

# When “Crying it Out” Doesn’t Work



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## Chapter 1

### My Story

I'd like to start by telling you my personal story as a mother struggling to raise a child with an undiagnosed sleep disorder. Given the fact that I was a pediatrician, fresh out of training and knowledgeable of the most advanced theories and treatments, I think you will find it interesting.

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Pediatricians routinely counsel parents about childhood sleep problems, the most common being “bedtime battles” and night waking. During residency training, I learned that parents caused these problems by failing to “set proper limits around bedtime” or “not allowing the child to learn how to fall asleep alone.” This led to night waking because the child never learned how to “self-soothe” and continued to associate falling asleep with having a parent present. Once I learned this, I no longer felt sorry for these families. To me the children were spoiled and the parents were spoiling them. Instead of complaining to pediatricians about their problems, I believed all these parents just needed to be stronger and take command of the situation. That’s why I told them to use “behavioral interventions,” the best known of which was “crying it out.” Maybe by listening to some crying these parents could teach their children some better sleep habits and rectify the problem.

Most parents came to me having already tried “crying it out” and failed, but that didn’t prevent me from telling them to try it again, since invariably they were still doing all the things I was taught caused sleep problems, like rocking or feeding the child to sleep. I assumed treatment failed because the parents couldn’t change their bad habits. I’d go over what they should have done in greater detail, emphasizing that they needed to be consistent, and not give up, and that they might have to listen to some crying, but if they stuck with the program, it would work for them.

Most parents returned to tell me they had failed yet again, which I assumed was because they weren’t tough enough or devoted enough or psychologically intact enough to take control of the situation. If they returned yet again, I would refer them to a psychologist or behavioral therapists who would hold their hands during treatment, and get rid of the problem.

I did this even though in 17 years of pediatric practice, only once have I seen a child who quickly responded to behavioral interventions the way my textbooks claimed they would. In that one case, the mother left her 11 month-old alone in the crib to cry and didn’t return until morning. After several nights of what she described as “hell,” her child no longer woke her, but how many parents could endure what this mother did? I had trouble even listening to her story.

That’s why when I advised parents about treatment, I gave them limits to the amount of time they should listen to crying, and if the child could cry longer, they should go in and briefly comfort the child, not to taking them out of the crib, then leave again. Most parents could do this, but it certainly didn’t seem to be as effective. No one ever came back saying the problem was gone. Everyone just slowly got better, and it took months, not days, like my textbooks implied it would.

Eventually, I got tired of telling parents about behavioral interventions. I had to spend a great deal of time explaining them, and they never seemed to help. The textbooks didn’t talk about alternative treatments, and it was depressing trying to be enthusiastic about something I had no faith in. I got the

feeling that some of the parents quit complaining to me even though the problem wasn't gone, probably because they knew I would have nothing else to offer them.

As I grew more frustrated with the situation, I started asking other pediatricians about their experiences, and it appeared they weren't doing much better. The longer they used behavioral interventions, the less enamored pediatricians became with them. Many admitted they had given up and were using medications, like Clonidine® or Benadryl® that would make children feel drowsy, even though this was discouraged in the pediatric textbooks. Some even told me that they had learned tricks to get out of the exam room before parents could ask about sleep problems, because as one of my colleagues put it, "nobody ever gets better."

Being more proactive, I started advising parents of newborns on how they could develop good sleep habits from the beginning. I explained how to be firm about bedtime and establish a good sleep schedule, and I stressed the importance of letting children fall asleep on their own. I warned parents never to rock or feed their children to sleep, and then sneak them into their cribs that way. This taught the child to associate the parent being present with the process of falling asleep, and if the child awoke during the night, they would call out for the parent in order to help them fall back to sleep. I reasoned that if parents didn't make these mistakes, then everyone would sleep better.

I got the impression this may have helped a little, but almost as many children still developed bedtime and night waking problems. When they did, the parents claimed they hadn't encouraged it, but when I asked what the parents were doing, they were doing all of the things that I'd warned them not to, so I didn't believe them. As I listened to them complain, I had little sympathy for their plight, and I vowed that I would never end up like them. I swore that my as yet unborn children would sleep through the night as soon as possible and never wake me unless they were hungry. All I had to do was not make mistakes and refuse to be manipulated by a baby, or so I thought.

Once my son was born, I realized just how naïve I was. By now a very busy pediatrician, I desperately wanted my child to be a good sleeper, but he wouldn't cooperate. The older he got, the more he fought bedtime, and he continued to wake me at night, even though I knew he didn't need feeding. When he developed separation anxiety around 9 months of age, all hell broke loose. The only thing that seemed to help him sleep was bringing him in bed with me, which I viewed as a failure.

I tried unsuccessfully to use "crying it out," but there was only so much of my son's tortured crying I could listen to. For him, 20 minutes was just warming-up, and if he actually did succeed in crying himself to sleep, it wasn't long before he was rested and would waken, crying out for me to come get him because he had learned exactly nothing about "self-soothing." Each time I vowed I would follow through with the program, I'd become exhausted by the effort and end up taking him in bed with me. He just refused to learn how to fall asleep alone, and if anything, my failed attempts at "crying it out" seemed to make the problem worse, because my son grew more vigilant and more determined not to let me out of his sight, fighting sleep that much harder.

I felt guilty when I couldn't make behavioral interventions work. When I discussed this with my son's pediatrician, she sympathized, but she had nothing more to offer than what I told parents - to keep trying harder with behavioral interventions. Eventually, I stopped mentioning the problem to her, and she never asked. Obviously, I was paying a price for all the bad things I'd felt about other parents with this problem, and my fate was to be a failure and let my son sleep in my bed. I had nothing against co-sleeping, I had just looked forward to sleeping with my husband in my bed.

Once there, my son wasn't exactly the ideal bed partner. He tossed and turned and moved all night, making his parents learn very quickly to keep clear of his arms and legs so we didn't get whacked. Often I

would end up trapped in a corner while he practically ran laps around the bed while fast asleep. He also slept with his mouth open, so there was always plenty of fresh drool, and occasionally he slept in strange positions, the oddest one being where he would lie with his cheek and chest on the mattress, but his but sticking straight up in the air. Occasionally, he would be covered with sweat, so I started dressing him more lightly. He absolutely refused to give up his night bottle, and would fall asleep with it clenched between his front teeth. If it fell out and he wanted it later, he would suddenly sit straight up and start looking for it, only to take a few sips and fling it across the bed or fall back to sleep with it clenched between his teeth again. But by far, the most annoying thing was how restlessly he slept. Never having learned this was abnormal, I viewed it as a minor inconvenience and didn't worry about it. At least we were sleeping.

Over time his sleep habits seemed to improve. He had never been easy to get down for a nap, and somewhere between 2 and 3 he eliminated them completely, much earlier than most children did. His usual pattern was to go at high speed from the time he got up until I forced him into bed at bedtime. Once settled, it didn't take him long to fall asleep, the trick was getting him to lay still long enough. Eliminating naps had seemed to improve the restlessness of his sleep at least. Now he hardly moved at all, and he slept so soundly that no amount of noise would wake him. When sleep came, it hit him like a ton of bricks, and he didn't seem to move till I woke him up in the morning. I also noticed it was harder to wake him in the morning, and started joking that he wasn't a morning person. He would fight getting up and be crabby for a good hour after waking, something I also didn't worry about because he always had more than enough energy the rest of the day.

My son was what I politely refer to as a "difficult child." He was obstinate and contrary on a daily basis and disciplining him was almost impossible. Telling him "no" or trying to use "time outs" didn't work, because he seemed to take it as a personal challenge. Whatever it was I wanted to discipline quickly got lost in the ensuing power struggle. These battles were exhausting and pointless, and I quickly learned it was much easier to distract him with a toy or a cracker than to get him to stop doing the thing that I didn't want him to. He was also borderline hyperactive and not the most popular child on the street, often playing too rough for the other children. I told myself things would get better, but when he entered school and quickly ran into trouble, I could no longer fool myself.

It's one thing for your child to fight you about going to sleep or getting into the car at the playground; it's quite another to have a teacher tell you your child isn't keeping up in kindergarten. Things were so bad that a few weeks into classes, my son's teachers called me in for a conference. He was having trouble completing his projects and was always forgetting things he needed to tell me or bring in for school. In fact the only reason I knew his teachers wanted to see me was they had resorted to pinning a note on his chest where I'd see it.

Needless to say, I was worried. I went to observe him in class where he didn't stand out, but then he didn't really fit in. He often seemed to be dreamy, inattentive and uninterested in what was going on. If the teacher called on him, he was likely to give wrong answers, not because he didn't know them, but because he just wasn't paying attention. I regretted not sending him to preschool and wished I'd held him back a year like the other mothers of children who's birthday fell close to the deadline for school entry. But it was more than being behind or immature compared to his classmates. My son wasn't acting like the other children, and I got the impression his teachers blamed me for his problems. So did me.

He was tested for entry into special education classes, but he was too smart to qualify for the help. (His IQ was measured at 120, even though he grew bored with the test, threw the pencil down and refused to complete it.) It wasn't that he couldn't do the work, he just didn't care if he finished, and the moment he got frustrated, he was on to the next thing. Eventually, his teachers decided he would have to repeat kindergarten, this time attending both morning and afternoon sessions, instead of only one like the other

children. In other words, my son flunked kindergarten twice. Imagine how happy I was.

I decided that if I had spoiled him and was causing his problems, then it was up to me to cure them. I started working part time and paying out of pocket for him to see a child psychologist. But the more I tried to change him, the more he refused to change. He refused to care about the things his teachers and I were worried about, so he wasn't motivated to improve. I had the sinking feeling he would stay this way forever, and although he was eventually promoted to first grade, I no longer looked forward to it the way I used to. Now, it just meant more guilt-ridden parent-teacher conferences and more shame, and if you had asked me at this point what I thought of motherhood, I would have told you it was highly overrated.

Then a miracle happened.....really.

As a pediatrician, I suppose I tend to minimize "a little runny nose" like so many of my patients have. If my son got sick, I simply treated him and forgot about it. Other than a few episodes of fluid behind the eardrum (serous otitis media) and occasional sinus infections, he had been very healthy. As he got older it was clear he had allergies, as did roughly a quarter of the patients I cared for. His main problem was his "little runny nose." Allergy medications helped, but I always got tired of giving them, and I hated keeping him on antihistamines or decongestants that might make him sleepy or hyper, so he usually went without. As he got older, he started having recurrent sinus infections that required him to take nasty tasting antibiotics. For that, more than any other reason, I had him seen by an allergist to see if he qualified for immunotherapy (allergy shots). He did.

As his nose cleared, there was a remarkable change in how he acted. He became calmer and much easier to get along with. He announced that it was time for him to start sleeping in his own room, where he started retiring each night without protest. He was also easy to get up in the morning, and had a positive attitude on rising. During the day, he was less hyperactive and better at taking directions and finishing things, probably because he no longer seemed to be daydreaming and could concentrate longer. Even his teachers noticed the difference. By the time his 2<sup>nd</sup> grade parent-teacher conferences rolled around, I was amazed to hear he wasn't having problems. In fact, he was doing so much better that his teacher asked what I was doing at home to make him such a good student. I almost fell over.

What had I done? I'd sent him to an allergist who finally cleared up his "little runny nose." Other than that I was still the same bad parent I'd always been.

I scoured the pediatric medical literature looking for information about children like my son, trying to understand what had happened. I couldn't find anything, so I started reading outside my field. Reading the adult medical literature, I learned that older patients with allergic rhinitis complained about daytime tiredness and that this improved with treatment of their nasal congestion. There was also a wealth of information about breathing difficulties causing insomnia in adults, and that this insomnia could be worsened by anxiety. As I read, I realized that sleepless children who fought bedtime or woke parents at night might not have behavior problems caused by the parents. These children might be suffering from insomnia, and when I realized this, things started to fall into place for me.

My son's initial sleep problems had been misdiagnosed as a "behavioral," so he had never been properly treated, and because he continued to have trouble sleeping, he also developed daytime problems with behavior and school work, which were the result of his being overtired.

