



PARENTAL CO-SLEEPING IN A PEDIATRIC SLEEP LABORATORY

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While there are many parenting styles sleep technologists experience while studying children in the sleep laboratory, there is one issue that personnel need to have a designated policy for - this issue is co-sleeping or bed sharing. While co-sleeping has its own inherent controversies in the home, sleep laboratory personnel need to be aware of the potential problems that can occur with this practice during a sleep study. Indeed, significant interpersonal problems can occur during a sleep study if co-sleeping is *not* permitted since the caregiver and child may *expect* to co-sleep when they are in the sleep laboratory. Avoidance of these problems is possible and preferable

Co-sleeping in the sleep laboratory effects the quality of the study in many ways.

in order to obtain the most beneficial outcome for the child and their caregiver while retaining the sanity of the technologist who must perform and score the study.

Many families admit to practicing co-sleeping in the home. Once felt to be inherently

harmful by reducing the child's capacity for self-reliance, co-sleeping is now felt to be helpful for healthy infant development and mutual attachment between the mother and child. There is evidence that co-sleeping may actually be protective for the child in infancy since supine sleep maximizes the access of the infant to breast feeding. Once the Back-to-Sleep movement began to gain popularity, the incidence in sudden infant death syndrome (SIDS) dropped dramatically. There is also evidence that breast feeding itself can be protective against SIDS perhaps in part because of immunities the mother can pass along to her child. Since supine sleep was determined to be protective for SIDS, many parents were, and continue to be encouraged to practice co-sleeping. While the incidence of co-sleeping in the United States still varies across geographical, racial and cultural norms, the practice is felt to encourage familial psychological unity and insure a sense of interdependence in the child in relation to other family members. There are other benefits of co-sleeping that caregivers cite as reasons for this practice as well. Co-sleeping is no longer considered a problem unless the caregiver *themselves* begin to see it as a problem. But, since co-sleeping arrangements are so prevalent, this practice may be one of many expectations caregivers have when they arrive with their child at the sleep laboratory.

The problem associated with co-sleeping in the laboratory is not the practice itself but the effect the practice has on the study. Fragmented sleep during co-sleeping in the home is well docu-

mented and is often associated with cortical arousals following the movements or position changes of the bed partner. Increased parent-child interactions and face-to-face body orientations have been shown to increase heart rate, body movements, and arousals. These awakenings have been shown to alter the amount of deep sleep a child can get as well as alter sleep-state architecture in general. Sleep quality during a formal sleep study is no exception. Nighttime caregiver movements often elicit increased partial to full cortical arousals and body movements of the child being studied. Considering the added potential for full awakenings due to the "First Night Effect," problems associated with polysomnographic evaluation in children can make the night a challenge. While the argument can be made that studying a child who normally co-sleeps with a caregiver is obtaining normal baseline sleep, these subsequent associated effects can present significant interpretation problems for the sleep study. Technologists cannot eliminate every factor that can negatively influence the production and interpretation of a polysomnogram, but they can try to eliminate factors that can alter the goal of the sleep study - to rule out or document the presence of a sleep disorder.

Movement disorders in children do occur, though they are less frequent than in adult populations. Nighttime movements of a child undergoing polysomnography should be instantly suspect if the bed is being shared with a family member. The child's bed partner may snore themselves and fragment the child's sleep. Sleep laboratories collecting digital video do have somewhat of an advantage over those sleep laboratories that do not. Real-time digital video review can sometimes reveal if recorded body movements are intrinsically generated, where the movements are coming from the patient, or extrinsically generated, when an outside source elicits the child's movements. Other times, video review may be equivocal where it may be difficult or impossible to tell if a subtle bed partner movement generated a child's movement or arousal. Despite its obvious benefits, constant video review can significantly increase the amount of time it takes to score a polysomnogram and ideally should only be used to augment the scoring process. The actions of a co-sleeper can also alter the length, appearance and significance of apneic events. Caregivers who are co-sleeping during a polysomnogram may also reposition the child, as at home, if they feel that the apneic events warrant attention. Bed partner actions can prematurely begin or end breathing irregularities thus altering the ultimate goal of the polysomnogram. Bed partner move-

ments can also yield sleep-state changes that can both increase or decrease the severity and frequency of apneic events. The criteria for scoring apneic events in children allow for more subtlety as compared to the accepted guidelines for scoring apneic events in the adult population. And, as with nighttime movements, differences in nighttime breathing can be intrinsic or extrinsic. Again, video review may be necessary.

Finally, for those sleep laboratories that count arousals in children, the unwanted consequences of co-sleeping should be obvious. Counting arousals in children is already controversial in that clearly defined definitions of what constitutes an arousal in this age-group are not yet known, making the clinical value of this variable suspect. Hence, counting arousals in children is often laboratory dependent and subject to an individual scorer's interpretation of what exactly constitutes an arousal in a child. It takes careful review of the data and perhaps the video in order to determine if the arousals are intrinsically or extrinsically generated.

In order to avoid co-sleeping as a confounding factor that can influence the production and interpretation of the polysomnogram, sleep laboratories performing sleep studies on children should adopt a policy that minimizes co-sleeping's effects while leaving caregivers feeling good about study procedures and their own personal decision to co-sleep in the home. One way to meet this goal is to ask the caregiver upon arrival to the sleep laboratory if they co-sleep in the home. A 'Yes' answer is often associated with some defensiveness as many caregivers may still harbor feelings of guilt that co-sleeping is "bad" for the child. Inform the caregivers who do practice co-sleeping that the way it is handled in the sleep laboratory is to allow co-sleeping "until the child falls asleep." Then say, "Once he is asleep, I will let you know when it is a good time for you to get out of the bed since your movements can influence the interpretation of the sleep study and we will want to evaluate him without this effect." The technologist may add, "We will not be able to tell if his sleep is disturbed because of a sleep disorder or from the effect of your movements during the night." This strategy is more likely to be successful if there a bed already prepared for the caregiver prior to beginning the study.

Most caregivers do not want to put their child through the involved process of a sleep study only to have the results altered by their own movements and they will usually agree with your laboratory's policy. Most caregivers hear their child's breathing change as he falls asleep, and no prompting from the technologist is necessary for the parent to get out of the child's bed. Some caregivers may still insist upon co-sleeping throughout the night, but oftentimes once they observe their child sleeping, they can be coaxed out of the study bed. Since the caregiver has already been informed of the reasons for the policy, they will usually understand when the technologist enters the room during quiet sleep. The caregiver is informed that they can always return to the child's bed if there is an awakening later in the night "to help their child fall back to sleep." This is usually a win-win situation for all involved.

Making the best of a pediatric sleep study has many challenges. Co-sleeping comes with cultural beliefs that if challenged, can lead to interpersonal difficulties for laboratory personnel. However, co-sleeping can also alter the interpretation of a sleep study. A coherent policy to alleviate this influence allows the technologist to obtain the most accurate information while respecting the parenting decisions of the child's caregiver. Caregivers will appreciate laboratory policies that show an understanding of the caregiver-child relationship and the desire of the technologist and the sleep laboratory to perform the most accurate and thorough examination of their child's sleep.

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