Trends and Predictors of Infant Sleep Positions in Georgia, 1990 to 1995

Mona Saraiya, MD, MPH*‡; Florina Serbanescu, MD, MPH*§; Roger Rochat, MD*§; Cynthia J. Berg, MD, MPH*; Solomon Iyasu, MBBS, MPH*; and Paul M. Gargiullo, PhD*

ABSTRACT. Background. In recent years, the prone sleeping position has emerged as the strongest modifiable risk factor for sudden infant death syndrome, the leading cause of infant mortality between 1 month and 1 year of age in the United States. Since April 1992, sudden infant death syndrome risk-reduction strategies have included the promotion of the back or side sleeping position (nonprone) for healthy infants younger than 1 year of age. Most recently, the back position has been advocated as the best sleeping position and the side position as an alternative.

Methods. To evaluate trends in prevalence of the prone position from 1990 to 1995, we used data available from the Georgia Women’s Health Survey, a random digit-dialed telephone survey of 3130 women 15 to 44 years of age. We examined the position in which women put their infant to sleep in the first 2 months of life for their most recent live birth (N = 868) and determined independent predictors of prone sleep position among women who consistently used the prone or the back/side position (n = 636) using multiple logistic regression.

Results. The prevalence of mothers who put their infant to sleep in the prone position significantly decreased, from 49% in 1990 to 15% in 1995. This decrease is primarily attributable to a major shift to the side position rather than to the back. Using multiple logistic regression, we found the prone sleeping position to be significantly higher among women who entered prenatal care after the first trimester (odds ratio [OR], 3.6; 95% confidence interval [CI], 1.4–9.2), were black (OR, 2.1; 95% CI, 1.4–3.1), had less than a high school education (OR, 2.2; 95% CI, 1.4–3.4), and were living in rural Georgia (OR, 1.9; 95% CI, 1.3–2.7). For the period after April 1992, women who had previous children were 2.6 (OR, 95% CI, 1.7–4.1) times more likely to use the prone sleep position than were first-time mothers.

Conclusions. The prevalence of the use of the prone sleep position for infants decreased significantly over the study period. This decrease coincided with national efforts to promote the back or side sleeping position. Increased efforts should target groups who are more likely to use the prone position to attain the national goal of ≤10% of prone position prevalence by the year 2000, with emphasis on placing the infant on the back. Pediatrics 1998;102(3). URL: http://www.pediatrics.org/cgi/content/full/102/3/e33; SIDS, sudden infant death syndrome, epidemiology, prone sleep position.

ABBREVIATIONS. SIDS, sudden infant death syndrome; AAP, American Academy of Pediatrics; GWHS, Georgia Women’s Health Survey; CI, confidence interval.

In recent years, the prone sleeping position has emerged as the strongest modifiable risk factor for sudden infant death syndrome (SIDS), the leading cause of postneonatal infant mortality and the third leading cause of infant mortality overall in the United States. SIDS is defined as the sudden death of an infant younger than 1 year of age that remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history. International case–control and cohort studies in the early 1990s showed an increased risk of SIDS (three to nine times higher) among infants put to sleep in the prone position. In other countries, campaigns to decrease the prevalence of using the prone position have been associated with a 50% to 70% decrease in mortality attributable to SIDS. In addition, much of the decline in SIDS mortality in the United States has been attributed to the rapid decrease in the prevalence of the prone (or stomach) sleep position rather than to changes in other modifiable risk factors for SIDS, such as tobacco exposure in utero and after pregnancy or absence of breastfeeding.

As a result, several interventions to decrease the prevalence of the prone sleep position have taken place in the United States. In April 1992, the American Academy of Pediatrics (AAP) issued an official statement that healthy term infants should be placed to sleep on their back or side. This recommendation was followed in 1994 with the national “Back to Sleep” public education campaign that promoted the back or side position in addition to changing other risk factors. In the United States, the prevalence of the prone sleep position decreased from 78% in 1992 to 24% in 1996, concurrent with changes in policy. In 1995, Georgia began its statewide “Back to Sleep” campaign.