In my reading, I learned about studies done on adults where the nose was blocked and sleep was studied. It had been proven that this led to difficulty falling asleep and staying asleep, and created a breathing-related sleep disorder. My son's pediatrician and I had never been exposed to this information, so to us, my son's "little stuffy nose" had no connection to his sleep problem. Even when behavioral

interventions failed, it had never occurred to either one of us that the diagnosis might be wrong.

As I learned more about insomnia in adults, more of what had happened seemed to fit together. It made sense that my son's sleep problems had peaked around 9 months of age, because this was the time when separation anxiety peaked. Anxiety was proven to worsen insomnia in adults, so it made sense that the only thing that had helped him sleep better was bringing him in my bed. I thought I was a failure, but I'd been doing the only thing short of treating his congested nose that might help his sleep better.

I felt guilty that the diagnosis had been missed in my son, but when I examined what had happened, I saw no other way for things to have gone. Pediatricians weren't being taught about medical causes of insomnia in children. In fact, they weren't even being taught about insomnia. I couldn't even find the word in my pediatric textbooks and I couldn't remember hearing any of my professors ever mentioning it. All that was talked about was behavioral sleep problems and how effective behavioral interventions were at treating them. No one ever mentioned children like mine or that bedtime or night waking problems could be caused by insomnia, and no one ever talked about what to do if behavioral interventions failed.

Another thing that occurred to me was that maybe behavioral interventions were failing more often because more and more children were becoming allergic like my son. The incidence of allergy had almost doubled over the course of my training, and it was believed it now affected up to 20-25% of children, roughly the same percentage as were reported to have sleep problems. Since we held off on labeling children as allergic until they got older, but you could suspect it much earlier due to a propensity towards ear, throat and sinus infections, I wondered if many of these children were being misdiagnosed as behavioral sleep problems just as my son had been, because there was nothing in the pediatric medical literature about allergies affecting sleep.

It also bothered me that my son's sleep problem had seemed to improve over time, even though his daytime problems had worsened. He had slowly gone from fighting bedtime and waking me at night, to just fighting bedtime, and once he gave up naps, sleeping so soundly it became a chore to wake him in the morning. I reasoned that his mild breathing difficulty made it very hard to fall asleep, and as he had become more and more sleep-deprived, once he could fall asleep, he slept very soundly. I wondered if this was why my colleagues and I believed behavioral sleep problems eventually went away, even when behavioral interventions had failed. Maybe we were being fooled into thinking a behavioral sleep problem was improving, when in fact, the child's sleep disorder was getting worse.

While looking for answers, I reread what was known about behavioral sleep problems, and I was struck by the fact that by definition, they occurred in "otherwise healthy" children who "slept normally, once asleep," words that never stood out so glaringly to me before. Why had my son's pediatrician and I thought he was "otherwise healthy" and sleeping normally when it now seemed so clear that he wasn't?

My son hadn't been "otherwise healthy" and "sleeping normally once asleep." We just assumed he was. When I got out my scrapbook of pictures and looked at those taken around the time he had first developed sleep problems, I realized how unhealthy my son looked. His mouth was always open, which meant he was mouth breathing, and he looked pale and had dark circles under his eyes - signs of allergy. Children mouth breathe when the nose is too congested to breathe through, and my son's "little stuffy nose" was wreaking havoc with his sleeping. Since his pediatrician and I weren't aware that nasal occlusion could disrupt sleep, we didn't consider it a problem, and as far as sleeping normally goes, no where could I find any descriptions of how "otherwise healthy" children slept, so deciding if he slept normally was never an issue, we just assumed he did. Looking back, I couldn't remember anyone ever asking me about how my son slept or asking this of other mothers, except for snoring. If a child fought bedtime or woke at night, we just assumed they slept normally and the parents were causing the problem and just about everyone, including the snores were healthy enough.

In the end, my son was healthy enough and slept normally enough because his pediatrician and I didn't know what to look for because no one had told us and the information wasn't in the medical literature we were reading. As a wise professor once told me, "the eye cannot see what the mind does not know." You can tell me all day long to be sure a child is healthy and sleeping normally before diagnosing a behavioral sleep problem, but until you tell me what to look for, I can't see it.

When I reviewed the pediatric medical literature, there was almost nothing in the textbooks or journals about the dangers of "a little stuffy nose" when diagnosing sleep problems. That meant pediatricians weren't looking for the problem and treating it if a child slept poorly, and that meant children like my son were misdiagnosed as having behavioral sleep problems. When I thought of all the stuffy noses and all the children who slept poorly, it worried me.

Shortly after my son got better, a few studies came out linking mouth breathing to sleep apnea and a newly described sleep disorder called Upper Airway Resistance Syndrome. These two sleep disorders have many similarities because they are caused by breathing difficulty during sleep, and are often lumped together as "sleep-related breathing disorders" or SBD. Children with these problems were initially described as being excessively tired during the day, having enlarged adenoids and tonsils, breathing abnormally during sleep, and snoring. Treatment was surgical, by removal of the adenoids and tonsils. But my son didn't have big tonsils or adenoids, and he didn't snore or appear to have trouble breathing at night. He also never seemed tired during the day, and if anything he was hyperactive, so I wasn't sure where sort of breathing difficulty fit in this picture.

Since that time, studies have come out linking these sleep-related breathing disorders to hyperactivity, school difficulty, restless sleep, sweating during sleep, and sleeping in strange positions, difficult behavior, school problems, all of which my child definitely had. It's also become clear that at least in adults, insomnia affects roughly 50% of adult patients with this type of sleep disorder, and the milder the disease, the more likely the patient will experience insomnia vs. excessive tiredness and falling asleep too easily. Knowing this, I believe my son had mild SBD, and diagnosing him was made especially difficult because he never snored. He also suffered from insomnia and at the time children with SBD were described as falling asleep too easily. Even today, so much emphasis is put on snoring and excessive tiredness as features of SBD, that I believe many children with mild disease are still going undiagnosed and untreated. A few researchers have published studies on adults with "silent" or non-snoring SDB, but there is still absolutely nothing about it in the pediatric medical literature, and since few pediatricians read about adults sleep disorders, they are totally unaware of the problem.

The study of pediatric sleep disorder still lags far behind what we have learned about adults, and good descriptions of how children with sleep disorders look are sorely lacking. Without them, pediatricians will continue to misdiagnose and fail to properly treat these children. How well they can determine who has a behavioral sleep problem and is "otherwise healthy" and "sleeping normally once asleep" vs. a child suffering from insomnia due to a sleep disorder isn't clear, yet this is a decision pediatricians make almost every day during the course of seeing patients where an estimated 25% of children most of whom have bedtime and night waking problems, and most of whom will be diagnosed and treated for behavioral sleep problems and never see a sleep specialist or be sent for further testing.

I didn't know what my child had until the allergist got him better. Descriptions of children like him are simply not in the pediatric medical literature, so I had to piece the picture together using other sources. Over the years, studies have come out that mention isolated features of my son's problem - the hyperactivity, the oppositionality (taking the opposite stance just to be argumentative), learning problems, and aggressive behavior - and how these daytime problems can be linked to sleep disorders, but it is still

difficult to see how this would have helped him. My son's problems evolved over the course of years, and by the time many of them surfaced, I was no longer worried about his sleep problems other than having some difficulty getting him to fall asleep at bedtime. I never suspected that his problems sleeping as an infant would change into problems with daytime behavior, and if he hadn't responded so quickly to allergy shots, who knows if I ever would have seen the connection.

My son never did become the model child, nor did I become the world's greatest mother, but things certainly improved once he started sleeping better. I shudder to think how things might have gone if he had never been treated, and I think of this every time I help a family with a sleep problem. It never ceases to amaze me how treating these problems improves every aspect of a child's life as well as the family's and makes child-rearing that much more enjoyable. Also, the earlier the problem is treated, the better because it reduces the chance of secondary health problems occurring.

Delay in my son's treatment left an indelible mark, and even today, at 23 years of age, he continues to have secondary problems. When he entered puberty, he developed bruxism (grinding of the teeth at night that can be very painful and disrupts sleep) and his grades slipped again. Bruxism is very difficult to treat. He also started having symptoms of irritable bowel syndrome, which just recently has been linked to sleep disorders like Upper Airway Resistance Syndrome. Because his brain, facial features and airways were growing rapidly when he was sick, these structures grew abnormally and were affected in ways we are only beginning to understand. New research indicates that he will need to be monitored long term for the development of physical and psychiatric problems, and that he is still at risk for developing a second sleep-related breathing disorder. Early treatment and how effective it can be are closely linked to growth and development in the child.

But everything happens for a reason. Even though my son was treated late, at least he was treated, and in a way that allowed me to see first hand the incredible changes he went through. Using what I learned, I have gone on to help many other patients, and I am constantly amazed at how gratifying the experience is. Sometimes I have a hard time even recognizing my patients when they return after treatment. Gone are the sullen expressions, and instead of a quiet, tense exam room, everyone is happy and smiling.

Since my son got better in the early 1990's, I have waited for some journal article or textbook to describe children like him and the many others I have treated in practice. Rarely a month goes by that a study isn't published that confirms bits and pieces of what I believe, but no one has put the puzzle together. That's why I have written this book. I hope you will find new hope and new answers here.

## Chapter 2

### Do parents cause sleep problems?

In order to understand how I view sleeplessness in children, you have to understand how pediatricians view sleep problems in children. When my son slipped through the cracks, despite having a pediatrician as a mother, I realized there must be something horribly wrong with the way physicians were approaching sleep problems, and I wanted to know what had gone wrong. I started questioning everything I knew, especially what I believed about behavioral sleep problems. This was the diagnosis my son had gotten for his sleep problems, and it was wrong and prevented him from being helped earlier. It is also the most commonly diagnosed sleep problem in children.

Behavioral sleep problems are problematic behaviors in children that disrupt sleep. The two most common are bedtime resistance (known as limit-setting disorder) and night waking (known as sleep-onset association disorder). The behavior, and not something physically wrong with the child, causes the sleep problem, and the child is believed to learn this from the parents.

It's believed that children who fight bedtime do so because the parents have failed to "set proper limits" around bedtime, and this leads to a situation where the child is in charge and determining their own bedtime. Children who wake at night are believed to have parents who "fail to allow the child to learn how to fall asleep alone." This means the parents are present when the child falls asleep, doing things like rocking or feeding the child, which is felt to prevent the child from learning self-soothing behaviors needed to be able to fall asleep alone. Since children normally wake for brief periods during the night, children who have learned to associate falling asleep with having the parent present will call out for the parent to help them return to sleep, something that could have been avoided if the child had just learned how to fall asleep alone.

Thus, fighting bedtime or waking parents at night past the age when feedings require it are just problematic behaviors that occur in otherwise healthy children who sleep normally once asleep, and these children learned this behavior from their parents. In other words, the child is fine, the parents are the problem. At least, this is the currently accepted explanation for why healthy kids who fight bedtime or wake at night sleep poorly - they have parents who are too stupid to teach them to sleep better.

(Obviously, I am joking and I don't believe this.)

Behavioral sleep problems are treated with behavioral interventions like "crying it out." These interventions aim to change how the child's behavior by changing how the parents interact with the child. By listening to some crying and not giving-in to the child's demands, it's believed parents can enforce bedtime and force the child to learn self-soothing behaviors that will allow them to go back to sleep without needing the parent.... or so it's believed.

This all looks very good on paper, and when I first learned it during pediatric training, it seemed so logical and straightforward that it never occurred to me to question it. After my son taught me how easily I could be fooled, however, I started looking at things differently.

I began reading all the research papers cited in my textbooks as supporting current beliefs about behavioral sleep problems, and what I learned shocked me.

There isn't any proof that parents can cause sleep problems in children, and if they don't, then should we be using behavioral interventions like "crying it out" as treatment? If anything, the available studies indicate that parents have very little control of how well children sleep. Other than being able to encourage children to get on good sleep schedules and consolidate sleep during the night as soon as possible, parents don't control much of anything about how their children sleep. If they look guilty of causing bedtime and night waking problems, it is guilt by association only, meaning tired parents become involved in their children's sleep problems because sleepless children involve them, not because they want to or are doing things to cause the child to sleep poorly. Parents react - they don't cause sleep problems.

