

What's Sleep Got to do With it?: Exploring Sleep and Wellness for Infants & Toddlers

Cara: I would now like to introduce Laura Annunziata, senior training specialist at Early Head Start National Resource Center, Zero to Three. Laura, you now have the floor.

Laura Annunziata: Thank you. Good afternoon, everyone. My name's Laura Annunziata and I'm very pleased to have the opportunity to welcome all of you to this, the first of four in a series of webinars we'll be hosting, as part of the "Little Voices for Healthy Choices" initiative. As many of you are aware, the Office of Head Start has directed the Early Head Start National Resource Center to implement an initiative which focuses on music, movement, and nutrition for infants and toddlers.

Many of you are familiar with the "I Am Moving, I Am Learning initiative," a national program addressing music, movement, and nutrition for preschoolers. Little Voices for Healthy Choices has been designed to be tailored to the specific needs of infants and young children enrolled in Migrant Head Start programs. Today, we're pleased to welcome to our audience staff from the programs participating in this yearlong initiative, Head Start TNTA providers, federal staff from the Office of Head Start and Regions, and our Little Voices for Healthy Choices partners from Choosy Kids and the Wolf Trap Center for the Performing Arts and the Early Head Start National Resource Center. In addition, we've been very pleased to be able to make available a number of extra lines for programs that are not participating in the yearlong initiative, but have shown interest in exploring the Little Voices for Healthy Choices content.

Today, we'll be sharing information on sleep in infants and toddlers and are being joined by Dr. Barry Marx, senior medical advisor to the Office of Head Start; and Valerie Bayne Carroll, teaching artist with the Wolf Trap Center for the Performing Arts. Prior to joining Head Start, Dr. Marx was the director of the Division of Pediatrics and Adolescent Medicine of the Baltimore Medical System. He also holds the position of assistant professor of Pediatrics at the Johns Hopkins University School of Medicine. For any of you who have had the opportunity to meet Dr. Marx, you cannot help but notice his enthusiasm when he has an opportunity to share information on the topic of sleep in infants and toddlers and preschoolers. It's a topic he knows very well, so we're very pleased to have him with us here today.

Valerie Bayne Carroll, a master artist with Wolf Trap, has spent the last decade working with arts programs designed to work with infants and very young children in a variety of settings. Many of you will remember her lovely voice from the May Little Voices for Healthy Choices meeting. She brings to us enormous talent in reaching a diverse group of infants, toddlers, families, and staff.

We're excited to have a chance to explore this topic together today and we'd like to invite you to ask questions at any point during the presentation. You can type them in as they occur to you and Dr. Marx will try to address them for you, either as they come in or during the question & answer period. Without further ado, I'll turn this over to Dr. Marx.

Barry Marx: Laura, thank you very much for that introduction. And, before we get into the formal part of the presentation, there are two references that you'll find in the area of "Resources" in the PowerPoint that I particularly want to call your attention to. The first of these is an article entitled "Children's Sleep: An Interplay Between Culture and Biology," that was published in "Pediatrics" in 2005; and the second of these is an article entitled "Nap Schedules and Sleep Practices in Infant-Toddler Groups," and this was published in the "Early Childhood Research Quarterly" in 2001. And these are both fabulous resources. The first of these references really describes the cultural contextualization of sleep and sleep practices and how it influences our approach and the second of these describes beautifully the decisions that programs face in designing their programs to approach individualization for children's sleep.

And -- Okay. We're advancing the slide in just a moment. And there we go. So, why discuss sleep? And, specifically, why discuss sleep in the context of an initiative to promote physical activity and healthy nutrition, where one of the desired outcomes is the prevention or reduction of risk of childhood overweight and obesity? Well, for purposes of this discussion, we can think in terms of three physiological needs to support healthy physical, cognitive, and social-emotional development, those three being nutrition, physical activity, and sleep.

Historically, there's a pattern to how we apply our understanding of these issues to the care of children. For example, there's clear consensus that healthy nutrition is important to a child's growth and development and general principles of healthy nutrition have long been recognized and incorporated into standards for the care of children, including the Head Start program performance standards. However, as more research has been done that informs our approach, more specific connections are drawn between nutrition and the support of children's optimal physical, cognitive, and social-emotional development. For example, there's an area in which there's been a dramatic shift in our understanding from general principles of nutrition to recognizing the critical role of specific nutrients on brain development and cognitive and social-emotional development, and that is in the area of the effects of iron deficiency on children. In the area of physical activity, again, we recognize that physical activity and active play are important for a child's healthy physical development.

