Supine Infant Sleep: What Do Family Physicians Recommend?

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Background: **Sudden infant death syndrome (SIDS) kills more than 6000 infants annually in the United States. Researchers have described prone sleep position as a risk factor for SIDS. A greater than 50 percent reduction in SIDS has been reported in countries where the predominant sleep position changed from prone to supine. In 1992 the American Academy of Pediatrics (AAP) recommended that healthy infants be placed in a supine position at bedtime. Previous studies of pediatric practices reported a 60 percent compliance with the recommendation. This study describes the self-reported compliance with the AAP recommendation by a cohort of family physicians.**

Methods: **Three hundred members of the Uniformed Services Academy of Family Physicians were mailed a questionnaire about their recommendations regarding infant sleep position.**

Results: **The response rate was 77 percent. Sixty-two percent of the respondents usually or always encourage supine sleep position. Twenty-one percent usually or always discourage the supine sleep position.**

Conclusions: **This cohort of family physicians encourages the supine sleep position at rates similar to reported cohorts of pediatricians. Reasons for the limited endorsement of the AAP recommendation were not explained by the results of this study. (J Am Board Fam Pract 1996;9:319-23.)**

Sudden infant death syndrome (SIDS), the leading cause of death in the first year of life, kills more than 6000 infants annually in the United States.[1] Investigators have described a number of maternal and neonatal risk factors for SIDS, including maternal smoking, African-American race, low socioeconomic status, young maternal age, and prone sleep position.[2,3] In 1992, citing epidemiologic studies in countries showing impressive reductions in the rates of SIDS after they abandoned the prone sleep position, the American Academy of Pediatrics (AAP) Task Force on Infant Positioning and SIDS recommended that otherwise healthy infants be placed in a supine or lateral position, as opposed to the prone position, when put down for sleep.[4]

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Researchers in Australia, New Zealand, and several European countries have recommended the supine sleep position for the past 5 to 10 years. With the exception of Sweden, in those countries where the frequency of prone infant sleeping decreased, a concurrent reduction in SIDS rates of 50 percent or greater occurred.[5,6] In the United States the rate of prone infant sleeping decreased from up to 83 percent before the AAP recommendation[7,8] to about 40 percent in the 2 years following the AAP recommendation.[8,9]

It is uncertain whether the change in frequency of prone sleep position in the United States has been associated with a decrease in the SIDS rate of 1.3 per 1000 live births.[1] One author estimates that an 11 percent reduction in SIDS mortality occurred in the first 6 months after the AAP published its recommendation,[10] while another estimates that reducing the incidence of prone sleeping from 40 percent to 10 percent could decrease the incidence of SIDS by up to 37 percent and save 2000 infant lives annually.[5] Neither estimate has been confirmed by longitudinal studies.

In the United States, surveillance studies tracking compliance with the recommended change have surveyed parents and pediatricians about sleep positions. Although family physicians provide more than 16 percent of the well-baby care in

the United States,[11] little has been reported on the compliance rates of family physicians' recommending the supine sleep position.[12] Our study was undertaken to describe the self-reported compliance of a cohort of family physicians with the recommendation for supine infant sleep position.

Methods

As part of a larger, cross-sectional study on physician recommendations about infant sleep, a questionnaire was sent in the summer of 1995 to a random sample of 300 uniformed services (Air Force, Army, Navy, and Public Health Service) family physicians from the active membership list of the Uniformed Services Academy of Family Physicians (USAFP). The USAFP is a state chapter of the American Academy of Family Physicians (AAFP). Two hundred thirty physicians (76.7 percent) returned the questionnaire after three mailings. Twenty-one of the respondents did not report completing a family practice residency and were excluded. Responses from the remaining 209 physicians (70.0 percent) in the cohort were analyzed.