Our analysis had two objectives: 1) to identify trends in infant sleep position in Georgia from 1990...
to 1995, and 2) to identify groups of women in Georgia who are more likely to place their child to sleep in the prone position and who might need to be targeted specifically for future educational efforts and campaigns. This study summarizes predictors of the prone sleep position that could potentially make national and state programs even more focused.

METHODS

We analyzed data from the Georgia Women’s Health Survey (GWHS), a telephone survey of a statewide probability sample of noninstitutionalized women 15 to 44 years of age.15 Households in the sample were selected by random digit dialing of all households with telephones in Georgia, using a modified Waksberg method.16 The computer-assisted telephone interviews were conducted between January and July 1995. As many as 16 calls were placed to each telephone number to contact households with potentially eligible respondents, unless the household or the selected respondent declined to participate on three separate attempts. A household screener was used to eliminate nonresidential and nonworking telephone numbers as well as household with no women between 15 and 44 years of age. Of 9748 residential numbers contacted, 4005 contained at least one eligible woman 15 to 44 years of which 3130 (78%) responded. Additionally, two postsurvey adjustment factors were applied to the GWHS data to account for nonresponse and nontelephone coverage. We used 1990 census information on the total number of women of reproductive age with and without residential phones listed by race, 5-year age groups, and education. For each adjustment subclass, the postsurvey nonresponse adjustment factor was the ratio of known state value among women living in households with telephone to the sample estimate of that value. The subclass adjustment factor for nontelephone coverage was the ratio of census counts of all women in each adjustment subclass over women living in households with telephones for the same subclass. With these adjustments, the GWHS data were representative of all noninstitutionalized women 15 to 44 years of age living in Georgia.

The interview included self-reported information about sociodemographic characteristics, obstetric history, reproductive health, and other health behaviors. Women who had a pregnancy after January 1990 were queried about the planning status of all pregnancies in the past 5 years, type of delivery, outcome, and infant birth weight. For their most recent pregnancy, women were asked about prenatal care onset and number of visits; whether they received Women, Infants, and Children’s Supplemental Nutrition Program (WIC) assistance during the pregnancy; whether Medicaid paid for the delivery; whether the pregnancy resulted in a live birth; whether they breast fed the child; and what sleep position was used. The following question about sleep position was asked of the 871 women who had delivered a liveborn infant after January 1, 1990: “Now I would like to ask you how you put your baby to sleep during the first two months after he or she was born. Did you put your baby down to sleep on its side, on its back, on its stomach, or did you not put your baby down in the same position every time?” Response options included 1) side, 2) back, 3) stomach, 4) not the same position, 8) don’t know/don’t remember, and 9) no response. It was assumed that during the first 2 months, ie, before the infant began turning on its side, the mother might have had the most control over the infant’s sleep position. Women with missing information on the year of their most recent infant birth were not used in the analysis, leaving 868 women for analysis.

We analyzed the distribution of infant sleep positions by month and year of the live birth and used the χ² test of trend27 to test for trends in infant sleep position. We excluded the “not the same position every time” option from additional analysis because we could not distinguish infants placed in the two acceptable positions from those placed in the prone position some of the time. The sample thus included 636 women who always placed their child in the prone, back, or side position. Bivariate analysis showed that the characteristics of the women who answered the race, education, marital status (at time of index birth), socioeconomic status (as measured by WIC/Medicaid status), parity, prenatal care entry, low birth weight, breastfeeding, and cigarette smoking (at time of interview). We also chose variables that we hypothesized could be potential correlates, including residence of mother, planning status of pregnancy, type of delivery, and whether the infant was preterm. We calculated sleep position prevalence and its 95% confidence interval (CI) by each characteristic for each period separately, using the continuity corrected score method.18

For our initial multiple regression model, we entered those variables that were significant (variables for which 95% CI did not overlap) in either period as well as those that we decided a priori could be potential correlates despite their initial nonsignificance in bivariate analysis. We chose the following dichotomous variables to enter into the multiple logistic model: maternal age at time of index birth (<30 years, ≥30 years); maternal race (black vs white/other); maternal education (less than completed high school vs completed high school level and above); marital status at time of index birth (never married vs ever married); Medicaid status for delivery (WIC status vs pregnancy; parity and calculated (one liveborn vs more than one liveborn); prenatal care onset (first trimester vs second trimester or later); low birth weight (<2500 g vs ≥2500 g); breastfeeding; current cigarette smoking; maternal residence (rural vs urban); planning status of last pregnancy (intended versus unintended); type of delivery (vaginal versus cesarean); preterm birth (<37 weeks gestational age at delivery versus ≥37 weeks); and period (period I [before April 30, 1992] vs period II [after April 30, 1992]). By definition, mistimed and unwanted pregnancies together constituted unintended pregnancies.19