Much to my surprise, everything I just told you about behavioral sleep problems just sounds good. It's never been proven. Not one study exists showing that "not setting proper limits around bedtime" or "not allowing children to learn how to fall asleep alone" causes sleep problems. Not one. Not a single study. At best, researchers have shown an increased association between certain parent behaviors and childhood sleep problems, but that's only to be expected because sleepless children often want to be with the parent when they can't sleep. But no one has ever demonstrated a cause and effect relationship between how parents act and bedtime or night waking problems, and much of the data indicates parents should never be blamed.

Maybe you need to be a physician to realize how horrifying this news was to me. It meant that everything I believed about behavioral sleep problems and told parents was wrong and that behavioral sleep problems had never been proven to exist. That meant every child I treated with behavioral interventions like "crying it out" wasn't healthy and sleeping normally. They were sleeping abnormally for whatever reason and left to cry until the parents gave up on the treatment or the child learned to suffer in silence.

It isn't every day in being a doctor that you find out something you commonly diagnose and treat is a myth. How had this happened?

Beliefs about behavioral sleep problems had been around for decades, but when I read the studies initially cited as supporting these beliefs, they may have supported them, but the studies were too poorly done to draw conclusions from. Most simply wouldn't have gotten published if they were submitted to a reputable medical journal today. Also, all of them were about treatment with behavioral interventions, and never addressed the cause of the sleep problems or proved that parents were to blame for them.

You would think it would be a simple matter to show that parents who "fail to set limit" around bedtime or are present when the child falls asleep cause bedtime and night waking problems, but that's only if it's true. There are no studies where parents make the mistakes believed to cause sleep problems and get them. There are also no studies where researcher took detailed sleep histories on children with sleep problems and tried to trace them back to what the parents were doing. Those studies which do exist were of two types. Those that looked at children of a certain age and tried to associate parent behaviors to sleep problems, and those which used parent education about doing things correctly in the hopes of averting sleep problems.

I will skip most of the early studies because they aren't well done enough to be helpful and only addressed treatment, but I will mention that some researchers found behavioral interventions were ineffective as treatment. This research is never discussed by anyone in pediatrics, and it's almost as if it

doesn't exist.

In 1991, the following study was published by Adair<sup>1</sup> and his associates. It looked at 122 infants who were 9 months of age, and used data in the form of questionnaires filled out by the parents. By history, 33% of the parents admitted to routinely being present when their child went to sleep, something that is frowned upon by behaviorists because it is felt to discourage the child from learning "self-soothing" behaviors that allow them to fall asleep alone, leading to night waking (a sleep-onset association problem).

Of these 122 infants, 33% routinely had a parent present when falling asleep, but only 28% of them (34 infants) had problems with frequent night waking, which is defined as "waking 7 times or more during the previous week." Of the 34 infants who woke frequently at night, 40% (13 infants) routinely had parents present when falling asleep initially, whereas 22% (7 infants) routinely fell asleep alone. Researchers concluded that "parents being present when the child went to sleep was independently associated with night waking." And that this had "implications for preventing and managing disruptive night waking in infancy."

Would I agree? No, although I'm more leary of jumping to conclusions about parents causing sleep problems than most, and in the past I might have thought...."Gee, twice as many children in the frequent night waking group had parents present when initially falling asleep when compared to the children who fell asleep alone. See, parents are causing the problem!"

You have to look at the data more closely, however, and not jump to conclusions about one thing causing another. It appears parents being present at bedtime leads to an increased likelihood the child will wake frequently at night, and the authors even seem to suggest that if parents aren't present at bedtime and make their child fall asleep alone initially, they can reduce the chance the child will wake frequently at night, but does the data really support this?

If parents are causing the problem by being present at bedtime, then why don't 33% of the children, not 28%, wake frequently at night? Why do 5% of children who have a parent present at bedtime not become frequent night wakers? And if parents are to blame, why aren't 100% of the group who wake frequently reported to have a parent present at bedtime? Why only 40%? And what about the 22% who don't have a parent present at bedtime and obviously know how to fall asleep alone waking frequently at night? What's wrong with them? They don't associate having the parent present with falling asleep, so why are they waking?

Behavioral theories about parents causing sleep problems can't explain the findings of this study, although they should be able to. These were reported to be healthy children and so they should have had behavioral sleep problems, but that assumes they exist and parents cause them, and it's obvious, at least to me, something else is going on here. You can't blame parents for causing night waking 40% of the time knowing and expect them to change their behavior, if 22% of the time, it won't matter and the child will wake frequently at night anyway. You can't ignore the data that doesn't fit your theory, you have to change your theory to fit the data.

It sounds impressive to say that children who have parents present at bedtime are twice as likely to wake frequently at night, but this is an association only, not a cause and effect relationship. All that has been "proven" is that children who wake frequently at night are twice as likely to have a parent present when falling asleep initially, and you can't draw any conclusions about parents causing night waking. Not unless you can also explain why 22% of the time what parents are doing at bedtime doesn't matter.

I don't believe parents cause children to wake at night just because they are present when child falls

asleep, nor do I believe that not being present prevents night waking. The way I explain this data is that insomnia comes in different shapes, and some children have trouble falling asleep initially and also wake frequently at night, while others just wake frequently at night. Those who are having trouble falling asleep initially and waking at night are twice as likely to want their parents to be present when falling asleep. This view explains all the data because it is determined by how the child sleeps, and the parents react to this. Children who have a parent present at bedtime can sleep well and children who know how to fall asleep alone can sleep poorly, because it's the child's ability to fall asleep and stay asleep that is determining the parent's behavior, not the other way around.

Do some of these children have behavioral sleep problems? I suppose it's possible, but you can't do research on something by including it with something else. If you want to study and draw conclusions about behavioral sleep problems, then you shouldn't include children with sleep disorders in the study. Since I've never come across a study which determined using objective tests that the children were healthy and sleeping normally, I've never seen a study that was actually about behavioral sleep problems, and I don't think I ever will. We can't say anything about behavioral sleep problems from this study, and we shouldn't be telling parents to change their behavior based on its findings. But this happens routinely because parents and pediatricians aren't aware of the information.

There is a very strong bias in the medical community to continue to believe in and treat behavioral sleep problems. It's truly amazing, and I can only say that careers and reputations and book-signings rely on continuing to believe that the emperor is wearing clothing.

Like most studies on this subject, Adair and his group have an obvious bias towards making their data support behavioral theories that blame parents for sleep problems. Instead of addressing what actually happened, much of which doesn't support behavioral beliefs, they simply ignore the findings they don't like and emphasize those they do. Yes, twice as many children who wake frequently at night have a parent present when falling asleep, but that doesn't mean parents are causing the problem. To me, the child who sleeps poorly is causing the parent to be involved in their problem.

The next study looked at much larger numbers of children. Researchers set out to link parent behaviors to frequent night waking in 3 month-old Thai children<sup>2</sup>. Because most 3 month-old infants are still waking at night, the researchers separated the infants into two groups, those who woke often (3-4 times per night) and those who didn't (1-2 times per night or less). They reported an association between frequent night waking and being male, more than 3 naps per day, the use of a swinging or rocking cradle, breastfeeding only, and falling asleep while feeding. They also reported that the following things were *not* associated with frequent night waking - parental age, education, occupation, household income, type of diaper, and type of parental response to infant's nighttime crying.

If you read the study, it's interesting to note that the researchers report the association between being male and frequent night waking, but then almost ignore it, most likely because having male children is out of the parents' control, and the study is aimed at changing parent behavior to improve sleep. They also note, but do not emphasize, the fact that how parents responded to nighttime crying, something seemingly completely within the parents' control, wasn't linked to night waking problems. Instead they concentrate on the things they view as parental practices which might be modifiable and in the process fail to learn a great deal from their findings.

You can't ignore the facts that children who slept poorly were more frequently male and how the parents responded to night time crying didn't affect night waking. Behavioral theories may not be able to explain it, but that doesn't mean you should ignore it. Certain sleep disorders are more common in males, which makes me wonder if these children are sleeping normally or not. Also, if there is no association between frequent night waking and parental responses to crying, then how do behavioral interventions

like “crying it out” work? Doesn’t treatment rely on the parents not responding to crying, and this forces the child to learn self-soothing behaviors and be able to fall asleep alone? If how parents respond to crying isn’t important, then how do behavioral interventions work?

This study never addresses my concerns. It also did not mention whether parents were present when the child fell asleep at bedtime, although it obviously suffers from the same biases as the Adair study. Despite this, there is a great deal we can learn. This study looked at large numbers of children, which most studies don’t. They compared 1634 frequent night wakers (more than 14 night wakings per week) to 1538 infrequent night wakers. These are huge numbers compared to most studies, and the more patients studied, the more accurate the data becomes statistically speaking. When small numbers are used, the data can easily be thrown off by just a few patients, making things look true when they aren’t or look false when they are actually true. Since many of the studies into behavioral sleep problems looked at a very small numbers of children, chance and researcher bias could easily play a large role in the findings.

Looking at the other findings, the researchers felt there were “significant and independent associations” between frequent night waking and the following parental practices; more than three naps per day, use of a swinging or rocking cradle, falling asleep while feeding, and breastfeeding only.”

Can parents change how they act and help their child sleep better by preventing children from taking more than three naps a day? Certainly, children who nap this way haven’t “settled” yet, which means they haven’t learned to consolidate sleep at night. Newborns come out of the womb driven by the need to sleep and eat, and they pay little attention to what time of day or night it happens to be. Over the course of the next several months, they learn to distinguish day from night, and to be most active during the day and consolidate sleep during the night. As they gain weight and can go longer between feedings, parents can encourage them to eliminate a night feeding first, by doing certain things, and this lengthens the longest sleep period and results in decreased night waking. Once this occurs, the child is “settled.”

Parents can encourage children to do this as quickly as possible by emphasizing difference between day and night, encouraging the child to be awake and interactive during the day, then keeping light and social interactions to a minimum at night. By acting in ways that discourage the child from becoming playful or staying up at night, children learn from their parents that night is for sleeping and daytime is for being awake. As settling occurs and the child grows older, daytime naps usually become consolidated into two sleep periods, one in the morning, one in the afternoon, followed by an activity in the evening leading to a bedtime ritual and night sleep. Children who are taking 3 naps or more per day aren’t consolidating sleep the way they should and parents need to help them get on a better schedule and develop their circadian rhythm

Circadian rhythm is the internal clock that counts off 24 hours in a day and tells us it is day or night. Using cues from the environment and certain parental practices, like keeping lights low and minimizing interactions, infants slowly learn to consolidate sleep at night and eliminate night feedings. Parents can hasten the development of this rhythm and help their child learn to sleep through the night, but only so much. Once this is accomplished, infants wake less frequently at night, but it has nothing to do with limit setting or learning how to fall asleep alone. It is because of circadian rhythm.

What about “use of a swing or a rocking cradle.” I will try to make sense of this, although I really need more information about whether or not the child slept in the swing or rocking cradle. Assuming they didn’t, I doubt the swing or cradle is causing a problem with sleep. It’s more likely that children with colic or irritability end up using these methods of soothing, and that even if they weren’t used, the child would sleep poorly anyway. My son practically lived in his from 3-5 months of age, and although I sometimes let him nap there, it was rare and not enough to disrupt sleep. He couldn’t sleep for other reasons, and I don’t see this as a “parental practice” that is harming sleep, but one that is a reaction to

something intrinsic in the child and causing not only sleep problems, but daytime fussiness. Whatever is making the child irritable during the day doesn't magically go away at bedtime, and may actually get worse. One thing is for sure, I never would have given up the swing for my child, because I couldn't stand his fussiness.

