

Infant Sleep Position: A Telephone Survey of Inner-city Parents of Color

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Abstract. Objective. To assess what positions parents were placing their infants to sleep and their opinion about sleep positioning.

Design. A prospective telephone survey of parents of 2-month-old infants with repeated measures at 4 months that began during the second wave of the *Back to Sleep* campaign in 1994.

Participants. African-American, Hispanic, Asian, and American Indian parents from inner cities in the north central United States.

Results. Preference for prone positioning existed at both 2 and 4 months (over 40%). Twenty-four percent of parents disagreed with the recommendations of the American Academy of Pediatrics regarding supine or lateral positioning.

Conclusions. Although prone sleep positioning has decreased over the past 5 years, many inner-city parents of color prefer this over supine. The *Back to Sleep* campaign appears effective in changing attitudes and medical personnel appear influential in promoting risk reductions associated with sudden infant death syndrome. More efforts are clearly needed to convince parents who disagree with and resist recommendations. *Pediatrics* 1999;104:1208-1211; *sleep, infants, SIDS, African-Americans, Back to Sleep (campaign).*

ABBREVIATIONS. SIDS, sudden infant death syndrome; NISP, National Infant Sleep Position (study); AAP, American Academy of Pediatrics.

Recommendations for infant sleep positioning have changed in the United States from back or side in 1992 to supine only in 1996.¹⁻⁶ These recommendations were developed from worldwide data demonstrating decreases in rates of sudden infant death syndrome (SIDS) when infants were placed on their backs rather than their sides or stomachs. From 1992 to 1994 we surveyed parents and found that >60% used prone positioning for their 2- and 4-month-old infants.⁷ A majority of our sample preferred prone and disliked supine positioning, although lateral positioning was a popular alternative. Simultaneous and subsequent research showed prone sleep positioning in the United

States has steadily decreased since 1992.¹⁻⁵ Recommendations to avoid prone positioning were reaffirmed in the *Back to Sleep* campaign in 1994 and revised to supine only in 1996.⁶

More recent published data on factors related to infant sleep positioning in the United States⁸⁻¹¹ found decreases in prone sleep positioning from 70% in 1992 to 24% in 1996. Rates of SIDS have shown a corresponding decrease from 1.2 per 1000 live births in 1992 to .74 in 1996.^{8,11} Maternal race, age, socioeconomic status, and geographic locations were some factors related to prone sleeping. African-American and low-income mothers were more likely to place their infants prone in the crib. These findings corroborate other studies^{12,13} that also found decreases in the trend of prone sleeping, although African-American and low-income mothers were still more likely to continue to use this position. Although the *Back to Sleep* program⁴⁻⁸ appears to have made an impact on reducing prone sleep positioning and concomitant SIDS rates, the need for further reductions as well as discovering potential impediments to prone positioning appears warranted.⁸⁻¹³

During the genesis of the *Back to Sleep* campaign, we conducted another telephone survey to assess whether inner-city parents were employing recommendations for avoidance of prone sleep positioning for their infants. The survey began in 1994 and continued until 1997. As in our previous study,⁷ data were collected from parents of 2-month-old infants and repeated at 4 months. In addition to cohort differences, these families were primarily African-Americans living in cities which differed from the rural, largely Caucasian sample in earlier surveys.^{7,14} The purpose of the study was to discover how parents of color learned about infant sleep positioning recommendations, what practices they used for positioning their infants, and what their opinions were regarding various positionings as well as sanctioned recommendations.

METHODS

Parents of 2-month-old infants were asked to participate in a telephone survey. The methodology, based on the total design system,¹⁵ was approved by the university's institutional review board and was similar to our previous studies.^{7,14} First, expecting mothers residing in various north central cities in the United States including Detroit, St Louis, Kansas City, Grand Rapids, Saginaw, Lansing, Benton Harbor, Toledo, and Racine were recruited from databases developed by Metromail, the same marketing firm used in the National Infant Sleep Position (NISP)