Unconditional logistic regression, with backward selection strategy and a 10% “change-in-estimate” confounder selection strategy, was used to assess significance of potential confounders and to determine the final model. The Hosmer-Lemeshow goodness-of-fit test was used to assess goodness of fit.21 We looked for possible effect modification between the variable period and all the other covariates because increased public awareness in period II could have influenced how a mother positioned her infant. We entered interaction terms individually for the variable period and all the other covariates into the full model; the only interaction found to be significant was parity by period.

We used SAS 6.11 statistical software package for analysis and the Wald χ² test for determining significance in logistic regression. A P value of <0.05 was considered statistically significant. The study proposal, consent form, and questionnaire were reviewed and approved by the institutional review board of the Georgia Department of Human Resources.

RESULTS

Dramatic changes in infant sleep position by year of birth occurred over the survey period (Fig 1). The prone sleep position decreased markedly, from 49% in 1990 to 15% in 1995, whereas the side sleep position increased from 16% to 56% during the same period. The back position remained relatively stable, showing a small absolute increase (from 4% to 10%). We found a significant linear decrease and increase in the prone and side sleep positions, respectively (χ² tests of trend P < .0001). The decreasing trend in the prone position began before the AAP policy statement was published.

Limiting additional analysis to the 636 women who used a consistent sleep position, we examined sleep position by demographic and infant characteristics for the two periods and for the total period. In all subsequent analyses, the back and side positions
were combined, because numbers using the back position were too small to be analyzed alone. Bivariate analysis showed that during period I, women who put their child in the prone position were significantly more likely to have been black and to have not completed high school, with no other significant differences (Table 1). In period II, women were more likely to be black, to have not completed high school, to have never been married, to have had previous children, to have had Medicaid coverage for that delivery, to have received prenatal care after the first trimester, and to have never breastfed their infant.

When we used logistic regression, our most parsimonious model found sleep position to be associated with maternal race, education, residence, onset of prenatal care, period, and parity, with a significant interaction between period and parity (Table 2). Women with increased likelihood of putting their child down to sleep in the prone position included those who entered prenatal care after the first trimester (adjusted OR, 3.6; 95% CI, 1.4–9.2); those who had less than a high school education (adjusted OR, 2.2; 95% CI, 1.4–3.4); women who were black (adjusted OR, 2.1; 95% CI, 1.4–3.1); and those who lived in a rural residence (adjusted OR, 1.9; 95% CI, 1.3–2.7).

The relationship between sleep position and parity varied by period. In period I, first-time mothers were just as likely as were women who had at least one other child to put their child to sleep in the prone position (adjusted OR, 1.3; 95% CI, 0.8–4.0). However, in period II, women who had at least one other child were 2.6 times (adjusted OR, 2.6; 95% CI, 1.7–4.1) more likely than were first-time mothers to put their child to sleep in the prone position.

**DISCUSSION**

**Trends in Sleep Position**

Overall, the prevalence of prone sleep position decreased markedly in Georgia from 49% in January 1990 to 15% in July 1995. This decrease occurred primarily because of a shift from the prone sleep position to the side position. A decreasing trend was found throughout the 6-year period, both before and after the AAP statement was officially adopted. Perhaps the trend observed before 1992 was attributable to earlier publications and their associated publicity.

**Predictors of Prone Sleep Position**

In our study, we found that mothers at increased risk of placing their child to sleep in the prone position include women who enter prenatal care after the first trimester, live in rural Georgia, have less than a high school education, and are black. For period I, there was no effect of previous parity on use of the prone sleep position, but for period II, women who had previous children had a 2.6 times higher likelihood than women who were first-time mothers of putting their child to sleep in the prone position. These predictors could help providers develop specific strategies to target educational efforts based on certain characteristics.