The survey instrument collected information about sociodemographic and practice characteristics, education and training, and physician recommendations about routine sleep practices in otherwise healthy infants. The respondents used a five-point Likert scale (1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree) to describe their agreement with the statements about their training in infant sleep. Although we were interested in dichotomous responses, the Likert scale format was used to reduce the likelihood of inherent response bias in questionnaires using "yes-no" and "always-never" responses. Before data analysis, we coded those replying either "strongly agree" or "agree" into a single category encoded "agree" and those replying either "strongly disagree" or "disagree" into a single category encoded "disagree."

In the section on infant sleep recommendations, physicians were presented with statements about a variety of sleep practices in the first year of life, including supine sleep position. Physicians again responded using a five-point Likert scale (1 = always encourage, 2 = usually encourage, 3 = neither encourage nor discourage, 4 = usually discourage, 5 = always discourage) to describe their agreement with the statements about sleep practices. Before data analysis, we combined responses of "always encourage" and "usually encourage" into a single category coded as "encourage," and we combined "always discourage" and "usually discourage" into a single category coded as "discourage."

Data were analyzed using SPSS for Windows (Version 6.1.2).[13] Descriptive statistics, including frequency distributions and percentages, were used to report categorical data, and means and standard deviations were used to report interval level data. To estimate the comparability of the sample with both the USAFP and AAFP active memberships, the age variable was tested using a single-sample Student's *t*-test, while sex was compared using a chi-square test of independence. Responses about infant sleep position were treated as nominal level data and analyzed using a chi-square test of independence.

Results

The data displayed in Table 1 illustrate the demographic and practice characteristics of the sample. The majority of the physicians in the cohort were married (88.9 percent), white (88.5 percent), and male (87.0 percent), and they had a mean age of 39.1 years. More than one third (35.9 percent) of the physicians practiced in a free-standing clinic, whereas the majority (55.8 percent) practiced in hospital-based settings. Twenty-three physicians (11.0 percent) were graduates of osteopathic medical schools. The mean number of years in practice postresidency was 7.75 years (SD = 6.15).

To determine whether the sample was representative of the USAFP and AAFP membership, two variables (age and sex) for which comparable data were available across groups were compared (Table 1). For age, a single-sample *t*-test found no significant difference between the cohort and the active USAFP membership ($t[208] = -0.92$; $P = 0.359$); however, the difference between the mean age of the sample and the AAFP active membership was significant ($t[208] = -12.78$; $P = 0.000$). For sex, chi-square analysis showed that the physician's sex was independent of group membership when comparing the sample group with the USAFP membership ($\chi^2(1) = 0.021$; NS), but the AAFP membership had a significantly higher percentage of women compared with the sample group (20.6 percent vs 13.0 percent; $\chi^2(1) = 7.28$; $P < 0.01$).

Table 1. Demographic Characteristics of Study Participants and Members of the Uniformed Services Academy of Family Physicians (USAFP) and the American Academy of Family Physicians (AAFP).*

Characteristic	Sample (n = 209)† No. (%)	USAFP (n = 1259)† No. (%)	AAFP (n = 44,036) No. (%)
Age (y)			
Mean	39.1	39.5‡	44.9§
Standard deviation	6.58	7.93	10.44
Range	28-40	25-74	25-77
Sex			
Male	185 (87.0)	1091 (86.7)‖	34,977 (79.4)¶
Female	27 (13.0)	168 (13.3)	9,050 (20.6)
Marital status			
Married	185 (88.9)		
Single, never married	12 (5.8)		
Separated	1 (0.5)		
Divorced	10 (4.8)		
Ethnicity			
African-American	3 (1.4)	32 (2.5)	
Asian	12 (5.7)	42 (3.3)	
White	185 (88.5)	854 (67.8)	
Hispanic	6 (2.9)		
Other	3 (1.4)	15 (1.2)	
Unknown		316 (25.1)	
Degree			
Medicine	186 (89.0)		
Osteopathy	23 (11.0)		
Practice setting			
Medical center	34 (16.5)		
Community hospital	81 (39.3)		
Free-standing clinic	74 (35.9)		
Not in practice	17 (8.3)		
Postresidency experience (y)			
Mean	7.75		
Standard deviation	6.15		
Range	1-35		