As far as "breast feeding only," I doubt anyone would encourage a mother to add formula or other foods to the infant's diet based on this study. Breast feeding is the most natural food for 3 month old infants, and many studies have shown that adding other foods prior to 4 months of age is apt to cause problems and won't improve sleep. This association most probably reflects the fact that many mothers have tried to use exclusive breastfeeding at this age in the hopes of preventing the child from developing allergies and asthma. A few decades back, it was postulated that exclusively breast feed led to a decrease incidence of allergies and asthma because the child was exposed to less allergens in the diet. Many mothers who had allergies or asthma themselves tried this, and studies now indicate there is a mild protective effect, but many children run into problems anyway. Without asking the mothers about diet, I can only say that my guess is that these children are allergic, like their mother or father, and like my son, and that the development of allergies affects sleep very early and needs further study.

Lastly, **falling asleep while feeding**. At first, this looks like something we can finally blame parents for doing, and it's one of the things I have mentioned can cause behavioral sleep problems - rocking or feeding the child to sleep. Unfortunately, this is something I tell parents of newborns, not 3 month-olds. I don't know any healthy 3 month-old infants who fall asleep while feeding, and if I learn this is true, I would definitely want to examine the child immediately and look for an underlying illness. Eating is the most exercise infants can get at this age, and if they have trouble staying awake to do, it's an indication something is wrong with them. In my experience, children who are badly congested will have trouble latching on and have difficulty nursing, and this can lead to frequent short feedings and eventually, tiredness and falling asleep on the nipple because the child isn't getting enough calories.

Just how well these authors contributed to learning about how parents can change in order to get children to sleep better is obviously subject to interpretation. It's interesting to note that the researchers clearly aimed to look for parental practices they could modify in order to improve infant sleep, but the one thing that was clearly under the parents control - how the parents responded to nighttime crying - didn't need to be modified because it wasn't associated with sleep problems. It's also very interesting that the thing most closely associated with sleep problems was male gender, something parents have no control over. If this study does anything, it makes me believe that children who sleep poorly are suffering from undiagnosed sleep disorders, and that blaming parents for causing these problems is a waste of time.

I'd like you to look now at a study which I believe most exemplifies how entrenched current beliefs about behavioral sleep problems have become, even though research doesn't support these views. The following study was conducted by some of the biggest names in pediatric sleep medicine and published in the top-ranked pediatric journal. When I originally read the abstract (a short statement at the beginning of the paper which briefly states the findings), I was eager to look at the findings. That's because the abstract is worded in a way that led me to believe the children in the study who were diagnosed to have behavioral sleep problems had been diagnosed using polysomnography. Polysomnography is the most accurate test available for studying sleep, and in children with behavioral sleep problems, it would be expected to be normal. The wording was deceptive, however, and all of the children felt to have behavioral sleep problems were diagnosed using clinical data, which means they were diagnosed during the course of an office visit. The other children in the study had sleep disorders which were diagnosed by polysomnography, which was abnormal and showed sleep apnea. Even though they had abnormal polysomnograms, many of them were also diagnosed to have behavioral sleep problems, which is odd since the children weren't healthy and sleeping normally, they had sleep disorders and stopped breathing during sleep. None the less, since they fought bedtime or woke at night, they were believed to have

behavioral sleep problems on top of their sleep disorders.

I know, it makes no sense. How can they have behavioral sleep problems and not be healthy and not sleep normally? They can't. They have insomnia from their sleep disorder, and isn't it interesting that some of the biggest names in pediatric sleep medicine insist on calling any bedtime and night waking problem behavioral, even faced with an abnormal sleep study.

The study was published in 1998 and titled *Sleep and Daytime Behavior in Children with Obstructive Sleep Apnea and Behavioral Sleep Disorders*<sup>3</sup>. It looked at 100 children diagnosed using polysomnography to have obstructive sleep apnea, and compared them to 52 children diagnosed by history and physical examination to have behavioral sleep problems. Almost all of these children fought bedtime which the authors felt led to a decrease in the total number of hours spent sleeping at night. The researchers found they could divide the group of 100 children with sleep apnea into 78 who just had sleep apnea and 22 who had sleep apnea associated with behavioral sleep problems, usually fighting bedtime.

Not only did the 22 sleep apnea patients who had behavioral sleep problems not sleep normally, they also didn't get enough sleep. Who's fault was this? The parents, because they weren't setting proper limits around bedtime and needed to use behavioral interventions to get the child to sleep sooner.

When they analyzed the data, the 22 children with sleep apnea and behavioral sleep problems had much less severe disease than the 78 children who had sleep apnea and didn't fight bedtime or wake at night. These 22 also had more disruptive daytime behaviors exactly like the 52 children with behavioral sleep problems. Based on their findings, the researchers recommended screening all children with sleep apnea for associated behavioral sleep problems and treating them with behavioral interventions.

Even I am confused by this study, and I include it just to show you the incredible bias towards believing in and treating behavioral sleep problems that probably don't even exist. What bothers me most is that children with sleep apnea are healthy enough and sleep normally enough to have behavioral sleep problems, and that the children with just behavioral sleep problems were diagnosed using only history and physical examination. None of them were studied with polysomnography to insure they were healthy and sleeping normally once asleep, which I guess isn't a prerequisite here, although I assure you it is in all my textbooks.

In many ways, behavioral sleep problems seem to be the diagnosis of choice in children no one wants to go through the trouble of doing polysomnography on, or when doctors can't explain why a child is fighting sleep or waking at night. The authors obviously screened the children for sleep disorders, and they saw no point in doing polysomnography to be sure none were present, but look at their findings. 22 children with mild disease fought bedtime or woke at night, where as 78 with more severe disease did not. If you know that insomnia is frequently a symptom of mild sleep-related breathing disorders, of which sleep apnea is one, then how far do you have to stretch your imagination to begin to see the importance of looking for mild disease in the group felt to be normal and just have behavioral sleep problems? Maybe you wouldn't find any, but can you see the importance of studying some of these children to be sure? Especially when this study is published in the top pediatric journal and read by almost all pediatricians, most of whom struggle to treat these children every day. What if 10% or 25% or 100% of them have mild sleep-related breathing problems like my son, and screening during an office visit won't find them? And what about the fact that children can see sleep specialists in 1998 and be sent home without testing with a diagnosis no one has established even exists and treated with behavioral interventions designed to treat behavioral problems, which they may or may not have.

Polysomnography is an expensive and sometimes challenging test to do on children, and in 1998, there weren't many sleep labs that enjoyed doing these studies. It involves hooking the child up to

expensive machinery that measures things like brainwaves, breathing patterns, movement, etc. We are a lot better at doing it now than we used to be, but that doesn't excuse this study. It is the only way to know if sleep is normal and whether or not a sleep problem is behavioral or insomnia due to a sleep disorder, yet no one has ever done a study of behavioral sleep problems that included it

Even though the authors found that milder disease was associated with more problems falling asleep and sleeping less hours in a 24 period than needed - which is basically what insomnia is - it doesn't occur to them that children with mild sleep apnea can suffer from insomnia due to their sleep disorder. They decide that 52 children with similar sleep problems have behavioral sleep problems and that polysomnography isn't needed to diagnose them, and they recommend treatment with behavioral interventions for both groups. What if these 52 children are like my son and their sleep disorders are missed using history and physical exam? Without snoring or obvious signs of breathing difficulty, and without polysomnography, how many of these 52 children have real sleep disorders vs. behavioral sleep problems we will never know, but my guess is that if 52 children ended up at the sleep specialist's office in 1998, when pediatric sleep specialists and polysomnography was no where near as available, then there was a reason. These were children who pediatricians threw up their hands with and cried for help, and instead of doing further testing, these children and parents were sent home to use behavioral interventions yet again.

When in doubt, blame the parents.

It's a little too convenient that children with mild sleep apnea also have behavioral sleep problems or fighting bedtime and night waking, while those with severe disease don't. If the problems were truly behavioral, then shouldn't it be randomly distributed among the 100 children with sleep apnea? Why would the bad parents who "failed to set limits around bedtime" all be concentrated in the 22 children who had the mildest disease?

Because the problems aren't behavioral. The children are suffering from insomnia which is a symptom of their mild sleep-related breathing disorder. If they appear to have behavioral sleep problems that parents are causing, it's because children who can't sleep involve parents in their problems, coupled with the fact that children who sleep poorly are difficult to raise and discipline. Yes, there are bedtime battles, but not because parents are lax. I've tried disciplining a tired child, and I assure you, it doesn't work.

I hope you can see the incredible bias here towards believing in behavioral sleep problems, and the crazy thinking that parents are causing sleep problems even in children who have diagnosed sleep disorders and can't possibly sleep normally. Without PSG studies on these children, we don't know if the 52 diagnosed to have behavioral sleep problems really had them. It seems much more likely that they have undiagnosed sleep disorders, and if mild disease causes insomnia, then it's mildest and least detectable in these 52 who were presumed to be healthy and sleep normally, even though they weren't getting enough sleep to begin with. It's almost as if the authors took a good study that had a lot to say about insomnia development in pediatric sleep apnea and they turned it into more drivel about behavioral sleep problems, all without any hard data to back up what they claim.

The next study looks at childhood sleep problems and relates them to parental perceptions about sleep problems, the medical history, and childhood psychopathology<sup>4</sup>. In 2001, researchers took medical histories and asked about abnormal behaviors in over 400 children who were between the ages of 4 and 12 years. They found "the best predictor of current sleep problems was a history of sleep problems before age 2 years" which is the time most behavioral sleep problems are diagnosed and then seem to fade away and disappear, or at least are no longer brought to the attention of a physician.

Sleep problems such as snoring, tiredness during the day, and taking excessive time to fall asleep were very common, occurring at least 1 night per week in over 20% of the total sample...and children with high scores in insomnias were also more likely to display an increased prevalence of allergies.

This study is one of the few that links insomnia in children to allergies. It also indicates that the best predictor of sleep problems is problems under the age of 2. Once again, this makes me believe that sleep disorders can enter a quiet stage, like my son did when he eliminated naps and appeared to be sleeping better, although in retrospect, he remained overtired, he just woke less frequently at night. How many children are like him and go on to have problems later, no one knows.

Almost all the other studies on parents causing sleep problems have looked at using education to prevent their development. Researchers educated parents about the importance of “setting limits” and “allowing the child to learn how to fall asleep alone,” along with instructing them on how to help the child establish a good circadian rhythm, and then reevaluated the children later to see if sleep problems were prevented.

When researchers have done this, they consistently find a “significant reduction in the number of sleep problems reported by the parents” when compared to a control group where parents received no special education. This improvement has been shown to last for at least 6 months. Does this mean that parents are preventing sleep problems by setting limits or forcing children to fall asleep alone? No. The improvement appears to be from children learning how to “settle” or sleep through the night sooner than they might have when parents are left to their own devices. By doing things that help establish a good circadian rhythm as soon as possible, night waking and bedtime problems are naturally reduced. Yes, there is a reduction in the number of sleep problems reported, but not because parents were setting limits and encouraging self-soothing. And, no matter how well trained parents were, sleep problems still occurred in seemingly healthy children, something behavioral theories can't explain this.

When you think about it, sleep is behavior, but it's different than other behavior. The act of falling asleep, as well as the moment when sleep stops, is not something parents can toy with other than to help children schedule when they sleep and provide a suitable sleep environment. And without any proof that parents can cause sleep problems, it's time we stopped blaming them and started concentrating on the patient.

I am not the only one questioning current beliefs about behavioral sleep problems, although I have to say we are in the minority. A study came out in April of 2008 by Simard<sup>4</sup> and her associates looking at “maladaptive parent behaviors” (eg., mother present at sleep onset, giving food/drink after child awakens). They found that “maladaptive parental behaviors develop in reaction to preexisting sleep difficulties.”

This is what I have believed for quite some time. Children who sleep poorly cause their parents to fall into bad habits as they try to help the child sleep better. Adding more stress to the situation by “limit setting” or leaving a child to cry isn't appropriate unless we know for sure that the child is healthy and sleeping normally. Since no one has been able to prove this yet, I doubt they will, and as we get better at recognizing sleep disorders and insomnia in children, hopefully behavioral sleep problems and behavioral interventions will become a thing of the past.

Whether or not you agree with this view, all of the studies show one thing - no matter what parents are doing, sleep problems still develop. Instead of looking at how the parents can change, it makes more sense to look for medical reasons for a child to sleep poorly. Over time, this should happen, although this

is little, consolation for parents struggling with the problem right now.

