

# Infant Sleep Position Instruction and Parental Practice: Comparison of a Private Pediatric Office and an Inner-city Clinic

Brenda J. Ray, BSN, RN\*; Sharon C. Metcalf, MSN, RN, CPNP\*; Sofia M. Franco, MD\*; and Charlene K. Mitchell, MD\*‡

**ABSTRACT.** *Objective.* To determine infant sleep instructions that hospital personnel in our community were giving to parents and actual positions practiced after the April 15, 1992 American Academy of Pediatrics recommendation for nonprone positioning.

*Design.* Survey of mothers of infants 4 months of age from November 1993 to March 1994 with follow-up survey of selected birth hospitals.

*Setting.* A private practice (PP) serving predominantly white middle- and upper-income children and a pediatric clinic (CY) serving inner-city predominantly African-American low-income children in Louisville, Kentucky.

*Patients.* Fifty infants from each practice site.

*Outcome Measure.* The sleep instructions given and practiced, and other risk factors for sudden infant death syndrome (SIDS).

*Results.* Nonprone sleeping instructions were received by 72% of the PP and only 48% of the CY parents, with 72% of the PP and 54% of the CY following the nonprone recommendations. Infants were more likely to be in smoking households (60% vs 12%) from the CY practice than the PP practice.

*Conclusions.* Our study showed that, despite having a higher prevalence of SIDS risk factors, there was a greater delay in discontinuing prone positioning instructions in the hospital serving the CY infants. The evidence suggests that this population is as likely as the PP group to follow medical advice given. *Pediatrics* 1997;99(5). URL: <http://www.pediatrics.org/cgi/content/full/99/5/e12>; *infant sleep position, SIDS, sleep instruction.*

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ABBREVIATIONS. SIDS, sudden infant death syndrome; AAP, American Academy of Pediatrics; CY, Children and Youth Project; PP, private practice.

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The sleep position of infants was most often viewed in the past as a trivial aspect of infant care. It has recently received serious attention because of the reported association of the prone sleeping position with sudden infant death syndrome (SIDS). In the United States in the early 1990s, the prone position was most commonly used when placing an infant down for sleep.<sup>1</sup> However, as early as 1985,<sup>2</sup> the prone position has been challenged as "unsafe." In

subsequent foreign studies, sleep position was implicated as a risk factor for SIDS.<sup>3-8</sup> Publicity that discouraged the prone sleeping position in Australia, the Netherlands, New Zealand, and Great Britain was associated with a decrease in the incidence of SIDS ranging from 20% to >50%.<sup>4,9-16</sup>

The evidence of these reports was so persuasive that in 1992 the American Academy of Pediatrics (AAP) recommended the use of either the supine or the lateral position for placing healthy infants down to sleep.<sup>1</sup> Two years after such a recommendation, the AAP Task Force on Infant Positioning and SIDS noted that "although pediatricians have heard the recommendations, many children's physicians and allied health care workers are not actively recommending nonprone sleeping for their patients."<sup>17</sup>

In addition to the prone position, several studies have reported the association of SIDS with infant hyperthermia,<sup>18-23</sup> swaddling,<sup>23</sup> and suffocation.<sup>23,24</sup> Bedsharing<sup>25</sup> and exposure to tobacco smoke<sup>26,27</sup> have also been reported to increase the risk for SIDS. Our study was undertaken primarily to determine the sleep positioning instructions given by hospital personnel in our community and the actual positions practiced by parents. Specifically we wanted to determine whether there were differences in instructions and sleep habits between private practice patients and the hospitals serving them, and our inner-city indigent patients and their primary hospitals. We also wanted to screen for the prevalence of other reported risk factors associated with SIDS.

## METHODS

The study was conducted from November 1993 to March 1994 at two sites: the Children and Youth Project (CY), a university-affiliated, inner-city pediatric clinic serving predominantly African-American low-income children, and a private pediatric office (PP) serving predominantly white children in the middle- and upper-economic strata. Approval was obtained from the University of Louisville Human Studies Committee, and informed consent was obtained from each parent. Healthy infants  $\leq 4$  months of age at the time of their initial well-baby visits were selected by convenience sampling to participate in the study. Infants diagnosed with upper respiratory anomalies and gastroesophageal reflux and those born prematurely with a history of respiratory distress were excluded from the study. Parents were asked to complete a sleep-habit survey developed by the investigators (Table 1) that consisted of multiple-choice questions and short answers.

As follow-up to the data obtained at completion of the study, one of the authors (S.C.M.) informally surveyed local area hospitals where the majority of the study infants were born. The nursing supervisors for the nursery areas were asked what instructions for sleep position were given to parents before nursery discharge

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**TABLE 1.** Sleep Survey Questions

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1. In what position does your infant sleep?  
 \_\_\_ On stomach \_\_\_ on side \_\_\_ on back \_\_\_ other  
 Has this changed since he/she was first born? \_\_\_ yes \_\_\_ no  
 If yes, how has it changed? \_\_\_\_\_

2. When your baby came home from the hospital after he/she was born, what position were you told to place the baby to sleep?  
 \_\_\_ On stomach \_\_\_ on back \_\_\_ on side \_\_\_ other  
 \_\_\_ I was not told how to lay the baby to sleep.

