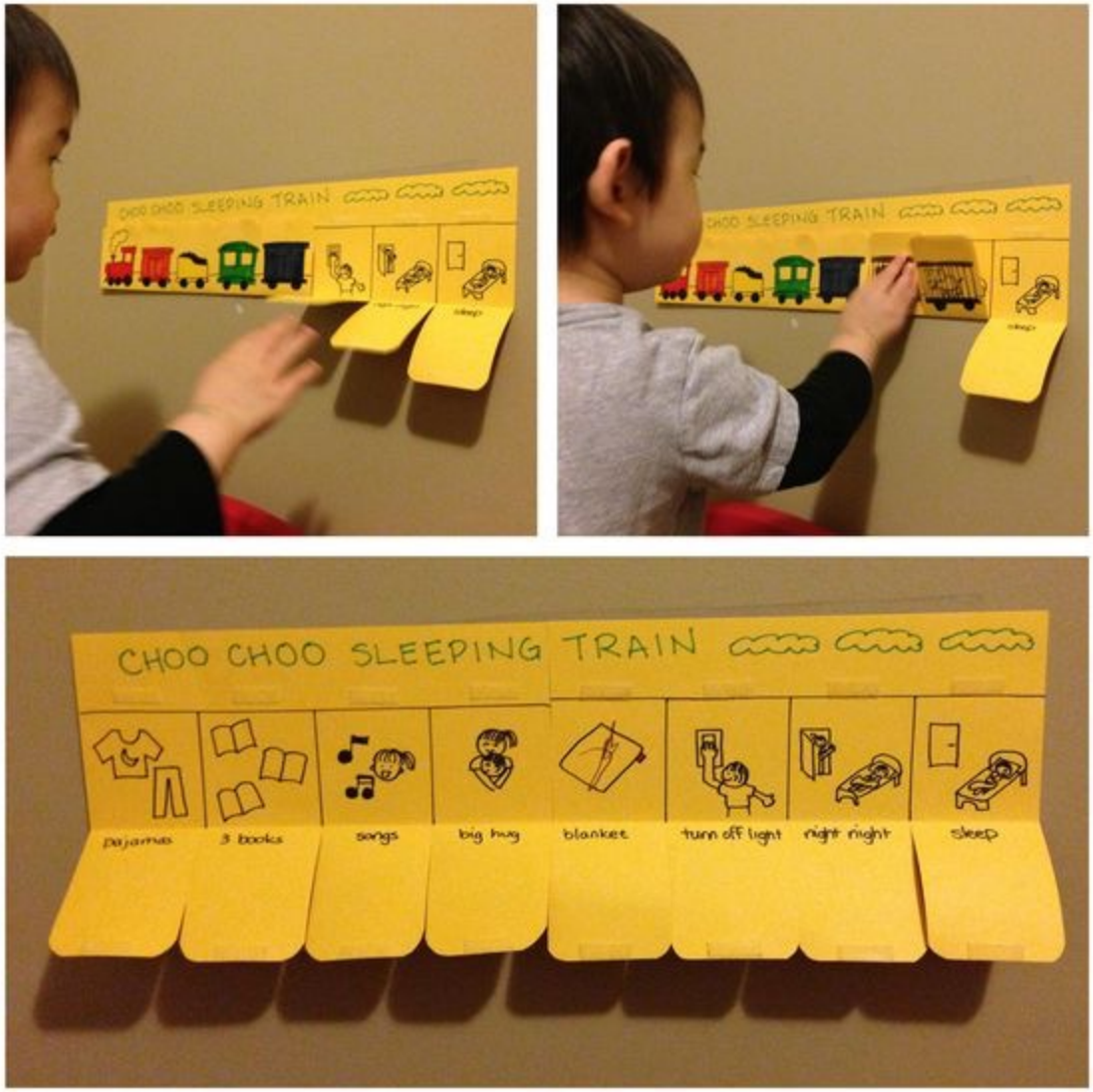
HAVING MY CHILD SLEEP IN HIS OWN BED

- They are prevented from going to parent's room/bed. Can put lock on parents bedroom if needed.
- Should not have toys/ etc to engage with during night in bedroom
- IF NEEDED- Parent can stay in room with child and gradually fade (fade chair from next to bed to doorway to outside door with door open to door closed etc)
- May need staff support to be able to follow the plan… can be difficult and behavior can occur.

USING VISUALS AND REINFORCEMENT

http://www.nationalautismresources.com/good-night-sleep-tight-reward-chart.html

ww.free-reward-cards.com/free-reward-charts/reward-card-sleep-in-own-bed/



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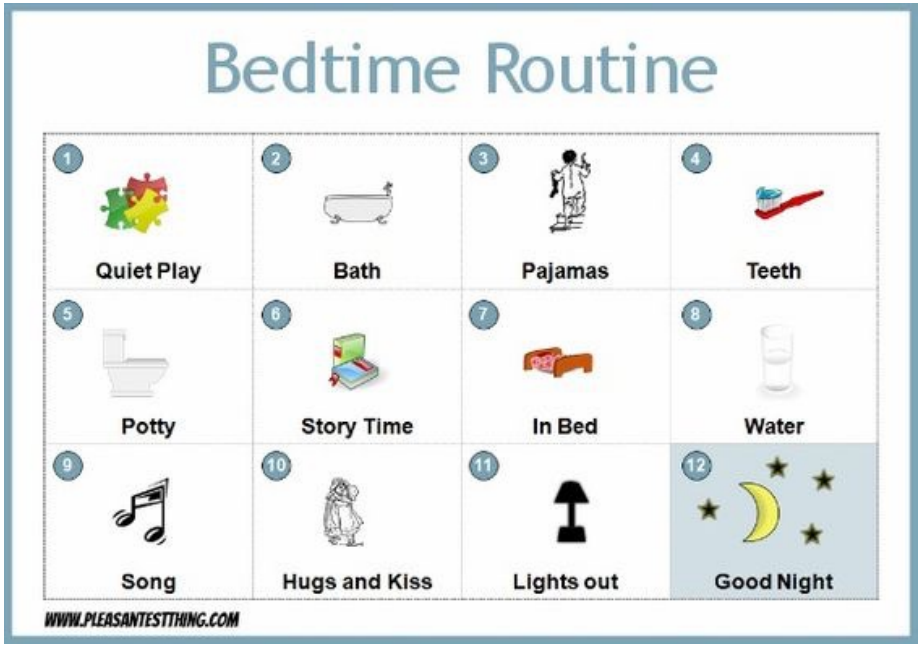