Beliefs about behavioral sleep problems are firmly entrenched in the minds of pediatricians and sleep doctors. When beliefs are this firmly entrenched as these are, don't expect any overnight changes, especially when careers have been built on these theories. Just educate yourself and make up your own mind on the subject, and if push comes to shove, make sure your pediatrician or sleep doctor orders polysomnography to be sure of the diagnosis.

As a conclusion to this chapter, which is full of scientific information and possibly not that interesting to a tired parent, I'd like to relate a couple of my experiences talking to doctors in sleep medicine about what has been discussed in this chapter. I assumed, like me, they would want to get to the bottom of my concerns and know the truth, but this wasn't the case. At conferences on these subjects, once I brought up this information I started feeling decidedly uncomfortable. Sitting through a lecture by Dr. Ferber, who is widely known as the doctor who came up with "crying it out," I raised my hand to mention that many children with what appeared to be behavioral sleep problems actually had insomnia related to breathing problems, and I asked if he had ever studied these children with polysomnography. He told me "Why would I order an expensive test when all you need to do is pat the child on the back for a few nights and the problem is solved."

I asked him where he was getting his patients, because they were nothing like mine, and although no one raised their hand to support me, after the conference, several lesser known specialists confided that they just as frustrated as I was. Were they doing polysomnography on these children? No. Insurance wouldn't pay for it.

That's not necessarily true, if you know that even mild breathing difficulty can lead to a sleep-related breathing disorder and look for mouth breathing, then any insurance carrier will pay because the diagnosis of sleep-related breathing disorders mandates testing. But at the time, no one was worried about mouth breathing.

What insurance won't pay for is polysomnography to diagnose a behavioral sleep problem, especially when the world's leading authority says "just pat them on the back" and doesn't do them. At the time, the only sleep doctor I could find who shared my deep concerns was Dr. Christian Guilleminault at the Stanford Sleep Center. If anyone is looking for someone to listen to about pediatric sleep problems, he is the man, although few parents know his name.

One last thing. I was appalled to attend a pediatric sleep medicine seminar where a physician was presenting a case of severe behavioral sleep problems in an older child. As she started to talk about bedtime battles and sad situations the parents described around sleeping, almost everyone in the audience started to groan or laugh knowingly. Yes, the parents had gone to extreme measures to get the boy and themselves some sleep, and the problem had just worsened, but from the crowds reaction, I had the feeling the parents were being blamed for the problem. Every specialist in the audience had similar families coming for help, and just as in this case, a behavioral sleep problem and behavioral interventions were offered.

Looking at the data that was presented, it soon became obvious that the child had asthma and that his mild breathing problem had never been investigated well-enough to rule out a sleep-related breathing disorder. This meant he could have insomnia as the presenting symptom, and that his problems only looked behavioral as his sleep disorder and sleeplessness had worsened. The specialist soon agreed that instead of being sent home with behavioral interventions, the child should have had polysomnography and future treatment of his sleep disorder might lead to resolution of his so-called behavioral sleep problem.

In the end it was the specialist, not the parents, who looked guilty.

Score one for the parents.

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## Chapter 3

### The Role of Polysomnography

Polysomnography is a big word for a complicated test more commonly known as a sleep study. Most of what goes on during sleep and that goes wrong can't be determined by just watching someone sleep. That means we have to hook the sleeper up to some fairly complicated machines that can measure the things we are interested in. The test measures things like brainwaves, breathing patterns, blood gases, movement, and heart rate, and gives the interpreter of the test a fairly detailed view of what is occurring as the patient sleeps. Usually, it's done over night in a sleep study lab, but it can also be done in your home using portable machines and sometimes, nap studies done during the day will suffice.

If there is one take home point to be made in this book, it is the importance of using an objective measurement of sleep quality like the sleep study whenever a child's sleep problems continue and haven't responded to behavioral interventions. Even though I don't believe in using behavioral interventions, most physicians do. That's fine with me, as long as they give up on them once a parent says they don't work. Unfortunately, many physicians think behavioral interventions fail because parents aren't able to accomplish using them. Nothing could be further from the truth. They fail because they aren't the right treatment.

According to Dr. Ferber, the person usually given the dubious distinction of coming up with "crying it out," this treatment should work within a few days. What I recommend doing, however, since many doctors claim parents are at fault when behavioral interventions fail is telling your doctor you tried for much longer than that...say at least a week to 10 days, and saw no improvement. Also, keep a good sleep diary for a few weeks and ask your doctor if your child is sleeping enough total hours in a day. If they don't know the answer, consider calling a sleep specialist on your own.

One of my crusades in studying pediatric sleep disorders is related to this point. No one has ever proven that children with behavioral sleep problems sleep normally once asleep. Not one study of children carrying this diagnosis has ever employed polysomnography to see how their sleeping. Every single study has relied on parental reports, and this is just too inaccurate to base diagnosis and treatment on in so many children.

This is a terribly important point. The more we know about sleep disorders, the more we know polysomnography is vital to diagnosis and treatment. It is the gold standard by which sleep quality is determined, and it often reveals unsuspected abnormalities that can alter the diagnosis and treatment.

That means our belief that these children are sleeping normally are just that - unproven beliefs. For all we know, many if not all of these children are like my son and have undiagnosed sleep disorders.

If that idea doesn't interest you or shake you up, then consider the fact that any child diagnosed to have a behavioral sleep problems is routinely treated with behavioral interventions like "crying it out." If we are wrong about a diagnosis which affects an estimated 25% of children during the course of their life, then we are also wrong about the treatment. Crying does nothing to help an underlying sleep disorder, although it very possibly could teach a sick child to suffer in silence, and what good is that?

Behavioral interventions were invented to treat problem behaviors assuming the parents were

somehow teaching their children to sleep poorly. They are advised as treatment under the assumption that the child is healthy and sleeps normally. And until someone does a study to prove this, delaying proper treatment for an underlying sleep disorder is dangerous business.

When I mention this to sleep specialists, they never seem to get as upset about it as I think they should be. Maybe they believe they are so good at determining who sleeps normally that they don't need further testing to prove it, but what about the average pediatrician who diagnosis and treats the vast majority of these children. How good are they at knowing who is healthy and sleeps normally? In my estimation, not very.

Maybe we should do at least one study using polysomnography to confirm that these children sleep normally and actually have behavioral sleep problems, and then, maybe we can talk intelligently about the use of behavioral intervention. I suspect if we did this, most if not all of these children would end up having medical causes of insomnia.

## Chapter 4

### Should We Use Behavioral Interventions Like “Crying It Out?”

If parents don't cause behavioral sleep problems, then they aren't behavioral, and if they aren't behavioral, then we shouldn't use behavioral interventions to treat them. Behavioral interventions were designed to change the behavior of the child by changing the behavior of the parent, but what if fighting bedtime or waking at night isn't bad behavior that parents can change, it's insomnia caused by an underlying sleep disorder? Will behavioral interventions like “crying it out” still work, and is this dangerous?

When I learned about behavioral interventions, no one ever said anything about them not working or how long they should take to work before giving up on them. For years, I just assumed they were always effective, and even though they never seemed to work, the parents always still looked guilty of causing the problem so I blamed them and told them to try harder. I never considered this might be because the treatment wasn't effective, and since I had never been taught any alternative treatments, I persisted in using them.

If those same parents had come to me to have their child's ear infection diagnosed and treated, they would have gone home with an antibiotic and an return appointment for reexamination. If the ear infection was still there, it never would have occurred to me to blame the parents for this, or to accuse them of not giving the antibiotic correctly. I would have assumed my treatment was inadequate and given them a new medication. But when it came to behavioral sleep problems, I had a much different view. I routinely blamed parents when treatment failed, and it never occurred to us that the treatment, not the parent, was wrong. Probably, this was because I never found anything physically wrong with these children, so by default, I blamed the parents, although now I realize that I just hadn't known what to look for.

Many studies have come out since I had trouble with my son that show physicians are poorly trained to recognize and treat sleep disorders. I left residency knowing virtually nothing about sleep medicine except what I had been taught about behavioral sleep problems and behavioral interventions, and my colleagues were no different. This means when a pediatrician diagnoses a child as having a behavioral sleep problem and finds them “otherwise healthy and sleeping normally” that they know virtually nothing about what causes sleep disturbances or how to look for signs and symptoms of these problems. If I had known how to recognize sleep disorders, then I never would have misdiagnosed my own son. It just never occurred to me how incapable I was, nor does it occur to other physicians. You don't know what you don't know, and this means the vast majority of sleep disorders go undiagnosed and untreated, not because patients don't have signs and symptoms of their diseases, but because physicians don't know what the signs and symptoms are.

In my quest to understand what had happened to my son, I reviewed the literature on behavioral interventions, I learned that their effectiveness was far short of what I had believed and this had only been established for “extinction” forms of behavioral interventions.

Extinction is what the one successful mother in my practice had used when she left her child to cry each night and didn't return until morning or unless it sounded as though the child might be in danger. As

the word extinction implies, you continue to ignore the behavior you want extinguished until it stops. If you can ignore your child's cries, then rest assured, eventually your child will stop calling out for you.

I'm fairly sure it is possible to teach a child to stop bothering a parent if you leave them alone to cry long enough. I just don't have the heart to do it. If anything is being treated, it's the parent's sleep problem, not the child's, and that wasn't my goal.

Obviously, I'm not very enamored with extinction forms of behavioral interventions. Very few parents can live through them, so it doesn't matter how effective they are. That's why I always recommended graduated extinction. This involves listening to a certain amount of crying, usually 15-20 minutes worth, and then returning to the child to quickly reassure them you are there, but not picking them up, and quickly leaving again to repeat the process as needed. The success rate with this form of behavioral intervention is nowhere near as good, but at least parents can do it.

In general, I found that the studies cited as supporting the use of graduated extinction are too poorly done to draw conclusions from. They consisted of case reports about a single patient or a very small number of patients who all responded to treatment. Control groups (non-treated patients to compare to) were rarely used, and what constituted success varied quite a bit. Reading them over, I again found there an obvious researcher bias towards finding behavioral interventions useful.

In 1999, Mindel reviewed all of the studies and concluded that a certain number were well done enough to use in determining the effectiveness of behavioral interventions. At that time, extinction was found to be an effective treatment, but graduated extinction could only be recommended it as "probably" effective, as was another behavioral modification technique known as "scheduled awakenings."

Scheduled awakenings deserves mention here. I have nicknamed this treatment "the parent's revenge." Parents are instructed to wake the sleeping child roughly 15-30 minutes before their normal wake time. This prevents the child from waking and calling out for the parent. The parents are then instructed to briefly interact with their child and return them to the crib. Although I've never had parents tell me about their experience using this treatment, I am concerned that parents wouldn't know when their child would be waking, so scheduling could be difficult, and what should the parents do if the child doesn't want to go back to sleep? Should they just let the child cry? Research indicated that scheduled awakenings were about as effective as graduated extinction, which means this is probably an effective way to end night waking problems.

How effective is that? Depending on which study you use, from 50 -80% of children respond to treatment, and this appears to last at least 6 months.

That means that more than half of the time, parents should be able to see improvement in their child's sleep using behavioral interventions. In my experience, the success rate is much lower, and "probably" effective is just a polite way of saying "often ineffective." Had I known that some researchers had found treatment to be as successful winning a coin flip, I doubt I would have told so many parents to keep trying when behavioral interventions failed. Unfortunately, I'm one of the few pediatricians who has taken the time to read the studies, and most continue to believe as I once did that treatment always works. Even using the most successful studies, 20% of children don't respond to behavioral interventions like "crying it out," so you would think pediatricians would come up with alternative treatments, but we had not.

To show you some of the problems the studies showing effectiveness of behavioral interventions had, let's look at one conducted by Hall<sup>6</sup> and associates. The authors admit that they are publishing preliminary findings that warrant further study, but publish they did, and this study is a good example of many of the others done in this area. The researchers looked at 35 infants who were 6 months-old and had

sleep problems. They instructed the parents on how to use behavioral interventions and reevaluated the children 4 months later. None of the children had PSG testing and there was no control group used to compare to. (A control group is a group of similar children who receive no treatment to compare to so that any natural improvement or worsening of sleep problems over time is not attributed to the treatment.) Researchers found that after 4 months, the children had decreased crying and calling out for their parents at night and an increase in the total number of hours during the longest sleep period.