*Active members only; USAFP and AAFP membership data courtesy AAFP, July 1995.
†Not all members responded to each data element; total response numbers vary by data element.
‡Single-sample *t*-test comparison of study sample and USAFP active membership; $P = 0.359$, NS.
§Single-sample *t*-test comparison of study sample and AAFP active membership; $P < 0.0001$.
‖Comparison of study sample and USAFP active membership; $\chi^2(1) = 0.021$; NS.
¶Comparison of study sample and AAFP active membership; $\chi^2(1) = 7.28$; $P < 0.01$.

Of the 205 physicians responding to the item on supine sleep, 127 (62.0 percent) said that they always or usually encourage the supine sleep position, whereas 42 (20.5 percent) said that they always or usually discourage that position (Figure 1). Thirty-six (17.6 percent) reported that they would neither encourage nor discourage the supine position.

Only 40 respondents (19.5 percent) agreed that they received formal training about infant sleep during their residency, and only 88 physicians (42.9 percent) believed that their residency training adequately prepared them to discuss infant sleep. Physicians who received formal training recommended the supine sleep position no more frequently than those who had no formal training ($\chi^2(2) = 0.37$; $P = 0.83$).

An analysis of factors showed that the self-perception of being qualified to discuss infant sleep was the only factor associated with encouraging the supine sleep position ($\chi^2(4) = 10.79$, $P = 0.029$). Of the 157 respondents who perceived that they were qualified, 103 respondents (65.6 percent) encouraged, 28 (17.8 percent) discouraged, and 26 (16.6 percent) neither encouraged nor discouraged the supine sleep position for infants. Nine of the 15 respondents who did not feel qualified to discuss infant sleep (60.0 percent) encouraged the supine sleep position, whereas 6 (40.0 percent) discouraged it. The 33 physicians who neither agreed nor disagreed with the statement that they were qualified to make infant sleep recommendations had the lowest frequency of encouraging the supine sleep position. Only 15 of these physicians (45.5 percent) encouraged the supine infant sleep position, while 10 (30.3 percent) discouraged it, and 8 (24.2 percent) neither encouraged nor discouraged it.

Discussion

The above data show that the majority of this cohort of family physicians (62.0 percent) recommend the supine infant sleep position to parents of infants. The results are similar to those of other recent studies that have reported a compliance rate of 50 to 60 percent with the AAP's recommendation. In a telephone survey conducted 8 weeks after the AAP's recommendation, more than one half of family physicians and one third

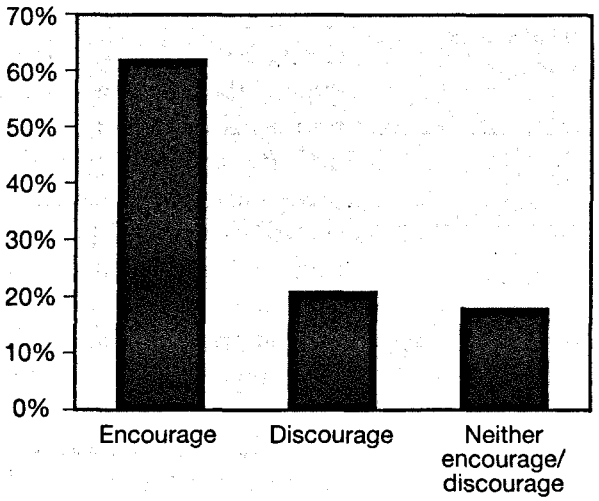

Figure 1. Family physician recommendations about the supine infant sleep position.

of pediatricians recommended the prone position.[8] In a waiting-room study of parents of infants aged 1 to 6 months, 59.1 percent reported that they place their infants in the supine position.[9] As part of a broader study, pediatricians completed a questionnaire identical to the one completed by the family physicians in this study.[14] Seventy-seven percent of the pediatricians reported that they always or usually encourage the supine sleep position compared with 62.0 percent reported by family physicians in our survey. Years of postresidency experience was the only factor that contributed to the difference between the specialties.