In addition, however, there is a robust and growing body of knowledge describing the relationship between active play and cognitive and social-emotional development. Moreover, in the face of the alarming epidemic of childhood overweight and obesity and the growing body of knowledge that suggests that critical determinants of obesity risk are established prenatally and in infancy and toddlerhood. The importance of intentionally facilitated approaches to structured and unstructured physical activity and active play is even more essential.

And this brings us, now, to the third physiologic need, and that's sleep. And there, too, there's been a shift in our understanding from general principals of adequacy of sleep in childhood to a more specific understanding of the role of sleep in promoting optimal cognitive, social-emotional, and physical development. What do we know about sleep? Well, over the past 50 years, a lot has been learned about the structure of sleep, its biological regulation, and its purpose, and our best understanding, right now, is that the function of sleep is primarily twofold: First, being that sleep is restorative for brain metabolism; and, second, that sleep serves purposes of memory consolidation and learning. Now, while most of the research that's been done on sleep has been done in adults, there's been a dramatic increase in interest in sleep as a phenomenon in children and adolescents and, specifically, what functions sleep serves as part of brain maturation and development.

Now, when we talk about the physiologic effects of sleep, there is an area of recent focus that is fascinating, and that has to do with the relationship between sleep, in terms of adequacy of amount and quality, and the risk of overweight and obesity. And this relationship was first described in adults, but, with subsequent research studies, it has become clear that this is a phenomenon that exists even in infancy and, in the "Resources" section, you'll find an article entitled "Short Sleep Duration in Infancy and Risk of Childhood Overweight," and this was published in the "Archives of Pediatric and Adolescent Medicine," actually, this year, in 2008.

And the conclusion that the researchers drew from their data was that daily sleep duration of less than 12 hours during infancy appears to be a risk factor for overweight in preschool-aged children. The second aspect of sleep, that I think is particularly relevant to our programs in Early Head Start, is the role of sleep in learning, and sleep may have important roles in brain plasticity related to learning and memory consolidation. And one of the aspects of sleep that we're coming to understand more about, specifically, is the role of so-called REM sleep, or rapid eye movement sleep, in the area of memory consolidation.

Unlike adults, the human fetus and newborn spend an incredible proportion of their time sleeping, with about 80 percent of their day in so-called active or REM sleep and the remainder in so-called quiet or non-REM sleep.

By 5 to 6 months of age, this drops to about 20 percent to 30 percent of their time in REM sleep and decreases with advancing age. And one of the questions is: Why do newborns spend so much of their time in this particular phase of sleep? Our best understanding of this phenomenon is that there is neural activity, activity within the brain, that's controlled by the REM mechanisms that may be specifically developmentally functional and contribute to brain-structure maturation. REM sleep may be important in providing early stimulation and activity requirements of the growing brain.

What are community and cultural characteristics of sleep? And, again, I want to draw your attention to the article, "Children's Sleep: An Interplay Between Culture and Biology," because this article really describes beautifully that, while sleep is a physiologic phenomenon that's normal to all of us, it is extraordinarily culturally contexted and the way in which a culture defines the characteristics of what is considered to be normal sleep really identifies how that culture comes at the phenomenon of sleep, but also, how aspects of sleep are recognized or described as being sleep problems.

So, when we speak of the characteristics of sleep, what are we speaking of? And the first question is: when? When is it appropriate for infants and toddlers to sleep? And the first question, I suppose, is: When do they fall asleep? The answer is: When they need to. If you think about it, how often have you walked around and seen children fast asleep in their strollers, fast asleep in their parent's arm, or propped up in some position that, for any of the rest of us, would be very uncomfortable? And they will sleep through it and sleep very deeply. There are strong cultural models that determine when it is appropriate for children to sleep and, specifically, whether, within that culture, there's an age at which children are expected to be trained to a sleep schedule. And the mismatch between that sleep schedule and the child's natural physiologic tendency to sleep are often what will present themselves as sleep problems.

The next characteristic of sleep is: Where? And the aspect of this that is the most discussed within our own society and culture is the issue of co-sleeping. The norm for children in many cultures around the world is to sleep with an adult family member or a sibling and, if not in the same bed or sleeping structure, then at least in the same room. And, in fact, while this is often mistakenly believed to be an attribute of less-industrialized societies, in reality, it is also seen in highly technologically advanced communities, of which the classic example is Japan. And one of the interesting comparisons to draw is between the approach to sleep in Japanese society and in our American society and, to illustrate this point, two researchers, Caudill and Weinstein, described the difference between Japanese and American beliefs about infants and infant sleeping.