\ That sounds great, until you realize that any 6 month-old is going to show improvement in their sleep habits over the course of 4 months and call out less for their parents at night, no matter what the parents are doing. Because these researchers failed to include a control group, we aren't sure if the improvement they measured was due to the behavioral intervention or just the result of getting older. This study also used very low numbers of patients, which makes statistical analysis difficult.

The studies included in the review article by Mindell which found extinction to be effective and graduated extinction to be "probably effective" almost always failed to include a control group even though most of the patients were infants who would be expected to show improvement in sleep habits over time. This means that measured improvements in sleep weren't necessarily due to the behavioral intervention, so how accurate is a 50% or 80% improvement if you don't know how much is due to the behavioral intervention. Also, at least two of the studies she cited reported that there was no benefit from using behavioral interventions, which Mindell notes but doesn't include in her final assessment of effectiveness. Since none of the studies included PSG testing to confirm sleep was normal, you can also question what exactly what was being treated and what changed. Relying on parent reports that sleep had improved means the studies were measuring improvement in the parent's perception of how well the children were sleeping, and how accurately this reflects what really happened no one knows.

It's probably obvious to you that my bias is the opposite of most of these researchers. I don't support behavioral theories about sleep problems, and I don't condone the present day use of behavioral modification techniques as treatment. These views were forged by my own experience raising a sleep-deprived child who slipped through the cracks of our present day belief system. And the more I have educated myself to learning about behavioral sleep problems, the more I realize that this diagnosis is where the vast majority of children with treatable sleep disorders end up being inappropriately diagnosed and treated. This is a sad situation, since little evidence exists to support current beliefs and treatments for behavioral sleep problems. So lacking is the evidence that I would urge any parent who has a child diagnosed to have this sleep problem to go for polysomnography testing to confirm the diagnosis.

## Chapter 3

### My Views on Sleeplessness in Children and Adults

Over the years, I have come to see that where I differ most from other physicians on childhood sleep problems is my belief that children who fight going to sleep or continue to wake at night aren't sleeping normally. I believe you can't treat behavior that occurs around falling asleep or once asleep like normal conscious behavior, and that having trouble falling asleep or waking abnormally at night isn't something that ever comes under a child's control. It isn't learned behavior to be wide awake and full of energy at bedtime or to be awake and crying once or more times a night demanding to be with the parents. To me, this is caused by the fact that the child can't sleep normally and stay asleep normally, and has nothing to do with the parents. Parents certainly get caught up in the problem, but they don't cause it. It simply isn't possible to teach a child to be wide awake when everything indicates they should be tired and fast asleep. That can only occur within the child.

I wasn't taught to believe this during my medical training, and there are probably many who would disagree with me. Until someone does the definitive study and looks at children believed to have behavioral sleep problems with polysomnography, we won't know who's right, but I think most of the existing evidence is in my favor.

Over the years I have taken detailed sleep histories on all my patients, something few physicians caring for children have done. This has taught me more about sleep than I've ever found in my textbooks or journals. I also spent a great deal of time watching videotapes parents brought of their children sleeping which was enormously helpful in determining what's normal vs. abnormal sleeping. Watching these tapes I learned that children who can't sleep aren't involved in some manipulative power struggle with their parents; they are in distress, and the distress can be seen to start long before they call out for their parents. These children aren't spoiled children in need of limit-setting or self-soothing behaviors; they are sick children in need of help. They look and act exhausted, yet they are driven to be awake, and eventually they involve their parents in the problem.

Over time, I got better at recognizing the historical and physical signs of illness that can be associated with sleep problems. I realized the children who fought bedtime or woke parents at night were never "otherwise healthy" and sleeping normally. Like my son, if I looked for and asked about certain problems, they were always present. I had just failed to recognize them or I had known about them and dismissed them because I didn't realize they could contribute to sleep difficulties. Once I connected the illnesses to the sleep problems, treating them became incredibly easier, and I never had to resort to behavioral interventions that failed me because I stopped diagnosing behavioral sleep problems.

In my experience, most children who have problems falling asleep at bedtime or continue to wake parents at night past the age when feeding requires it have mild breathing difficulty. I would estimate this is close to 90% of pediatric patients. The milder the breathing difficulty, the more severe the insomnia can be. Almost all the rest have problems like food allergy or gastro-esophageal reflux which is frequently associated with breathing difficulty.

It's probably most accurate to say that anything that causes discomfort has the potential to disrupt sleep and cause insomnia. Only occasionally have I come across a patient where I had no physical explanation for their sleeplessness, and these are the children who need to be studied with polysomnography. This test can diagnose things like periodic limb movement disorder, which is abnormal

movement of the arms or legs during sleep that causes sleep disruption. It can also find unsuspected seizure activity and other problems.

At the time I became interested in sleep in the early 1990's, there weren't many pediatric sleep specialists available, so I couldn't refer patients to them. Once they appeared, I found that many times when I referred patients to them, they came back to me with a diagnosis of behavioral sleep problem and no polysomnography done. This used to frustrate me, but I learned that the way we used to do sleep studies, all too often the test would just come back normal so it didn't help to do it. This has changed. Using more modern testing methods, the test has become much more useful in children.

Besides looking at sleep, I found it was enormously helpful to look at how children were behaving during the day. Tired children act differently than rested ones, and it's important to be aware that tired children don't always look tired. My own child seemed to have almost too much energy during the day, and I never considered the possibility that he was tired, even though I was obviously wrong. Tiredness seems to make children act out of control, as if they can't put the breaks on their own actions. That's why my son was aggressive, hyperactive, moody, and had difficulty in school. At the time, I never saw these things as being sleep-related, although since then studies have confirmed that all of them may be.

My son had more obvious signs of being sleep-deprived as well, although I never paid much attention to them. He was difficult to wake in the morning and frequently fell asleep in his car seat or when he was watching tv on the coach at night. All of these things I now consider late signs of overtiredness, meaning they appear only after he became chronically sleep-deprived over months and then years.

I am always careful to ask parents about signs of being a difficult or doing poorly in school, and if present, looking for sleep problems. If a parent tells me their child sleeps well, I don't stop asking question. Often I find out the parent sleeps at the other end of the house and really has no idea how the child is sleeping. If that is true, I ask them to return after observing the child for at least 4 hours while asleep. This will cover a few sleep cycles and give me a good idea of what's going on.

I also ask them if the child ever had trouble sleeping. Many parents remember the child initially having sleep problems that seemed to fade away and be replaced by falling asleep very easily and sleeping quite soundly. If this is coupled with daytime evidence of tiredness, it's likely the child isn't sleeping better at all. Sleeping like a log isn't sleeping like a human, and the "best" sleepers can actually turn out to be the worst.

I feel very strongly that any child with hyperactivity or learning problems needs close attention paid to sleep and should be studied with polysomnography even if no obvious sleep abnormalities surface during the history and physical. Studies indicate that when hyperactivity symptoms are mild, the chance the child has a sleep-related breathing disorder are very high. Also, when sleep disorders are treated, most children see at least a full grade improvement in school work. This means a child of normal intelligence can go from being a D student to a C student without doing anything more than having their sleep disorder treated. Before placing children on life-long treatment with drugs like Ritalin that have effects that combat tiredness as well as lessens hyperactivity, we need to understand exactly what we are treating.

To truly understand my views on sleeplessness, all you really have to do is look at the adult medical literature on insomnia and how it's evaluation and treatment has evolved. In the not so distant past, adults with insomnia were dismissed as having behavioral or psychological problems and offered little help from physicians who either referred them to psychotherapists or handed out sleeping pills which left patients even more groggy during the day. Insomnia was dismissed as a "psychosomatic" problem brought about from too much worrying and caused by the patient themselves.

As sleep disorders in adults were studied more vigorously, it was learned that many patients with sleep disorders didn't complain of the usual daytime tiredness, but instead, suffered from insomnia. As this became known, more and more insomniacs were sent for polysomnographic testing, and frequently the test revealed something the physician wasn't expecting. Once treated, the insomnia improved.

I believe we need to learn from our adult counterparts and start studying more children with bedtime and night waking problems, especially those who don't respond to behavioral interventions. Instead of viewing these things as problem behaviors, we have to start viewing them as insomnia and looking for medical reasons for the child to experience this.

In my own practice, the way I approach bedtime and night waking problems in children is to first look for family history of breathing problems, sleep disorders, and allergy. If one parent is allergic, the child has at least a 50% chance of being allergic as well. These may not look allergic yet, but it's not hard to spot them. They have more ear, throat, and sinus infections, and they take longer to get over a cold. Any history of prematurity is also important. Premature infants who have trouble breathing are likely to have changes in the lung that predispose them to sleep problems and this needs to be taken into consideration. If the child has an obvious breathing-related sleep problem, the parents will usually report snoring, episodes of difficult or absent breathing (apnea is cessation of breathing for 10-15 seconds or longer and very frightening for parents who also report shaking the child to help them breathe).

I then take a detailed sleep history, looking at when sleep problems started and how they evolved and were treated. I ask about signs of abnormal sleep, such as restlessness, sweating, sleeping in strange positions, snoring, breathing difficulty or cessation. I also ask about abnormal jerks in the arms and legs. I am also careful to be sure the parent has actually observed the child sleep, and if they have been sleeping in another room, ask them to spend 3-4 hours watching their child sleep at night. I specifically ask about mouth breathing at night or during the day, and any snoring, no matter how infrequent. Asking about drooling during the day or night also is an indication of mouth breathing. I ask the parents about abnormal chest movements or apneic spells. Children who have difficulty breathing may also have paradoxical chest and stomach movements. This is where the chest moves up while the abdomen moves down, almost like a see saw moves. It is due to the way children are shaped and is caused by the diaphragm (muscle that works to cause the chest to expand during breathing) working against an obstruction.

If the child and parents deny mouth breathing, I find it is often that they don't know what I'm really asking. If the child is old enough to cooperate, I ask them to close their mouth and breathe for 1 minute. If I see the nostrils flare or that the child has to open the mouth to gulp some air, then they fail and are mouth breathing. I'm surprised at how many children cheat on this test and then tell me they don't mouth breathe. In infants, watching the child eat is usually a good enough test. If the infant has to keep spitting out the nipple or keeps it clenched between the teeth and opens the lips around it, to suck in air, then they are mouth breathing. Sometimes I resort to the following quick test which I always warn parents may look mean, but is quick and gives a lot of information. Holding my fingers together, palm side down, I place my hand gently over the child's mouth to prevent them from using the mouth to breathe. If I see the nostrils flare and the child starts to fight having my hand over their mouth, it's almost certainly due to mouth breathing. If there isn't any flaring of the nostrils, it's probably just that the child doesn't want my hand on their face.

During the rest of the exam, I look for any ear infections, increased adenoid or tonsillar tissue in the throat, listen to the chest for wheezing, and look for skin rashes associated with allergies. Using all this information I can usually arrive at a reason for the child to sleep poorly and treat it.

When a sleep disorder is severe and longstanding, there will usually be changes in growth, so it's important to ask about the height and weight of any siblings, parents, and grandparents. You don't need to

be exact, but you need to look at the size of anyone in the family that will help you determine where the child should be on the growth curve. If both parents are tall, then having a child be in the 25-50% isn't as good as it looks. Also, many children with sleep problems are now known to have problems with obesity, and any child who is overweight should have this looked at.

Of course I can't send every child to the allergist for shot therapy, so when I believe congestion and mouth breathing are an issue, I ask parents to try the following steps which are aimed at treating allergies. Get rid of pillows or cover in hypoallergenic covering. allergic children to do the following.

