Are There Long-term Consequences of Room-Sharing During Infancy?

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In November 2016, the American Academy of Pediatrics (AAP) Task Force on sudden infant death syndrome (SIDS) published an updated policy statement[1] with guidelines to reduce the risk of SIDS and other sleep-related deaths. Although there were several changes in the recommendations, the one that got the most attention was the recommendation that room-sharing without bed-sharing should be practiced "ideally for a year, but at least for 6 months." The previous (2011) policy statement had stated that all of the recommendations should be followed until the infant is 1 year of age.[2] Many pediatricians and other health care providers have voiced concerns that room-sharing for 6 months or 1 year will result in negative consequences on the quality of parental and child sleep. Up to now, there have been few studies looking at sleep outcomes in room-sharing and solitary sleeping (ie, sleeping in a separate room from the parents) infants. Thus, the article by Paul et al[3] in this issue of *Pediatrics*, which describes outcomes in 4-month-old and 9-month-old infants who are room-sharers or solitary sleepers, is a welcome addition to the literature.

Paul et al[3] found that at 4 months of age, overnight sleep duration was similar, but the longest single sleep period (indicative of sleep consolidation) for solitary sleepers was 44 minutes longer than that for room-sharing infants. By 9 months of age, there were more differences. Infants who had become solitary sleepers before 4 months of age had longer total sleep and longer single sleep periods than either those who became solitary sleepers at 4 to 9 months or those who continued to room-share. Clearly these differences are important, particularly to exhausted parents. However, it should be noted that even the 4-month-old room-sharing infants had a mean of ~7 hours as the longest sleep period, compared with 7 hours, 49 minutes for the solitary-sleeping infants. This is well within the normal range for sleep at this age and much longer than the mean. Galland et al,[4] in a systematic review of normal sleep patterns in infants and children, found that 0- to 5-month-olds had a mean longest sleep period of 5.7 hours. Although the Galland et al[4] study did not stratify by sleep arrangement, the cohorts would have presumably included both room-sharers and solitary sleepers.

In addition, it is unclear whether early sleep consolidation is a desirable trait in young infants. The ability to arouse is critical physiologically, and a leading hypothesis is that failure to arouse makes an infant vulnerable to SIDS.[5] Some risk factors, including prone positioning[6–12] and exposure to tobacco smoke,[13–18] are associated with higher arousal thresholds, whereas protective factors, including breastfeeding,[19,20] are associated with lower arousal thresholds. Many parents will place infants prone because they sleep for longer durations and are not as easily awakened,[21–25] which is explained by the higher arousal threshold. Thus, longer sleep durations in young infants, which Paul et al[3] present as being preferable, may be problematic from a physiologic perspective.

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Paul et al[3] imply that room-sharing itself may be disruptive and thus not desirable. However, when the data are examined, the significant differences in the groups at 4 months of age are not the number of night awakenings but consistent bedtime routines, early bedtimes, the numbers of night feedings, and being fed back to sleep. Bedtime routines can be difficult for all families to establish, and there may be additional challenges for families who are room-sharing. Perhaps the emphasis should not be on the elimination of room-sharing itself but on providing guidance regarding establishment of bedtime routines. In addition, it is unclear whether the differences in the number of night feedings and being fed back to sleep are associated with the type of feeding rather than the location of sleep. Because breastmilk has a variable macronutrient composition that may fluctuate over a 24-hour period compared with the consistent composition of infant formula,[26] feeding patterns are different and may account for more frequent feedings during the night. Additionally, breastfed infants have more rapid gastric emptying,[27] which may also account for the more frequent night feedings that are associated with breastfeeding.[28,29] As pediatricians, we all want to encourage continued breastfeeding, and room-sharing facilitates breastfeeding.[30]

Paul et al[3] also found that there were significantly more reports of bed-sharing and soft bedding use in the middle of the night for the 4-month-old room-sharers. This is clearly worrisome, and it reinforces the need for health care providers to discuss with parents the importance of proactively preparing the adult bed for the possibility of bed-sharing in the middle of the night. The 2016 safe sleep recommendations acknowledge that parents may fall asleep with the infant while feeding, and they recommend that parents remove pillows, blankets, and other soft bedding from the adult bed if there is a possibility of this occurring.[1]

The AAP's room-sharing without bed-sharing recommendation is based on case-control studies in England, New Zealand, and Scotland, which have demonstrated that room-sharing decreases the risk of SIDS compared with solitary sleeping. Blair et al[31] found an adjusted odds ratio of death of 10.49 (95% confidence interval [CI] 4.26–25.81) for infants who slept in a separate room compared with those who slept in the parents' room. The New Zealand Cot Death study reported an adjusted odds ratio of death for infants who room-shared during the last sleep of 0.35 (95% CI 0.26–0.49) compared with solitary-sleeping infants.[32] Tappin et al[33] reported an adjusted odds ratio of 3.26 (95% CI 1.03–10.35) for solitary-sleeping infants compared with room-sharing infants. Although these authors found this reduction in risk to be present only when the parent was a smoker, Blair found this reduction to be present for both smoking and nonsmoking parents (P. Blair, PhD, personal communication, 2016). More recent, unpublished data from the New Zealand Sudden and Unexplained Death in Infancy study show similar protection from room-sharing, with an adjusted odds ratio of 0.36 (95% CI, 0.19–0.71) for room-sharing infants compared with solitary-sleeping infants (E. Mitchell, MBBS, personal communication, 2016). Because none of these studies stratified the risk by infant age in months, it is difficult to determine the optimal end point for room-sharing.

Paul et al[3] note that Blair et al[31] provided a figure comparing usual nighttime sleeping environment by infant age (7–60 days, 61–120 days, and >120 days) for infants who died and control infants. Although a higher percentage of control infants were solitary sleepers after 120 days, no statistical comparisons, including odds ratios, were provided, and therefore, no firm conclusions regarding the relative risk of specific sleep environments at different ages can be drawn. Additionally, recent analyses of case-control studies[34,35] and registry databases[36] of sudden and unexpected infant deaths emphasize that infant sleep location is particularly critical in the first few months of an infant's life. Ninety percent of sleep-related deaths occur by 6 months of age, and the peak occurs between 1 and 4 months of age. It should be noted that the AAP recommendations are consistent with recommendations from other developed countries; Canada,[37] the United Kingdom,[38] the Netherlands,[39] and New Zealand[40] recommend room-sharing for 6 months, and Australia[41] recommends room-sharing for 6 to 12 months.

The concerns raised by Paul et al[3] regarding the room-sharing recommendation are important, and we recognize that optimal parental rest is desirable. Every policy has consequences, which are often unintended; these consequences can be positive or negative. There have been modifications to policies before as new research was published. Safe sleep policies were modified to include the recommendation for awake, supervised tummy time when data about positional plagiocephaly and concerns about early motor development emerged. We strongly support more research, both about the physiology of infant sleep and arousal for room-sharing infants and about the consequences of room-sharing on parental and child sleep. However, the primary objective of safe sleep recommendations will always be to minimize risk of SIDS and other sleep-related infant deaths.

ABBREVIATIONS

AAP: American Academy of Pediatrics
CI: confidence interval
SIDS: sudden infant death syndrome

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