In Japan, the infant is seen as a separate biological organism who, from the beginning, in order to develop, needs to be drawn into increasingly interdependent relationships with others. In American society, the infant is seen more as a dependent biologic organism who, in order to develop, needs to be made increasingly independent of others. And these approaches really find themselves expressed through approaches to sleep and sleep behavior. In Japanese society, co-sleeping is seen as the norm and, in fact, the cultural expectation of an involved and caring parent. In American society, co-sleeping is seen as something that is to be avoided and what is really emphasized as the goal for the parent is, as soon as possible, to get the infant into their own sleeping location, with the expectation that, as quickly as possible, that infant is going to be transitioned to sleeping on their own, without physical contact with another family member through the night.

The next characteristic of sleep is: With whom or with what? And, here, I think, really, what we're speaking about is the concept of transitional objects and, of course, the prototype for this, at least, that comes readily to my mind is Linus and his blanket in the "Peanuts" cartoons. And, actually, the concept of transitional objects as a sleep aid was really introduced by a researcher named Winnicott in 1951. And these are objects that are very dear to the child; they may be blankets, pacifiers, toys, stuffed animals, or even the child's thumb, that facilitate the child's ability to fall asleep. And what's fascinating about the whole use of transitional objects is that this really seems to be a phenomenon that is seen predominantly in cultures where co-sleeping is not permitted. And, when one looks at sleep behavior, in co-sleeping cultures, it is relatively uncommon to see the use of a transitional object. And this is fascinating, when we think about it from the perspective of child development because it really implies that the child is clearly missing some critical access when they are preparing themselves to sleep and, in the absence of a family member who is there to be with the child, the child has no choice but to try to find some inanimate object that they can use to help them get to sleep.

The next question is: How much? And this is question that comes up frequently in the context of my pediatric practice. In general, I try to avoid answering the question directly. Instead, I put several questions to the parent and the first question is: Does the child seem to go to sleep naturally, with a minimum of preparation or resistance; and does that child awaken on their own, when it's time for the child to awaken in the morning, or awaken relatively easily? The child who falls asleep naturally, remains asleep through the night, or, if the child awakens, is relatively easily returned to sleep and then awakens spontaneously is most likely getting enough sleep. The issue of adequacy of sleep really comes in when we start to impose our schedules on a child's natural sleep tendencies, either with respect to the child's acceptable bedtime or with respect to the time in the morning that we need the child to be up and about.

And so, this really gets back to an earlier observation that we made, that, depending upon the way in which a particular culture contextualized a child's sleep, there are attributes of what is normal for that child that will be perceived as a sleep problem, that, in truth, represent a mismatch.

Now, let's talk about some practical environmental approaches to facilitate rest. And, while I really had in mind a center, in fact, these same issues are certainly applicable to the home environment as well. And the first of these is: Is the schedule a good "fit" for the child's sleep needs? And, again, I'd like to reference the article "Children's Sleep: An Interplay Between Culture and Biology," because they really express this beautifully and the way that they express this is to say "In the context of this article, goodness of fit means, specifically, that culturally defined expectations of how the child is taught and permitted to sleep match well with the individual child's sleep biology or individual characteristics". Is the location appropriate? And, for the most part, |what that means is: Is the location where the child is placed to sleep, safe? Is it comfortable? Is it accessible to caring adults who are looking after the child's needs, and is it comforting to the child?

Now, there's another interesting aspect of the issue of location, because, we generally will think of this as, in the case of an infant, meaning a crib or bassinette; in the case of a toddler, a crib or perhaps a sleeping mat; but, bearing in mind that, given their natural choice, many infants and toddlers would choose to fall asleep in someone's arms, I think we have to think about that, as one of the aspects of location for infants. And, for example, when I was in my residency training in pediatrics, at the institution I trained at, very often, we had infants who were with us for quite some time and very often for long stretches without a parent and, you know, what many of us did, myself included, is to take one of these babies and put them in a Snuggly and wear them around while we were doing our paperwork, and so on, and, for the most part, they slept very soundly during those times.