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study.⁸ Zip codes of these cities that had high proportions of African-American, Hispanic, Asian, or American Indian families were identified. Next, Metromail forwarded names, addresses, and phone numbers of expecting mothers in these Zip codes. We mailed letters to these mothers ($n = 622$) that explained the upcoming telephone survey just before their infants were 2 months old, if born at expected due dates. Most potential respondents were called within 2 weeks and asked to participate. Forty-five letters were returned because of incorrect addresses or the mother had moved, 124 attempted calls were wrong numbers or disconnected phones, 23 phone numbers were never answered after at least 7 attempted calls, 29 mothers did not speak English, 25 had no child or an infant too old to participate (2.5 months criterion), and 9 more had miscarriages or infants who had died (2 from SIDS) for a total of 255 noneligible participants. This left 367 eligible participants; 112 had answering machines each call or were never available after multiple calls, and 11 more were direct refusals to participate resulting in 123 refusals (33.5%). Thus, 244 parents agreed to participate (66.5%). This estimate of participation is lower than the estimated 82% to 87% response rates from 1992 to 1996 in the NISP study,⁸ although both studies eliminated noneligible participants. Because we were interested in parents who identified their infants as African-American (90%), Hispanic (4%), Asian (3%), or American Indian (2%), the 38 Caucasian infants whose parents agreed to participate were not included in the final sample of 206. Although fathers occasionally participated, 99% of the participants were female and almost all of these were the mothers of the infant. Maternal grandmothers, who were significant caregivers, occasionally substituted, especially for teenage mothers. The sample did not involve other relatives, friends, or baby-sitters. If the mother was not at home during the daytime or early evening calls, we left messages and called back at more convenient times. Additional demographic data on the children revealed 54% were male, 28% were breastfed, and 47% were the only child in the family when the study began.

Parents who agreed to participate were asked questions concerning feedings, sleep arrangements, and their opinions regarding sleep position for their child. Participants were called again when their infants were 4 months old, and >70% responded to the second interview 2 months later. The same questions were repeated to assess developmental trends. First we asked, "Do you typically put _____ on (his/her) back, side, or stomach when you place (him/her) in (his/her) crib?" Next, we asked their opinions about sleep positioning with the question, "Do you like, dislike, or feel neutral about placing _____ on (his/her) (back/side/stomach) in the crib?" Each position, back, side, and stomach, was asked to each parent. Cosleeping is common for inner-city African-American populations.¹⁶ We found that 31% of the infants coslept with their parents at 2 months of age and 25.5% continued to cosleep at 4 months. Moreover, another 2% coslept with siblings at both ages. The bed was substituted for crib when parents indicated cosleeping practices because positioning is still an issue, especially if infants slept alone during naps.

We then asked the following questions at 2 months only, "Have you heard of recommendations about sleep positions for infants?" If they answered yes, we asked for sources. Next, we asked parents if they were aware of the recommendations of the American Academy of Pediatrics (AAP) for infant sleep position, which was back or side when the survey was initiated in 1994.^{1,4,5} The last question concerned opinions regarding the AAP's recommendations, "Do you agree or disagree with the American Academy of Pediatrics' guidelines about having infants sleep on their back or side instead of their stomach?"

TABLE 1. "Do You Typically Put _____ on (His/Her) Back, Side, or Stomach When You Place (Him/Her) in (His/Her) Crib?"

Position	2 Months Old		4 Months Old	
	<i>n</i>	(%)	<i>n</i>	(%)
Back	24	(12.1%)	20	(14.4%)
Side	67	(33.8%)	34	(24.5%)
Side and back	28	(14.1%)	19	(13.7%)
Stomach	46	(23.2%)	37	(26.6%)
Side and stomach	22	(11.1%)	16	(11.5%)
Back and stomach	3	(1.5%)	2	(1.4%)
Side, back, and stomach	8	(4.0%)	11	(7.9%)
Don't know or missing data	[8]		[67]	
Totals	206	(100%)	206	(100%)

RESULTS

The data collected were nominal (yes, no, or don't know) and because these measures were repeated at 4 months, categorical modeling analyses were used.^{17,18} The sleep position question showed that almost 40% of the parents were putting their infants prone in the crib at least some of the time at 2 months (See Table 1). This increased to 47% at 4 months. The second question concerned opinions about sleep positioning, which showed 42% and 44% liked prone sleeping at 2 and 4 months, respectively, 2 common ages for SIDS (See Table 2). Categorical modeling showed that parents who liked prone positioning were more likely to place their infants on their stomach at 2 months ($\chi^2 = 103.69$; $P = .001$) and at 4 months ($\chi^2 = 90.39$; $P = .001$). Lateral positioning was liked by approximately 70% of parents at both ages. Few parents disliked lateral positioning at 2 months (7%) and 4 months (4%), which precluded statistical analyses. Supine positioning was liked by about one third of the parents (32% and 37% at 2 and 4 months, respectively). Those who preferred supine positioning were more likely to place their infant non-prone at 2 months ($\chi^2 = 13.44$; $P = .001$) and at 4 months ($\chi^2 = 26.44$; $P = .001$).