## Chapter 5

### Pediatric insomnia

Things are beginning to look up for children with insomnia. As I mentioned, it used to be difficult to even find the word in pediatric textbooks, but this has changed a great deal since 20 years ago when my son was having problems. If you do a search for information on this subject you will find it can be caused by or associated with the following; cow's milk allergy, allergic rhinitis (like my son), asthma, eczema, attention deficit/hyperactivity disorder, sleep-disordered breathing (sleep apnea and UARS combined), chronic pain (like juvenile rheumatoid arthritis), gastro-esophageal reflux, periodic limb movement disorder, and many psychiatric problems (depression and anxiety). As more and more causes of insomnia are described in children, hopefully, we won't have to worry about children being misdiagnosed as having behavioral sleep problems.

Another promising change is that there is now clinical information about how children with sleep disorders sleep and act during the day. Clinical information means the type of information doctors can ask parents and patients about and look for during the physical examination. Patients with sleep-related breathing disorders who used to all be described as excessively tired during the day are now known to frequently have insomnia, restless sleep, excessive sweating during sleep, unusual breathing changes like noisy breathing, snoring, mouth breathing and apnea, along with daytime behavior changes such as oppositional thinking, aggressiveness, hyperactivity, and learning disorders. Many of these things would have helped me to identify my child sooner, but they simply weren't described yet when he had problems.

Even though there have been incredibly advances in the study of pediatric sleep disorders, the field still lags far behind what is happening in this area with adults. This discrepancy has occurred for several reasons. Most of the original founders in the field of sleep medicine were physicians who cared exclusively for adults, usually specialists in neurology and pulmonology who were most likely to come in contact with patient who had sleep disorders patients and became interested in how best to diagnose and treat them. The last time they spent any time with pediatric patients was in medical school, and for most of these doctors, that brief encounter was enough to cure them of ever wanting to see children as patients. That meant pediatric patients with sleep disorders were neglected. In fact, many sleep doctors felt so uncomfortable around pediatric patients that they refused to see them at all, so specialist in this area weren't always available. As more doctors have become interested in pediatric sleep disorders, this has improved, and most large sleep clinics now employ at least one physician who specializes in pediatric sleep problems.

Studying sleep also requires the use of polysomnography. This test requires the patient to sleep hooked up to expensive electronic equipment, and it is just inherently more difficult to do on children than it is in adults. Not only do children have to cooperate, which isn't always a given, but polysomnographic technologists have to be specially trained to take care of them. Because of the difficulty of doing the test, research into pediatric sleep disorders has often substituted historical information from the parents in place of sleep studies. But asking someone how well they think someone else is sleeping is obviously not the most accurate way of studying things. Today, more and more sleep labs are set up for use by children, and there has been a strong push towards doing more psg testing.

Polysomnography has been so underutilized in children that little data exists about what normal values

are in children. This problem is compounded by the fact that sleep changes over time, so that norms need to be established for different ages from birth until young adulthood.

I suspect that just as was found in adults, many children with insomnia will end up having abnormal polynograms if tested. As we get better at recognizing pediatric sleep disorders, we will also get better at knowing who needs this test. It's possible that just as was found in adults, many children with insomnia won't have easily treatable polysomnographic abnormalities. Newer research in adults indicates that the brainwaves of many adults with insomnia are abnormal both awake and asleep, and that they show evidence of abnormal levels of arousal. This is felt to lead to difficulty falling and staying asleep. Over time, I have no doubt someone will figure out why this is, and lead to new ways to treat the problem.

I currently recommend that if an obvious cause of insomnia is found treatment should be undertaken and if the sleep problem resolves, the patient can be watched. If it doesn't, then the patient should be studied with polysomnography. Most children who are diagnosed and treated quickly won't need to be tested, but any child with a long standing sleep problem should be. We don't know what all the long term effects of delaying treatment are, and it's important to get a base-line study for future monitoring.

What can a sleep study tell you? Until very recently, we only looked at the macrostructure of sleep. Sleep occurs in a cycle, going from light stage 1 sleep, to deep stage 4, and also into rapid eye movement (REM) sleep. In the past we looked only at how this macrostructure of sleep was preserved or disrupted in order to diagnose sleep disorders.

Without getting too technical, we now know that changes occur on a smaller scale, which is called the microstructure of sleep. By measuring something called the "cyclic alternating pattern" or CAP that occurs in brainwaves, we can find abnormalities in the stability of sleep. CAP measurements give a good indication of how stable sleep is, and things that might be disrupting this. It is possible to have a normal macrostructure, but an abnormal microstructure, so it's important this measurement is made so that diagnosis and treatment can be made appropriately. Studies that failed to look at CAP may mistakenly conclude sleep is normal when it isn't. Attention to subtle changes in sleep microstructure has greatly improved our understanding of sleep.

Increases in CAP rates indicates an increased level of arousal that can result in difficulty falling and staying asleep, so any child with insomnia who is sent for polysomnography should have this looked at.

Researchers are finding that CAP rate is reflected in subtle changes in heart rhythm. Using equipment that analyses heart rate variability, we may soon have another way to study sleep that is much easier to perform.

Let's look now at the different causes of insomnia in children.

Cow's milk allergy - This can be diagnosed in the newborn period, with some children having milk intolerance from the first feeding, but often diagnosis is delayed unless the physician is suspecting of the problem. These children often look healthy, but most have symptoms of allergy, like rash, vomiting, diarrhea or constipation, and irritable or colicky behavior. Frequently there is associated upper airway congestion, with a clear nasal discharge and swelling in the nose, occasionally wheezing, enlarged tonsil or adenoids, and a skin rash that can vary quite a bit. Often it is most prominent over the cheeks, and the skin there looks very pink and slightly scaly.

The rash may also affect the limbs and trunk, and looks like patches similar to the cheeks or just mosquito sized red bumps. The way the diagnosis is made is to suspect the problem and take the child off all dairy products, paying close attention to labels that indicate the food has milk solids, casein, or whey included.

If the child is breast feeding, the mother must stop all milk products. If the child is on a cow's milk based formula, then they should be switched to a hypoallergenic form. If the diagnosis is correct, over the next few weeks, sleep should normalize. The current recommendation is to re-challenge the child with a small amount of milk several weeks later to be sure of the diagnosis. If sleep problems return, it's cow's milk allergy. All dairy should be avoided until the child is 4-5 years old. At that time, a cautious reintroduction of milk can be tried under the supervision of the doctor.

Allergic Rhinitis/eczema/asthma - I combine these three because they are usually seen together. Eczema by itself is believed to cause sleep problems because it is so "itchy." Sleep is disrupted because the child is uncomfortable and may actually cause the skin to bleed due to scratching. The effects of allergic rhinitis and asthma on sleep are not completely worked out in children. Allergic rhinitis certainly contributes to mouth breathing, and many studies indicate this route of breathing leads to collapse of the upper airway and disrupt sleep. It's also been shown that some of the by products of inflammation produced during an allergic reaction can directly effect the brains perception of sleepiness. These breakdown substances affect even people who are breathing normally and makes them feel tired. No studies using polysomnography have been done on these children yet, so we aren't sure if they are experiencing sleep-related breathing disorders or not. We do know that controlling symptoms of allergy with nose sprays and inhalers results at least in adults with improvement in the perception of sleep quality, but this subjective improvement (the patient's assessment) needs to be looked at more closely and confirmed with objective findings of a polysomnogram.

Periodic limb movement disorder - This is seen on psg testing as abnormal movement of the arms and/or legs that results abnormal arousals during sleep. These arousal don't last long enough to be consciously registered by the patient, but when they repeatedly occur, they disrupt the normal sleep cycle and lead to problems. During the day there may also be an abnormal sensation in the limbs that patients describe as a creeping sensation that is only relieved by movement. Many children diagnosed to have growing pains are felt to actually have this disorder because inexperienced physicians confuse the two. These abnormal movements respond to medication that affects neurotransmitters and once the number of arousals is reduced enough, patients report sleeping better.

Sleep-related breathing disorders- This includes Obstructive sleep apnea and upper airway resistance syndrome. Roughly half of the patients with sbd complain of insomnia symptoms, with the rest being overly tired and falling asleep too easily. Adults with these problems are at risk for falling asleep while driving, and sleep-deprivation, not alcohol, is the most common cause of car accidents. There are many studies supporting the view that the milder the sleep-related breathing disorder, the more likely insomnia is to occur, and that as disease worsens, insomnia is replaced by sleeping too much and falling asleep too easily. Milder disease seems to disrupt sleep less and leave the patient less sleep-deprived and more sensitive to normal arousal mechanisms that help deal with breathing difficulty during sleep. These arousal mechanisms also make it difficult to fall asleep and stay asleep, leading to insomnia. As disease worsens, sleep-deprivation grows and the patient is too tired to stay aroused. They start to fall asleep too easily and sleep longer than normal, but it isn't refreshing sleep. They still wake-up tired. The fact that mild disease causes insomnia is yet another reason why we need to keep studying insomniac patients using polysomnography. It's very likely that slight changes in breathing and brainwaves are enough to disrupt sleep but are going unrecognized in most patients with insomnia. An increase in cap rate may be the only thing that is found on these patients. The hallmark findings in these disorders would be snoring, periods of stopping breathing during sleep, mouth breathing, enlarged tonsils and adenoids. Treatment is by removal of the tonsils and adenoids and usually the patient is completely better. They need to be followed however and PSG testing later in life to see if the problem recurs is warranted. Frequently, these patients have ADD symptoms, learning problems, and negative daytime behaviors, all of which improve after treatment.

Gastro-esophageal reflux. This disease is caused by a problems at the junction between the esophagus (feeding tube) and stomach leading to acidic gastric contents entering the esophagus and mouth. Often, the disease is not readily apparent because it just involves the esophagus. If the stomach contents enter the mouth, there is a likelihood the child will vomit or spit-up, making the problem easier to detect. Night time coughing can frequently occur and may be the only indication of a problem. The best way to diagnose the problem is by inserting a small probe into the esophagus, usually through the nose. Fluid can then be aspirated and tested to determine if it is as acidic and from the stomach. If acidity is detected in the middle esophagus, it's an indication gastric contents are reaching this area abnormally. This problem can be treated with medications and thickened feedings.

Prematurely - Depending on how well the child did as a premie, many will have lung disease that acts much like asthma in terms of disrupting sleep. Treatment is decided after psg testing. If the child is having enough of a problem, they may be treated with bronchodilators and oxygen to help them. If severe enough, many premies are sent home on cardiopulmonary monitors that alert the family if there is a problem.

## Chapter 6

### How to get a good sleeper as soon as possible

Decide right away on where you want your child to sleep and put them there when they look sleepy. That sounds simple, but it's amazing how hard it is for some parents do this, especially first time parents. They always seemed surprised when I tell them a child who has their eyes closed and appears to be sleeping is actually sleeping. That's because children have a suck reflex that causes many of them to look like they are still eating, but they aren't. Children who are eating have their eyes open and are awake. Once the eyelids start to close, the child is going to sleep and only appears to be eating. If the nipple is still in the mouth, it may stimulate the child's suck reflex, but this is a non-nutritive suck, and if any food is taken in, it's in negligible amounts because the child is sucking, but not swallowing. Never continue to try to feed an infant who is falling asleep. Replace the breast or bottle with a pacifier if necessary, but remember that sleeping babies should sleep, not eat, and once the eyelids start to close, the baby comes off the nipple or bottle and gets put wherever you want them to sleep. If you are out of the house, this may be in an infant seat or a coach, just make sure it is somewhere safe.

If you lay your child down and they start to fuss, try giving them a few minutes to see if they calm down and go to sleep. Don't run to pick them up again. Tired children may fuss a bit when moved, and if it's nothing more than this, you want to be sure to give them a chance to fall back to sleep. If it gets to the point where it's obvious that this won't happen, go to them and see if you can settle them without picking them up, by rocking or talking to them. Pat them reassuringly on their body, but only pick them up if it's obvious they aren't going to take a nap. If that's the case, then go back to interacting with them like you do when they are awake, but if the eyelids start to descend again, back they go to their sleeping place. You may end up repeating this process more than once if your child is tired, but it's worth taking the time and effort. You want to establish with your child that sleeping is sleeping and eating is eating, and not waste time trying to feed a child who is sleeping and becoming part of a giant pacifier.