The next question is: Is the environment appropriate? And, here, what we're really speaking about are issues like noise level, activity, and whether these are appropriate to uninterrupted sleep. And, once again, to just talk about how this sometimes presents in a pediatric practice, I have parents who will come in with concerns about their infant's sleeping pattern and speak about the fact that the infant really doesn't sleep through the night, that it seems very restless, awakens easily, and, as we speak about what is going on at home during the evening hours, what we find, very often, is that there's a lot of activity going on at home; in fact, much more activity at home at night than during the day.

Very often, there may be family members working different shifts and so people are leaving the home at various hours or coming into the home at various hours, so that there's a great deal of background noise and activity. And one of the things that I will sometimes suggest, if there really are few other options, is to suggest that the infant's crib be moved into the bathroom and some water run in the sink in the background, because, generally, that's one of the quieter rooms in the house and the running water is basically a white-noise generator that can be used to screen out some of the other environmental sounds that are disturbing the infant's sleep. Are expectations and options appropriate?

And, here, specifically, I think, in the context of settings, if a child is placed in the sleep area and clearly is not sleepy, how does the program respond to that and what are their expectations? Is it possible for the child to play quietly without really being forced to lie there with the expectation that they are ultimately going to fall asleep? Again, for parents, very often, parents will say that "I put my child in bed and they're just there and they're there, singing or talking to themselves, or what have you." Well, the reality is, for some children, that may, in fact, be their sleep transition and it may be that way either because the formal bedtime is a poor match for that child's physiology or because, for that particular child, placed by themselves in a room where there's no one else, that's essentially their transition to get themselves to a normal sleep. Is the caregiver's set of skills appropriate?

And there, primarily, what we're talking about, in terms of centers, is does the caregiver recognize and appropriately manage the child's sleep or rest needs? Now, at home, really, very much the same things. How attuned is the parent to the child's sleep cues? Does the parent recognize when the child, by their behavior, by their body language, by their movements, is really getting ready to fall asleep, if they were allowed to? And are group expectations appropriate? And, here, really, the focus is upon centers where there is a communal sleep schedule, where there is an expectation within the center that all of the children will be expected to go down for a nap at the same time and the expectation is that they will all, indeed, fall asleep. And this issue is exquisitely described in one of the two references that I mentioned at the very outset: "Nap Schedules and Sleep Practices in Infant-Toddler Groups," and they really give just marvelous examples of how different teams approached this issue and got dramatically different results.

Now, we're moving into an area that is of particular interest of mine. What are signs or symptoms of a potentially sleep-related concern? And, of course, in the context of a pediatric practice, very often, when the issue of sleep is specifically brought up by parents, it's around the idea of some concern and the first of these is excessive daytime sleepiness and the question is: how do you define that? I think, in the sense of a program, what I would say is do the child's sleep needs during the program day seem disproportionate or otherwise out of sync to the needs of other children of similar age?

If the answer is "yes," then I think we need to look further into whether or not that child is getting adequate sleep, in terms of quantity or quality, at times when they're not in the care of the program. This could mean that there's simply inadequate time permitted to the child for sleep or uninterrupted sleep, and the best example of this, again, are parents who work different shifts, where the child may go to sleep early in the evening, one parent comes home from their shift in the middle of the night and wants to interact with the child, and, particularly if the child seems to be coming to a lighter phase of sleep and moving around, that really is the opportunity for that parent to come in and, very quickly, what might have been a relatively short period of more wakefulness that would let the child go back to sleep winds up, in fact, being a middle-of-the-night play period.

There are also effects of medication on a child's ability to sleep. For example, a number of the medications that we use in the management of asthma, like albuterol, can have the effect of stimulating the child and may interfere with sleep. For older children, medications that are used in the management of attention deficit hyperactivity disorder, stimulant medications, are very, very clearly recognized as potentially having an adverse effect on sleep. And there are health conditions as well that may be associated with poor sleep quality, and we're going to get into this in more detail a little bit later. There can also be underlying medical conditions that impact on the child's ability to remain active during the program day, and that fatigue that the child experiences may be recognized or understood as sleepiness and one example of that are children, for example, with unrecognized asthma episodes, who are basically working very hard to breathe and running out of puff. We can also see this in children with some forms of congenital heart disease.