3. When your newborn came home from the hospital, how did you use blankets at bedtime?  
 \_\_\_ Wrapped snugly around baby \_\_\_ laid blankets over baby \_\_\_ Wrapped loosely around baby \_\_\_ no blankets used \_\_\_ other  
 (Describe.) \_\_\_\_\_  
 Were you told how to use blankets when your baby was born?  
 \_\_\_ Yes \_\_\_ no If yes, how? \_\_\_\_\_

4. Where did your baby sleep when first home from the hospital?  
 \_\_\_ In parent's bed \_\_\_ in bassinet \_\_\_ in crib \_\_\_ other \_\_\_\_\_  
 Where does your baby sleep now? \_\_\_\_\_  
 How many people sleep in the same bed with your baby? \_\_\_\_\_

5. Has your baby ever slept on a waterbed? \_\_\_ yes \_\_\_ no

6. Number of smokers in the home. \_\_\_ Do you smoke? \_\_\_ yes \_\_\_ no

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and what specific recommendations were given regarding the use of blankets when placing infants to sleep. Sleep recommendations were categorized as appropriate instructions if the baby was to be placed on either the back or side; as wrong or inappropriate if the prone position was included in the instructions; or as having received no instructions.

$\chi^2$  analysis or Fisher's exact one-tailed test were used to determine differences between the two group practices. Significance was defined as a *P* value < .05.

**RESULTS**

Fifty infants from each site entered the study. Infants from the PP were on average 43.8 (SD, 34.3) days old and CY infants were 25.3 (SD, 21.7) days old at study entry (*P* = .00007). There were two refusals from parents at the PP and three from CY parents.

The type of sleep instruction reportedly given by practice group is shown in Fig 1. The AAP-recommended instructions were reportedly received by 72% (36/50) of the PP parents, as opposed to only 48% (24/50) of the CY parents (*P* = .01). Of the parents who reported receiving the recommended sleep position instructions, 72% (26/36) of the PP and 54% (13/24) of the CY parents reported their infants were sleeping in the recommended positions (*P* = .15). No instructions were reportedly given to 22% (11/50) of the PP and 24% (12/50) of the CY parents. Infants were placed in the AAP-recommended positions in 73% (8/11) of the PP and 33% (4/12) of the

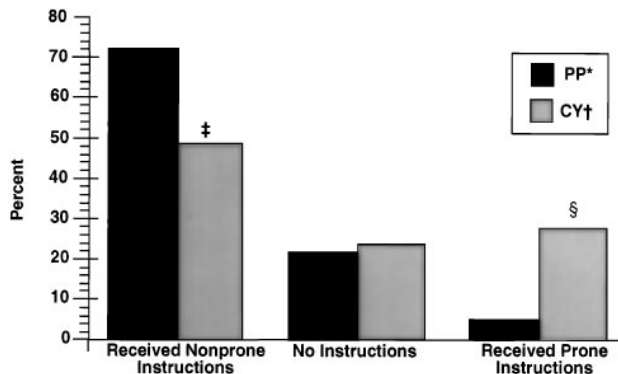
CY groups who received no instructions (*P* = .06). An additional 6% (3/50) of the PP and 28% (14/50) of the CY groups actually received instructions for prone positioning (*P* = .003). None (0/3) of the PP and 7% (1/14) of the CY groups who received inappropriate instructions were sleeping in the recommended positions. Overall, 74% (29/39) of the PP parents and 68% (26/38) of the CY parents followed the sleep advice given.

A subsequent survey was conducted for four of the six local birth hospitals that accounted for 89% (84/94) of the study infants. One respondent from the PP and four from the CY group failed to indicate the birth hospital, and one CY respondent indicated birth at a nonlocal facility. The AAP recommendations had not been adopted by the hospital serving 73% (33/45) of infants from the inner-city CY group, and of these, 79% (26/33) were being placed in the prone position for sleep. In contrast, two local hospitals accounting for 80% (39/49) of infants from the PP and 22% (10/45) from the CY groups reported providing instructions consistent with the AAP recommendations. Parents from these two hospitals reported using correct sleep positions for 67% (26/39) of PP infants and 60% (6/10) of CY infants.

Infants slept in the parents' bed when they first arrived home from the birth hospital in 10% (5/50) of the PP group and 50% (25/50) of the CY group (*P* = .001). At entry into the study during the time of their initial well-infant visit, 2% (1/50) and 38% (19/50) of the PP and CY infants, respectively, continued to share their parents' bed for sleeping (*P* = .001). The use of a waterbed was reported by 6% of PP and 4% of CY parents.

The reported association of SIDS with infant swaddling led us to question the parents on whether instructions were received from hospital personnel on the use of blankets in placing their infants to sleep. Over two-thirds of parents from each group reported no such instructions were received. Wrapping infants snugly when placing them to sleep was reported by 70% (35/50) of PP and 40% (20/50) of CY parents (*P* = .002).