Very important to improving your own sleep is emphasizing the difference between day and night for your child. Make sure they are exposed to lots of activity and sunlight during the day when you want them to be most awake, and that you keep the lights low and minimize social activity at night. Also, encourage them to be awake in the hours before you would like to establish bedtime. If this is 8 PM, then try to make sure your child is up and active between 5 and 8 PM in the evening, then as soon as they look sleepy, give them as big a feeding as possible and put them in their crib and encourage sleep. Keep the lights low and if your child fusses, don't play with them or act like you're happy to be there. You don't have to be mean, but during the night, keep feedings or diaper changes as quick and efficient as possible with as little interaction as is needed to get the job done, then return the child to their bed. Once your child is over 12 pounds in weight, they are probably big enough to be able to skip a feeding, and you want to encourage them to drop a night feeding first. If they cry out at night, see if you can settle them back to sleep in their crib, and only feed them if it becomes obvious they won't return to sleep without eating. During night feedings use your body language to tell your child that you aren't as happy as you are during the day to feed them. As soon as eating is over, put them back in their bed and encourage them to return to sleep. If you do this and continue to push the last night feeding so it's as much as possible, soon most children will eliminate the mid-night feeding. Don't worry, they eat more during the day.

The most important point to remember here is that children can be encouraged to adjust to our sleep schedule, and it's been shown that most infants can sleep 5 or more hours in a row at night by 12 weeks of age. This can certainly occur much later if you let it, but why would you?

A lot of what I've just said sounds suspiciously like "allowing your child to learn how to fall asleep alone," doesn't it? Establishing good sleep habits is an important part of what children do as they adjust to sleeping outside the womb, but sleep habits will only do so much. Being used to falling asleep without any help makes things easier for a child, but if they can't sleep normally, it really won't matter. Probably the biggest thing parents can do to help children sleep better is to help the child adjust their schedule to the families. Using tricks mentioned earlier, parents can manipulate a child's sleep schedule so that as much as possible, the child is awake when you want them to be and asleep during the night. Left to their own devices, it's possible your child will end up on a totally unacceptable schedule, yet be sleeping quite normally. By the end of the first six months, most children will be sleeping their longest during the night, and most children will be able to give you 5-6 hours of continuous sleep, with many sleeping much longer, allowing parents to start making up the sleep deficit they have been accumulating.

Sleeping through the night is actually more closely linked to weight than age. When they reach 12-14 pounds, children weigh enough to be able to skip a feeding and give you at least 6 hours of uninterrupted sleep at night. If your child wakes at night and they weigh enough to miss a feeding, you should try to settle them back to sleep in their crib and not pick them up or change them unless you have to. They'll make up for the lost feeding during the day. Keeping stimulation to a minimum and not encouraging the child to view night waking as being enjoyable is essential in encouraging children to sleep through the night, and the sooner they learn this, the more enjoyable they are to parents.

Remember that you don't want your child to nap too close to bedtime and also, that you don't let them stretch out a daytime period of napping so that it is the longest. This will interfere with consolidating sleep at night. If your infant sleeps more than 4 hours during the day, wake them up somehow, usually by changing their diaper or doing something else that will disrupt sleep. It doesn't have to keep them up for very long, just enough to break up the time of sleeping. By interfering with a tendency to consolidate daytime sleep, you'll help build night sleeping. Trying to wake them may not always be easy, but try. There's nothing wrong with waking a sleeping baby if they are sleeping when you don't want them to.

Another thing to beware of is putting a bottle in your infant's mouth every time they cry. Most children will drink something, even if not for long, given a chance, and they many end up taking in too much fluid. This means they end up in urine soaked diapers that can be a cause of night waking later on. Discuss with your doctor how much your child should be eating and don't let your child use the breast or the bottle as a pacifier. Get a pacifier instead and use that. Most children want to suck more often than they want to eat, and that means you have to learn your child's hungry cry from the all the others. Watch how your child acts when you know they are hungry and what happens when you feed them. Hungry children will root, which is a reflex when you touch the side of their faces that sends them turning in the direction of a nipple. Also, when a child is hungry and starts feeding, and you can actually hear liquid being swallowed. Children who aren't hungry will take the nipple, but they'll play with it or spit it out after a few seconds and go back to it, not really satisfied by it the way hungry children are.

One last thing. If your child has trouble sleeping and wakes you frequently at night only to take a few sips from the breast or bottle before spitting it out, it's likely they are a mouth breathers. This is why my son refused to give up his night bottle, he was using it to treat his dry mouth. Children who mouth breathe wake up drooling and have a bad case of dry mouth which they relieve by taking a few sips of something. If this is happening with your child, check them for mouth breathing the way I discussed and mention it to your physician. Make sure they do a detailed examination of the nose and throat looking for enlarged adenoids and tonsils as well.

Now for the bad news. If your child is suffering from insomnia, nothing that I've written about is going to help them. It won't hurt them either, but if you have trouble accomplishing what has been discussed, it's likely the problem isn't you. You can't teach someone who sleeps abnormally to sleep

normally. All you can do is look for the reason why and fix that.

At what point will you know if your child is suffering from insomnia? If your child isn't giving you at least 6 hours of sleep at night by the age of 6 months, and you have done everything you can to teach them day from night and break up long stretches of sleep during the day, then I would discuss this with your doctor. If they have any signs or symptoms of the things noted in the previous chapter as causing insomnia, especially if they are mouth breathing, then discuss this with your doctor as soon as they are noticed. The earlier these problems are treated, the better.

In my experience, most children with sleep disorders are all too familiar with the doctor's office by the time they are 8 months old or so and the mother is sick of night waking. These children have many minor pediatric problems like colic, food allergy, ear infections, throat infections, sinus infections, pneumonias, rashes, etc.

## Chapter 4

### What I tell parents of normal newborns

1) Children come out of the womb having already established a sleeping pattern. Mothers can easily figure this out by making note of when the child is active in the womb before delivery. If your child was most active at night, you will want to change this as quickly as possible.

The best way to get your infant to be active during the day and sleep at night is to try to break up any long stretches of sleep during the day and encourage this at night. I recommend never letting infants sleep longer than 3 hours unless it is night time. It isn't easy to wake a sleeping baby, but interrupting sleep as

much as possible after the 3 hour limit will prevent the baby from getting the day-night schedule reversed. Another good way to encourage night sleep is to be sure to feed the baby as much as possible close to the time you would like the longest sleep period to begin. Since babies can only go 4-6 hours between feedings, making sure to feed the infant between 10PM- Midnight will hopefully encourage the baby to have a long stretch of sleep from Midnight on. As the baby gets bigger, the time spent sleeping will increase.

2) Never rock or feed your child to sleep, and always put them down to fall asleep without you touching them. Encourage your child to suck their thumbs or use a pacifier if they fight this.

3) For the night feeding before the longest sleep, and for any feedings that are before your normal wake time, keep the room lights low and don't interact with the child other than to feed them. This should be a noticeable contrast to how you interact with them during daytime feedings. Infants will pick up on the cue that you don't want to be awake and feeding them and hopefully drop this feeding as soon as possible.

4) As soon as you can, try to get your child on a regular sleep schedule. If your child is healthy, this usually isn't a problem.

5) If your child is growing normally, you can sometimes use feedings to help you rearrange the sleep cycle. During the day, reduce feedings by 1 oz during the afternoon and early evening, then give as much as the child will eat just before the Midnight sleep time. Reducing feedings forces the child to wake up sooner if they are sleeping. By doing this, you discourage the child from sleeping too much close to the time when you want them to be most tired and sleep longest.

Just be sure to keep track of the total intake, and be sure they make up any missed calories.

6) Most children start being able to sleep for about 6 hours at night when they reach a weight of ~14 pounds. Usually, this occurs between 4-6 months.

7) Try to get to know your child's hungry cry. Once you know it, if your child calls out for you during the night and doesn't sound hungry, go in and check on them, but don't smile or interact or seem happy to see them. See if they are ok or if they need changing and do whatever you need, then leave.

If you use these tricks, and remember they should only be used if the child is healthy, hopefully your own sleep disorder (being woken up to feed an infant) will be treated as soon as possible.

## Chapter 7

### Signs and symptoms of sleep-disordered breathing in infants and children.

1. Snoring (remember, this doesn't have to be present)
2. Noisy breathing, breath pauses that last more than 10 seconds or difficult breathing with struggling to breathe
3. Restless sleep
4. Sleep talking or sleep walking
5. Sleeping in unusual positions that act to open the airway
6. Mouth breathing
7. Excessive drooling secondary to mouth breathing
8. Difficult daytime behavior like oppositional thinking, hyperactivity, and school problems

Getting a thorough history is important for any child with sleep problems. If other family members have allergies, breathing problems, snore, or have been diagnosed to have a sleep disorder is very helpful information. Allergies in one parent increases the chance a child is allergic by 50%, and when present in both parents, the risk is even higher.

If an infant can't breathe comfortably through the nose, they will have a great deal of trouble latching on to the breast or a bottle, although much less on a bottle. Many do so much better with this mode of feeding that a mother gives up nursing thinking the child wasn't getting enough to be satisfied. Whenever I get the history that a mother failed to be able to nurse, I become suspicious that something is blocking

the nose. During feeding is the time that infants must be able to nose breathe, and they will spit out a nipple if they can't breathe well enough through the nose. Taking liquid out of a nipple as opposed to a breast seems to be much easier for these children. The flow is quick and doesn't require them to latch on firmly in order to suck, and they can eat and take quick breaths in between much easier than when they are on a breast that requires constant suction.

If there is any doubt in your mind as whether your child can breathe through their nose, the easiest test is the following; using one hand, form a flat surface with your palm and hold it over the child's mouth so no air can get in. This forces the child to nose breathe. If they have trouble you will see their nostrils flaring and they will fight you immediately. If you hear noisy breathing, the nose is mildly congested. If you don't hear anything and the child is comfortable, then everything is ok.

Dr. Fay's basic intensive care for SBD

Moisture helps nasal congestion, so doing the following things can greatly improve your allergic child's sleep problems, at least for a few hours.

- 1) Either bathe the child or sit with them in a steamy bathroom for 10 minutes prior to bed time.
- 2) Buy saline nose drops at the pharmacy and administer them the following way:
  - put one drop in one nostril and wait 30 seconds. It's ok if the child snorts it out.
  - repeat this on the other side
  - repeat the whole process so that each nostril gets 2-3 drops instilled
  - wipe up whatever comes out of the nose.

Another thing that helps congestion a lot is nasal dilator strips. These are also over the counter and act to hold the nostrils in an open position.

You'll have to get the smallest size available and see whether it fits your child. Even if they only have large, they can still work, however, you just need to cut them with a sizzors and apply them a little differently.

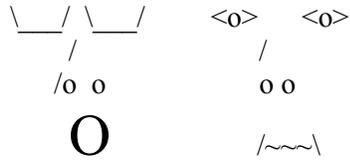
It doesn't matter how far out the strips go to the side, what is important is that the strip crosses over the middle of the nose.

You also don't need to worry about putting tension on the strip. Just apply it and press it down. The strip works by pulling on the nose skin from where it is attached on the cheek.

By the way, these really do help.

As a end, I'd like to share my email signature with you. It is based on the fact that breathing becomes most difficult during dream sleep when the muscles controlling voluntary movements are paralyzed. If they weren't people would be up acting out their dreams and getting hurt, but this is a problem if someone had breathing difficulty. During the day, they use accessory breathing muscles that overcome the difficulty, but these become paralyzed during dream sleep and that means the diaphragm has to do all the work. This is a large muscle between the chest and abdomen, and ordinarily, it should be the only muscle needed to breathe. It works all the time, even when other muscles are paralyzed, because it is programmed

to and isn't under the normal conscious controls. Left alone, if breathing is difficult, it can become fatigued and the sleeper will start to breathe abnormally, not taking in as much air as needed. Eventually, when things are bad enough, the brain is signaled that it should stop dreaming and attend to the breathing problem. That means children with sleep-related breathing disorders don't dream enough.....and we need to dream.



**Mouth breathing isn't for dreamers.**

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