Let's talk about snoring and sleep-disordered breathing. Snoring is actually pretty common in young children, with some estimates of as much as 27 percent of kids snoring. Fortunately, most of that falls into the category of what we call "primary snoring"; relatively less of that falls in the category of sleep-disordered breathing. But this is an area of enormous interest to me, for a couple of reasons. The first of these is: the association between sleep-disordered breathing, which may first be suspected based upon a child's snoring and, specifically, a child's snoring pattern, and symptoms of behavior that suggest attention deficit hyperactivity disorder. And, in your Resources, you'll find a reference to an article entitled "Cognition, Sleep, and Respiration in At-Risk Children Treated for Obstructive Sleep Apnea," and this was published in 2005. And it looked at 19 children from state-funded pre-K programs who underwent sleep studies before and after surgical treatment of what is called obstructive sleep apnea.

Let me talk about that for a moment. Snoring, in general, is a sound that's produced when air is moving through a partially narrowed or blocked airway, and I will spare the people on the call my rendition of this. However, within the general framework of snoring are conditions that can narrow or partially obstruct the airway to such an extent that the body's ability to exchange oxygen is impaired

and that is really what we call sleep-disordered breathing and the way in which we most formally recognize and diagnose it is through what is commonly called a sleep study, where the child's blood oxygen level is monitored, during a period of observed sleep. And, in the study that I mentioned, what they found was that a significant number of children with obstructive sleep apnea show behavior characteristics that match diagnostic criteria suggestive of attention deficit hyperactivity disorder. Following the release of their airway obstruction by surgical treatment, those behavioral characteristics improve. This is enormously important.

In my practice, in particular, which is based in inner-city Baltimore, we have a significant number of children who present to the practice with a concern, either on the part of the parent or on the part of the school, of attention deficit hyperactivity disorder. And one of the first questions that I ask, in trying to gain a better understanding of this child, is around the issue of the child's characteristics of sleep: Whether the child snores; whether the child is a restless sleeper; whether the child awakens spontaneously in the morning and whether the child appears to be well-rested, once they do awaken; and appear to be well-rested and alert throughout the school day. And, specifically, what we are speaking to identify is the child who, in fact, has so-called sleep-disordered breathing as the basis for their behavioral concerns.

Let's talk about overweight. And, again, this is an area that is absolutely fascinating to me. And, once again, while the number of research studies that have focused on the phenomenon of overweight associated with short sleep in infancy, right now, is fairly small, it is a rapidly increasing area of interest. And what we don't know with any certainty, at this point, is exactly what the causal link is, however, there are two hormones that are actively involved in the risk of overweight and the control of appetite and there is research data from adult subjects that suggests that, with sleep deprivation, the relative levels of these two hormones are disordered in such a way as to increase the risk of overweight and obesity. Nightmares and night terrors. Very quickly.

These also, particularly nightmares, are fairly common in toddlers and young children and, generally, outgrown. That being said, the child who seems to regularly or with some frequency be experiencing these in the program, I feel, merits some discussion of this with the family, in order to understand if this is something that they are seeing at home as well and, if so, whether this is something that they have brought to the attention of or discussed with their primary care provider for the child.

Attentional and behavioral concerns, we really spoke about a few moments ago. Within the context of sleep-disordered breathing, I want to quickly look at this from the other perspective, and that is the characteristics of sleep, as experienced by children with attention deficit hyperactivity disorder. And, there, what we know is that, in fact, sleep problems are very commonly reported by parents. In one study, mild sleep problems were characterized as occurring in 28.5 percent of children surveyed and moderate to severe were described by parents to occur in almost 45 percent of children. These problems are commonly seen in children with attention deficit hyperactivity disorder. They may be seen independently of the effects of stimulant medication. And, again, from the perspective of a clinician, for those children who, in fact, have such a diagnosis, sleep and sleep issues are something that we regularly discuss.

Next steps. And the question is: How do infant and toddler sleeping arrangements meet the Head Start Performance Standards and incorporate best practices? And, here, I was absolutely thrilled to find that this issue has already been addressed, in the form of an Early Head Start Tip Sheet; it's Tip Sheet 20, which can be found on the Early Childhood Learning and Knowledge Center website. And the tip sheet basically describes "Infant and toddler sleeping arrangements that include the child and family's sleeping patterns and practices meet the Head Start Performance Standards and best practices. The importance of building positive parent-staff relationships, room and furniture arrangements, and individualized care provide necessary information for Program directors and staff." And this is absolutely marvelous because this really touches upon all of the critical elements that emerged in preparing this presentation and so, I was thrilled to see this already described.