When their infants were 2 months old, parents were asked if they had heard of sleep position recommendations and almost 80% of the sample indicated that they had. These parents were then asked, "Where have you heard of recommendations about sleep positions?" and most (72%) indicated from their physician or nurse (See Fig 1). Magazines were cited next (35%) while books (20%), television (14%), parenting classes (9%), family members (7.5%), and friends (4%) were mentioned less frequently.

Finally, parents were asked their opinions re-

TABLE 2. "Do You Like, Dislike, or Feel Neutral About Placing _____ on (His/Her) Back in the Crib?" Question Repeated for Side and Stomach

	2 Months Old			4 Months Old		
	Like <i>n</i> (%)	Dislike <i>n</i> (%)	Neutral <i>n</i> (%)	Like <i>n</i> (%)	Dislike <i>n</i> (%)	Neutral <i>n</i> (%)
Back	64 (32.3%)	91 (46.0%)	43 (21.9%)	51 (36.7%)	48 (34.5%)	40 (28.8%)
Side	145 (73.6%)	14 (7.1%)	38 (19.3%)	96 (69.1%)	5 (3.6%)	38 (27.3%)
Stomach	83 (41.9%)	91 (46.0%)	24 (12.1%)	62 (44.3%)	55 (39.4%)	23 (16.4%)

Where have you heard of recommendations about sleep position for infants?

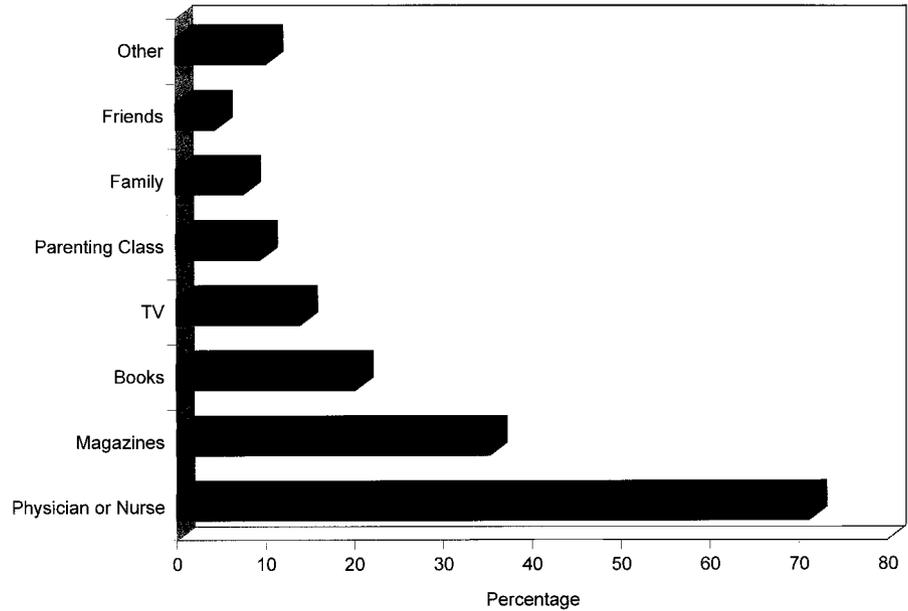


Fig 1. Sources of information concerning sleep position recommendations cited by parents of 2-month-old infants.

garding the AAP's recommendations concerning sleep positioning and 58% of the parents agreed while 24% disagreed (see Fig 2). Parents who liked supine positioning agreed with the AAP's recommendations ($\chi^2 = 11.28$; $P = .001$). Conversely, parents who liked prone positioning disagreed with the AAP's recommendations ($\chi^2 = 90.39$; $P = .001$).