Whether a formal curriculum in infant sleep behavior and sleep problems would better prepare physicians to talk to parents about sleep or decrease the incidence of SIDS is uncertain. Many residencies have no formal curriculum on infant sleep. In a survey of pediatric residencies, only 55 percent reported that they offer formal didactic instruction on infant sleep for their residents.[15] In our study less than 20 percent of family physicians reported receiving formal training on infant sleep during residency, and less than 43 percent felt prepared to discuss infant sleep problems at the completion of residency. This finding is a concern, because sleep problems are the most commonly reported problems at health maintenance checks in the first 2 years of life.[16] Despite the apparent lack of formal training, practicing physicians reported that they felt qualified to talk about infant sleep, and formal training was the only factor contributing to the difference between those physicians who encouraged the supine infant sleep position and those who did not. Whether the added qualifications were obtained by subsequent formal training, continuing education experiences, or practice experience was not determined by our study.

A formal curriculum alone might not be the answer to increasing the number of physicians who recommend the supine sleep position. Physicians who received formal training and those with no formal training scored similarly on a test of infant sleep knowledge.[14] This observation seems to be borne out in our study, in which those physicians who received no formal training in residency recommended the supine sleep position as often as those who did receive formal training. Most primary care physicians are aware of the AAP recommendation.[17] Yet, only one third to one half of physicians made any specific recommendation to parents regarding infant sleep position.[8,18]

Although it is generally perceived that physician recommendations are crucial to changing patient behaviors, whether a physician recommends the supine sleep position might not be a critical factor in altering parental choice of their infant's sleep position. In a study of waiting-room parents with children aged 1 to 6 months, more than one half of the parents credited family, friends, and the media for their awareness of the recommendation for the supine sleep position.[9] Health professionals influenced the decision to change from prone sleep in only 31 to 49 percent of the cases.

Several factors could limit this study and its generalizability to other populations and should be considered when reviewing these data. The analysis is based on responses to a written questionnaire and is subject to the limitations of survey studies; nevertheless, the number of respondents makes it likely that a representative sample was obtained. No attempt was made to validate the practice habits of the respondents by exit interviews of patients or by direct observations of the physicians in their practices. Even so, studies of self-reports on surveys demonstrate the reliability of such surveys.[19] The comparability of this cohort of active and retired military physicians with other family physicians in the United States could be questioned. Young, white men made up the majority of the cohort. In comparison, the active membership of the AAFP is older and more diverse. We did not

detect evidence of bias, however, when comparing various demographic groups within the sample. In addition, military residencies come under the same regulatory and supervisory guidelines as civilian residencies, so that the training environment would be an unlikely source of bias. Finally, this study had no method to compare the characteristics or practice patterns of those who did not respond. Again, the sample size makes it unlikely that the nonrespondents would have significantly influenced the outcome.

The results of this study suggest that this cohort of family physicians complies with the AAP recommendation at rates comparable to their pediatric peers in other studies. Although these results show continued progress in conforming with the 1992 AAP recommendation, they are still well below full compliance, and hundreds of infants could be unnecessarily at risk for SIDS. Further studies are needed to understand why some physicians are not recommending the supine position and to assess the impact of physician recommendations on infant sleep position. Family practice and pediatric residencies should review their curricula to determine whether they place adequate emphasis on infant sleep. Alternative methods of informing all parents about recommended infant sleep positions should be investigated. All physicians and other health professionals who provide well-child care can become personally involved in the national "Back to Sleep" campaign[12] (800-505-CRIB), sponsored by a coalition of SIDS organizations, the US Public Health Service, and the AAP, and by recommending the supine infant sleep position to parents.

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