Reading along: "Programs work with parents to ensure that sleeping arrangements match the family's culture and the child's developmental and comfort needs. Parents provide specific information on their child's routines and skills as well as the family's practices and cultural traditions. It is important for children to have familiar routines, as much as possible, within the home and center-based setting." And, finally: "Information that helps to support continuity of sleeping patterns include the child's fatigue signals, typical times and duration of sleep, methods for falling asleep, use of pacifier or special blanket, and philosophies on sleeping and crying. Programs also use their knowledge of individual family practices to facilitate individualized sleeping plans."

Now, in an attempt to consolidate an approach to sleep and sleep practices within Head Start, I'd like to offer, for your consideration, and, hopefully, for your feedback and comment, a paradigm called Head Start D.R.E.A.M.S. And D.R.E.A.M.S. is an acronym for: Determine the family's approach to and concerns about sleep; Respect the family's preferences consistent with the safety and security of the sleeping child; Educate the staff and family about normal sleep, sleep safety, and signs of possible concerns; Assess the characteristics of the child's sleep by history and observation; modify the sleep environment in the program to meet the individual child's needs; and, lastly, share your observations and concerns with staff, parents, and others as appropriate or required.

And, with that, I would like to thank all of you on the call very much for your attention, and the people at the Early Head Start National Resource Center very much for this wonderful opportunity. Thank you.

Laura: Thanks, Dr. Marx. We appreciate you sharing all this with us today. We imagine that you out in the audience may have some questions for us, so we'd like to take some time now to answer those. Don't be shy, please. Feel free to send them along, any questions that you may have out there.

Laura: We had a question: "Are we able to print out these handouts?" And, yes, you are. We are also going to make all of the resources that we have here today available to you through the Google group and they can be requested from our office. And, as we've mentioned before, many of these materials have been translated into Spanish and will be available to you as well. Do we have any other questions out there? Just so everyone knows: You have to type the questions in. We have another question.

The question is: The research identifies a difference among cultures, but it doesn't seem to point to which is better. Is that correct? That's from Erin.

Barry: Erin, thank you very much for that question. I think that the way that I would answer that is that the approach to sleep is best that best matches the sleep needs of the child and the cultural context in which the parents operate. One of the things that I came to recognize, as I was doing the background research in the area of sleep and, particularly, the cultural contextualization of sleep, is how much of the way that we train pediatricians in the United States to have an approach to sleep that very clearly reflects our own cultural bias.

And, actually, this morning, I reviewed an article that was published by a group of Canadian researchers who were describing a very effective intervention with depressed women who reported sleep problems in their infants. And, essentially, what the study involved was an intervention that was conducted by nurses within the study to train the parents in two techniques of addressing infant sleep problems. And the first of these is a technique called extinction, where, in essence, the infant was placed in their crib, the parent left the room, the infant would cry, and the parent would return to the infant and then progressively, over time, spend less and less time in direct contact with the infant, comforting them, until the infant fell asleep.

And the second of these interventions basically has to do -- and I, for the moment, don't recall how they described it, but it was the parent actually physically laying down with the child until the child fell asleep and, there, too, the intervention involved progressive separation of contact between the parent and child. And, on the one hand, this was reported as being seen by the mothers in the study as being very successful at addressing their perceived sleep problems in their infants and was reported as being very successful at helping to improve their scores on the depression index. But, very clearly, this approach reflects our culture because, very clearly, it never occurred to either the clinicians conducting the study or to the mothers who were enrolled that either of these two.

Cara: Dr. Marx? Are you still with us? One moment, ladies and gentlemen. We seem to be having some trouble with Dr. Marx's audio. We'll get him back online. One moment.

Barry: Okay. I think we're back on. I apologize for that. The point that I wanted to make is that, within the study, it seemed that it never was considered, either by the clinicians conducting the study or by the parents who were enrolled, that either of these two approaches would be taking them in a direction of relating to their infant that was in any way undesirable.

Laura: We have another question, from Alma, and she says: "With specific emphasis placed on respecting familial and cultural practices, how do we encourage parents to reflect on their own contribution to what they perceive as sleep problems?"

Barry: That is a fabulous question! And I think that really captures the essence of what I hope this presentation can stimulate for people, in terms of thought. I think, first of all, it's critically important to have the dialogue with the parent, to understand how, in their culture, as well as in their current life circumstances, sleep takes place. Let me explain what I mean by that. My practice is an extremely multicultural one. Over the last five or six years, many children have come to us, as we settled refugees, with their families and this is absolutely fabulous, as an experience, as a pediatrician providing community care.