CONCLUSIONS

The results replicate and extend recent findings concerning sleep positioning by parents in the United States today.⁸⁻¹³ The NISP study of infants <8 months found that African-American parents were most likely to use prone positioning.⁸ Higher

rates have been found in other studies of inner-city parents.^{9,10,12} Moreover, results from the NISP showed that African-American mothers (5.6% of the sample) placed their infants prone 82% of the time in 1992.⁸ This declined to 43% in 1995 and 1996. Although our sample was not nationally representative and smaller overall, the results of the NISP study appear similar to our frequencies of 40% to 47% at 2 and 4 months, respectively. The present results, coupled with previous studies⁷⁻¹³ showing similar findings despite different methodologies such as mail questionnaires or face-to-face interviews, demonstrate decreases in prone positioning over the decade as the *Back to Sleep* campaign continues.

Do you agree or disagree with the AAP guidelines about having babies sleep on their back or side instead of their stomach?

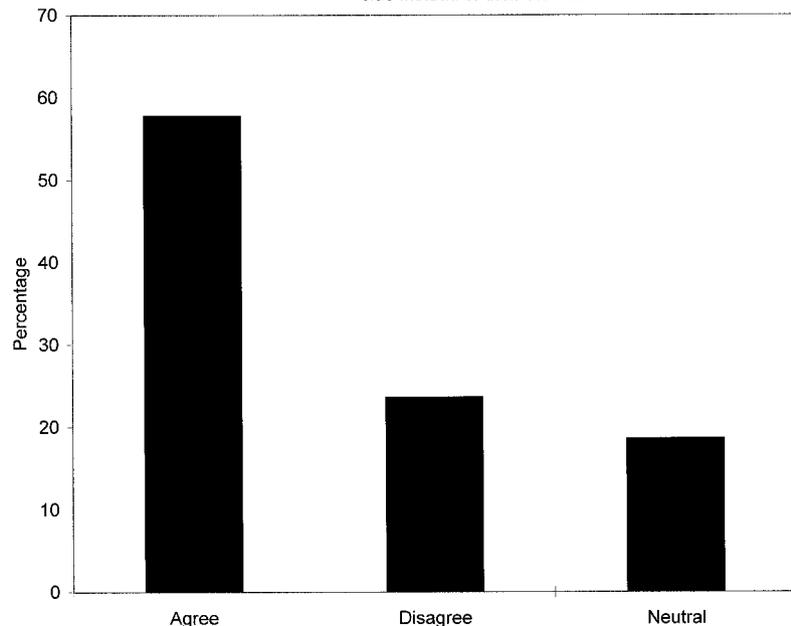


Fig 2. Parent opinions regarding *Back to Sleep* recommendations when their infants were 2 months old.

However, some groups demonstrate higher frequencies of prone positioning and substantial numbers disagree with the recommendations of the AAP. Factors related to these opinions need to be discovered. For example, are these the same parents who are less adherent to seat belt and child safety seat usage in cars? Moreover, it is not known how much parent report reflects actual practice and this issue should be addressed in future studies.

Many of the mothers cited the frequent changes in recommendations as reasons not to use supine positioning (eg, "They keep changing these every 2 years."). Others indicated that they and their infants slept better on their stomachs. Fear of choking was mentioned often, although some parents were aware that infants with reflux problems should not sleep supine.^{1,4-6}

The data on sources of information regarding sleep positioning is important. Most parents cited their physician or nurse as primary sources. This response differed from that of parents of 1- and 2-year-old Caucasian children who sought information concerning sleep problems from family or relatives, friends, or books and magazines more frequently than physicians or nurses.¹⁴ Age of infants, race, rural versus urban settings, types of sleep concerns, and cohort differences could all affect these discrepant findings.

This study and our previous surveys^{7,14} differ from many because we were not health care professionals dispensing recommendations to parents who later seek information regarding practices. Parents denoting health care professionals as primary sources of information in our study emphasizes the importance of educating patients, perhaps during office and clinic visits, as well as in the popular media. Future studies need to address reluctance by parents to use supine sleep positioning, especially if rates of prone positioning are higher than rates in recent studies.⁷⁻¹³ Parents who refuse to participate in sleep positioning studies may be less likely to follow guidelines, thus the 24% who disagreed with the AAP's recommendations in this study may be an underestimate. However, we should be encouraged to continue future campaigns such as *Back to Sleep* because of their cost-effective improvements in care and prevention. More intensive interventions may be required for parents unwilling to adhere to recommendations.

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