https://www.pinterest.com

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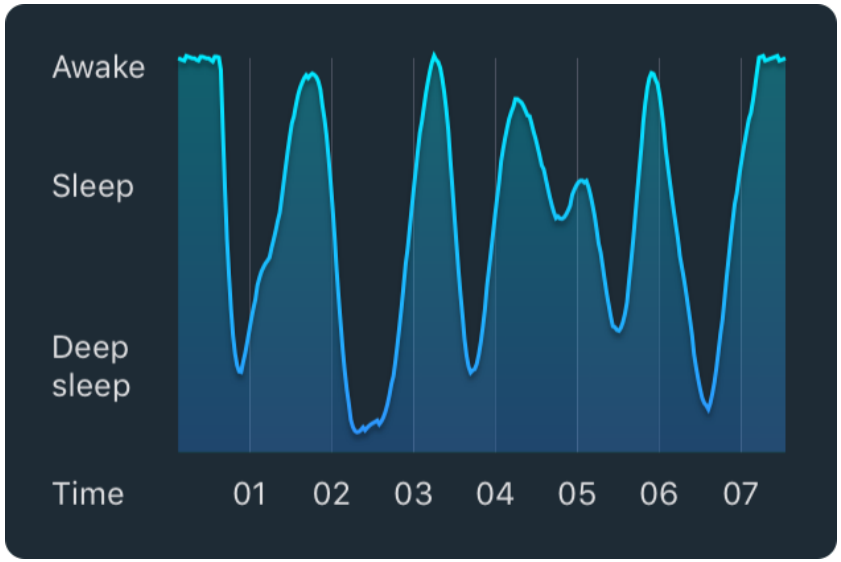
GRAPH THE DATA!

YES, THERE'S AN APP FOR THAT…

- Sleepbot

- The app uses three different technologies, a motion tracker, sound recorder, and smart alarm, to give you a comprehensive picture of your sleep habits, and to help you sleep and wake better.
- The smart alarm wakes you up at the ideal time in your sleep cycle, allowing you to feel more awake and rested. You can also track your sleep over a long period of time using reports that show the affects of you sleep habits.
- Using this information, **SleepBot** then gives you some actions and recommendations for getting better sleep

SLEEPCYCLE FOR IOS



IMPLICATIONS

- Sleep can be observed, measured and modified through the use a consistent individualized sleep plan.

IMPLICATIONS

- Many individuals with autism have sleep difficulties and often interventions are based on the use of medication or herbs to treat these behaviors.

- Sleep is a behavior and may be able to be treated behaviorally (always ruling out other medical conditions- that may need to be treated)

HELPFUL RESOURCE

PEDIATRIC SLEEP

Behavioral Treatment of Bedtime Problems and Night Wakings in Infants and Young Children

An American Academy of Sleep Medicine Review

Jodi A. Mindell, PhD[1,4]; Brett Kuhn, PhD[2]; Daniel S. Lewin, PhD[3]; Lisa J. Meltzer, PhD[4]; Avi Sadeh, DSc[5]

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Abstract: This paper reviews the evidence regarding the efficacy of behavioral treatments for bedtime problems and night wakings in young children. It is based on a review of 52 treatment studies by a task force appointed by the American Academy of Sleep Medicine to develop practice parameters on behavioral treatments for the clinical management of bedtime problems and night wakings in young children. The findings indicate that behavioral therapies produce reliable and durable changes. Across all studies, 94% report that behavioral interventions were efficacious, with over 80% of children treated demonstrating clinically significant improvement that was maintained for 3 to 6 months. In particular, empirical evidence from controlled group studies utilizing Sackett criteria for evidence-based treatment provides strong support for unmodified extinction and preventive parent education. In addition, support is provided for graduated extinction, bedtime fading/positive routines, and scheduled awakenings. Additional research is needed to examine delivery methods of treatment, longer-term efficacy, and the role of pharmacological agents. Furthermore, pediatric sleep researchers are strongly encouraged to develop standardized diagnostic criteria and more objective measures, and to come to a consensus on critical outcome variables.

Keywords: Bedtime problems, night wakings, behavioral insomnia of childhood, treatment, behavioral treatment

Citation: A Review by Mindell JA, Kuhn B, Lewin DS et al. Behavioral treatment of bedtime problems and night wakings in infants and young children. *SLEEP* 2006;29(10):1263-1276.

1. INTRODUCTION

BEDTIME PROBLEMS AND FREQUENT NIGHT WAKINGS

estimated to be considerable.[20,21] A number of treatment strategies for bedtime behavior problems and night wakings in children exist, including behavioral management techniques, parent educa-

REMEMBER....

KEEP IN TOUCH

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