Many families clearly come with a well-defined cultural orientation towards sleep, however, once they find themselves within our society and once their schedules and the demands that are placed upon the parents simply for survival impact on the way that the families have to operate, there can be a dramatic and significant clash between the requirements and expectations of our society and culture and of their culture of origin.

I think that one of the roles of those of us who are working in programs or those of us who are caring for these children and families in medical practices is, as best as we can, try to help people reconcile those conflicting realities. I think, to the maximum extent possible, we need to, first, understand how the family understands sleep and approaches sleep in the context of their culture, what they see as the struggles that they're experiencing, in being able to continue to provide that environment and approach for their infant or child, and, then, we need to work together to try to determine, as best as possible, how we can reconcile the two.

Laura: We're going to open the lines now. That'll give you an opportunity to speak directly. We've had some other questions come in and, if you'd like to ask those directly of Dr. Marx, at this point, please feel free to do that. You can join in by hitting the "raise your hand" button on your screen, which will signal us that you're trying to get our attention.

Barry: A question came in that basically speaks about co-sleeping from the perspective of safe sleep, and we clearly identify co-sleeping as a risk factor, but, at the same time, we recognize and it's been clearly, I think, recognized within this presentation, that, in many cultures, co-sleeping is the cultural norm. I think the answer is that the factors that make co-sleeping safe are very often attributes of the sleeping location and practices that are in the culture of origin. And, frequently, these same attributes may not be carried over well when families are living within our society and our sleeping habits and sleeping locations.

For example, the difference between a parent and infant or toddler sleeping on a futon or a Japanese sleeping mat, as opposed to sleeping in a bed with a very soft mattress, with sheets and blankets and pillows and stuffed animals, and so on, all around. So, I think, again, that what is most important, and what I do in my practice is, first of all, to try to create an environment in which I ask about sleeping that is nonthreatening enough to the parent that they can answer me honestly, if they are, in fact, co-sleeping. And if that is the case, I try to get an understanding of what the circumstances are: Who's in the bed; what is the bed like -- so, that we can identify those attributes of co-sleeping that either are safer or that may be unsafe and help identify that.

There also are, as is not surprising for our society, technological ways to address this. There are the flexible barriers that parents can put into a bed, that basically surround an infant while the infant is on the mattress, with the intent of preventing a parent from rolling over on top of the child in a very deep sleep or the child, in some other way, to be put at risk.

Laura: Cara, did anyone have their hands raised to ask a question?

Cara: Oh, actually, Alma -- has just asked for her line to be unmuted and that line is open now. Alma: Okay, we were wondering about the communal sleep time that we currently practice in Early Head Start classrooms and we were wondering if Dr. Marx may have been implying that we need to reexamine that. Is that possibly a negative experience, for children who all go to sleep at the same time, or maybe disregarding some individual children's needs?

Barry: Alma, thank you very much. I think the answer to that is if it is working well for your program and if, based upon your experiences with how children appear to respond to the structure of a communal sleeping time and whether those children either, indeed, are able to settle down and sleep or whether they are unable to sleep and need to be able to play quietly, if the structure and the response of the program staff appear to be respectful of and responsive to the child's needs, then I think it's working for you.

Alma: Thank you.

Laura: We have another question that came in through the Q and A, from Debbie. She wants to know: "Why does insufficient sleep contribute to obesity?"

Barry: And thank you for this question. This is one of the most fascinating areas of sleep research, right now, and of obesity research. The short answer is: We're not positive. However, in research that's been done looking at adults, they have found that levels of two hormones, or chemical messengers, one of which is the hormone leptin, which is actually produced by fat cells; and the other hormone, which is called ghrelin, g-h-r-e-l-i-n, which is actually produced by the stomach; will change, and I believe leptin decreases, ghrelin increases, and the effect of the changes in the levels of these hormones is such as to promote both stimulation of appetite and fat deposition.

We know relatively little about this phenomenon in children, I think, for obvious reasons, in terms of the way that we structure research, but, at this point, there seems to be no compelling reason to believe that this mechanism may not similarly be playing a role.

Laura: Okay. Thanks, everyone. And thanks, Dr. Marx. I'm so pleased we've had an opportunity to share all this this afternoon.

Coming together like this always provides a terrific opportunity to learn new things and share experiences that are affecting the children and families we serve. As I mentioned earlier, Valerie Bayne Carroll is also here with us today. She's going to help us close our call with an arts experience. As we remember from our May Little Voices for Healthy Choices meeting, there are infinite opportunities to tie the content we're working with in the area of movement, nutrition, and brain development together in creative experiences that we share with infants and toddlers.