Infants in the CY group were five times more likely to be in a smoking household than were PP infants, with 60% (30/50) of CY infants in a house-



**Fig 1.** Sleep instructions reportedly given by hospital personnel for each study site. \*PP indicates patients from a predominantly white middle/upper income private practice. †CY indicates predominantly inner-city, African-American, low-income children from the Children and Youth Project clinic. ‡*P* = .01; §*P* = .003.

hold with at least one smoker compared with 12% (6/50) of the PP infants ( $P < .001$ ). Furthermore, mothers of CY infants were five times more likely to be smokers themselves, with 30% (15/50) self-reporting cigarette use as compared with 6% (3/50) of the mothers from the PP group ( $P = .002$ ).

## DISCUSSION

The results of our study show evidence of poor compliance with AAP recommendations on sleep position by both health personnel and parents. Two years after the AAP recommendations were issued, only 60% of all the parents surveyed in our study reported receiving instructions consistent with AAP recommendations. Among the inner-city, low-income parents, less than one-half (48%) reported receiving such instructions whereas nearly three-quarters of the private practice patients had been appropriately instructed.

A study in the Seattle, Washington area examined the incidence of SIDS before and 8 months after an editorial appeared in a local newspaper in August 1991.<sup>28</sup> The editorial recommended the avoidance of the prone sleeping position for normal infants. The results of that study suggested that the information given to the general public had an effect on the actual practice of infant sleep position, with a subsequent 52% decrease observed in the local SIDS rate.<sup>28</sup> Surprisingly, we found that 73% of parents from the PP, but only 33% from the CY group, who reported receiving no instructions were actually practicing the recommended positions. Although this trend did not reach statistical significance, it suggests that PP parents may have selected the recommended sleep position by personal preference or may have received information on sleep position from alternative sources such as the news media or other family members. This difference highlights the need for health professionals to focus educational efforts on basic concepts to parents from lower socioeconomic levels as they seem less likely to acquire the information from nonmedical sources.

We found smoking was reported five times more frequently in the CY group than the PP group. If parents were trying to complete the survey in a fashion to please the surveyors, we believe the report of smoking prevalence would have been lower in this group. However, no formal mechanism was undertaken to confirm whether the actual practice conformed with the practices reported on the surveys. Age at first visit might also be expected to influence recall of instructions given and responses on the survey. Although we found a statistically significant difference in ages at first visit, averaging 6 weeks for the PP and 3 weeks for the CY infants, we doubt significant clinical impact on recall for such a small age difference.

We found that respondents in the PP group more often followed the AAP recommendations when they were given, as compared with the CY group, but this difference was not significant. When data were analyzed separately for the hospitals which had births from both populations, adherence to appropri-

ate sleep positioning was even more similar between groups. Our study was not designed to evaluate the degree of compliance with new recommendations between these types of populations, and we cannot rule out a  $\beta$  error with respect to compliance.

Our phone survey of the birth hospitals revealed that the primary birth hospital of the CY group had not adopted the AAP recommendation. Death rates from SIDS are higher among African-American infants,<sup>26</sup> and with tobacco exposure,<sup>26,27</sup> and perhaps with bedsharing.<sup>25</sup> Although we identified more risk factors for SIDS in the CY group, this vulnerable group less often received instruction for the recommended sleep positions. The primary hospital serving these patients was among the last, rather than the first, to implement the AAP recommendations. Not surprisingly, these infants were more likely to be placed in a prone position for sleep than the PP infants. However, our results imply that if inner-city, low-income mothers are advised of the proper sleep position, they are as likely to properly place their infants for sleep as those from middle-income practices.

Overheating caused by overwrapping infants with blankets has also been identified as a risk factor for SIDS. In our study, the majority of the parents in both groups received no hospital instruction regarding the use of blankets. The PP parents were more likely to wrap their infants snugly with blankets. This finding suggests a need for instructions on appropriate use of blankets to be included in routine newborn care.

Our results reveal the need for all health personnel to educate parents, particularly of neonates in high-risk populations, on proper sleep practices. Although there has been improvement in following the "Back to Sleep" advice of supine or lateral positioning, the recommendation has recently been changed to exclusive supine positioning.<sup>29</sup> Of interest, only seven infants in this study were exclusively being placed in the supine position. Routinely incorporating sleep position into infant care instructions and newborn admission orders may increase proper sleep practices by hospital personnel and parents alike. Providing the AAP recommendations and rationale for the supine sleeping position during prenatal visits may result in earlier and better informed decisions on how parents will place their infants to sleep. Well-infant visits provide additional opportunities to reinforce the recommended sleep position.

Parents and health personnel must realize that a change in sleep position, once considered a trivial aspect of baby care, can potentially save lives. Although parents of infants from our inner-city, indigent, predominantly African-American practice were less well informed, they did not appear to be less responsive to educational intervention. Health professionals who serve similar high-risk populations need to be more aggressive in implementing these potentially life-saving recommendations.

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