I'm sure that all of you can think of lullabies and songs and finger plays that we use in our communities and homes to help children to fall asleep and to think about sleep routines. We thought we'd share a short arts experience today to inspire us to infuse our daily routines with experiences that support sleep. Valerie.

Valerie Bayne Carroll: Thank you, Laura. As we know, lullabies are used to help children transition from being awake to being asleep and, in the classroom, I like to use lullabies for transitions of a slightly different kind, as a way to refocus the energy, to get the children prepared to transition from one arts experience to another; or, at the end of a session, to prepare to leave the classroom space. Sometimes, in my classes, I will pass out a teddy bear to each child and we'll sing and act out the "Teddy Bear, Teddy Bear" song, turning around and touching the ground and brushing hair and turning out the light and saying goodnight.

And we'll sing that through a couple times and act it out and, after we're finished, the teddy bears, of course, are very tired and so we need to sing them a night-night song, so we can put them back in their bed, which resembles, remarkably, a large tote bag. So, we all sit together and the children rock their teddy bears in their arms and we sing them to sleep and, then, we sing another transition song to put them into their beds and this is a way of allowing the children to relinquish their teddy bears in the most cooperative way possible, so that we can go on to the next song, and we use a lullaby to facilitate that. I also like to use lullabies at the end of a session, as a way to bring children back into their parents' laps and to refocus the energy, bring it to a quieter place, so that, then, we can sing our goodbye song, but the lullaby helps us prepare mentally for that transition from singing circle to getting ready to go.

So, those are two ways that I like to use lullabies with the children that I teach. And, now, I'm going to share with you a lullaby that many of you will perhaps find familiar, if you were at the Zero to Three conference. It was written by my colleague Yvette Holt and all of us have enjoyed using it in the classroom and, even though it's a new song, it has a wonderful traditional feeling.

It feels like it's always been out there. And here's how it goes --

[Singing]

♪ Go to sleep, my little baby ♪

♪ go to sleep; your mother is here ♪

♪ Go to sleep, my little baby ♪

♪ close your eyes and have no fear ♪♪

Here it is in Spanish --

[Singing]

♪ Duerme, mi pequeño niño ♪

♪ duerme, tu mamá está aquí ♪

♪ Duerme, mi pequeño niño ♪

♪ cierra tus ojos; no tengas miedo ♪♪

Laura: And we'll need to open the lines now, so that we can do this together.

[Beep-beep]

Hi. We can't see you.

Cara: The lines are all taken off of mute now, so everyone's line is now open. Hello? Hello. Hello!

[Laughter]

Laura: We hear you all out there. We're going to try to sing this together and Valerie's going to lead us.

Valerie: I will sing a line and, then, you can sing it right back to me. We'll make it very easy.

Here we go.

[Singing]

♪ Go to sleep, my little baby ♪

Group: ♪ Go to sleep, my little baby ♪

Valerie: Very nice.

♪ Go to sleep; your mother is here ♪

Group: ♪ Go to sleep; your mother is here ♪

Valerie: ♪ Go to sleep, my little baby ♪

Group: ♪ Go to sleep, my little baby ♪

Valerie: ♪ Close your eyes and have no fear ♪

Group: ♪ Close your eyes and have no fear ♪♪

Valerie: Yay! [Applauding] Yay! [laughter]

Laura: You guys were fabulous and we're so glad to be able to hear you out there. Thank you so much, Valerie. And I just wanted to say that we'll be closing the webinar shortly and we wanted to have a chance to say thank you to all of you, too, because we know you're busy out there, for taking the time to participate with us today and we hope that this discussion and sharing has been helpful for everyone. Like I said, we can make any of today's presentation materials available to you to share with your teams.

And we wanted to remind you that we're going to be hosting a Spanish-language discussion of today's content via a conference call next Friday, that's the 21st of November, at 3:00 and we hope that many of you would like to join us for that. As we've mentioned before, we do have Dr. Marx's PowerPoint presentation and some supporting materials available in Spanish, so please contact Summer Harrington here at the Early Head Start National Resource Center, at Zero to Three, to register for next week's conference call, if you're interested.

So, all the best to all of you. Stay in touch. We look forward to the next webinar, scheduled for Tuesday, January 13, 2009, and I want to say thank you again to Dr. Marx and thank you again to Valerie and thanks to all of you who joined us today.