Risk assessment, health promotion, and interventions have been described as some of the benefits of early prenatal care. A woman who enters prenatal care in the first trimester is more likely to receive and use health promotion messages such as the benefits of breastfeeding and putting the child to sleep in the back or side position, as well as the adverse effects of cigarette smoking. More details about the specific aspects of prenatal care that are beneficial for promotion of the correct sleep position are needed to characterize prenatal care content.

Women of rural residence might be at higher risk of placing their infant in the prone position for several reasons. They might not receive the message at the same frequency or intensity as do women in urban areas. Rural/urban differences also may exist in provider recommendations. Perhaps rural physicians may be less aware of the latest recommendations and less likely to recommend the most recent guidelines.
Specialty differences already have been reported to exist about recommended infant sleep positions.25

Black newborns have been at increased risk of SIDS. Recent reports have shown that a high proportion of African-American mothers of infants who died of SIDS did not receive correct sleep position information until after the death of their infant.26 Preliminary analysis of another US prospective study has found that African-American women and women of other race are more likely than are white women to use the prone position.27 These findings support the need to find new and more culturally effective ways to reach African-American women.

Women with lower levels of education were found to have a higher likelihood of putting their infant to sleep in the prone position. These women might have been less likely to receive the message. Many brochures might not be written at an appropriate literacy level for these women. Other avenues such as radio messages or other verbal means might be more effective at reaching them.

Other preliminary studies have reported that increasing parity is associated with the prevalence of the prone sleep position.27 Understandably, women with previous children who were placed prone are less likely to change their behavior, and providers

### TABLE 1

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Period I: Before Intervention</th>
<th>Period II: After Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Prone</td>
<td>95% CI of % Prone</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>62–73</td>
</tr>
<tr>
<td>Age of mother, y</td>
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<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>70</td>
<td>63–77</td>
</tr>
<tr>
<td>≥30</td>
<td>60</td>
<td>48–71</td>
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<tr>
<td>Race of mother</td>
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<td></td>
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<tr>
<td>Black</td>
<td>80</td>
<td>70–88</td>
</tr>
<tr>
<td>White/other</td>
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<td>55–69</td>
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<tr>
<td>Education of mother</td>
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<tr>
<td>&lt;High school</td>
<td>86</td>
<td>74–93</td>
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<tr>
<td>≥High school</td>
<td>62</td>
<td>55–68</td>
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<tr>
<td>Marital status of mother</td>
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<td></td>
</tr>
<tr>
<td>Never married</td>
<td>80</td>
<td>66–89</td>
</tr>
<tr>
<td>Ever married</td>
<td>65</td>
<td>58–71</td>
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<tr>
<td>Residence</td>
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<td></td>
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<td>Rural (non-MSA)</td>
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<td>Urban (MSA)</td>
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<td>First liveborn</td>
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<td>61–79</td>
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<td>No</td>
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<td>54–69</td>
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<tr>
<td>When prenatal care received</td>
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<td>Early (in first trimester)</td>
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<td>60–72</td>
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<tr>
<td>Late (after first trimester/none)</td>
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<td>65–98</td>
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<tr>
<td>Pregnancy planning status</td>
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<tr>
<td>Intended</td>
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<td>60–75</td>
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<tr>
<td>Not intended</td>
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<td>57–75</td>
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<td>Birth weight</td>
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<td>Low birth weight (&lt;2500 g)</td>
<td>77</td>
<td>56–89</td>
</tr>
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<td>Normal birth weight (≥2500 g)</td>
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<td>60–72</td>
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<td>&lt;37 Weeks</td>
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<td>≥37 Weeks</td>
<td>68</td>
<td>61–74</td>
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<td>Ever breastfed</td>
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<td></td>
</tr>
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<td>53–70</td>
</tr>
<tr>
<td>No</td>
<td>73</td>
<td>65–81</td>
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<tr>
<td>Current smoking status</td>
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</tr>
<tr>
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<td>71</td>
<td>59–81</td>
</tr>
<tr>
<td>No</td>
<td>66</td>
<td>59–73</td>
</tr>
</tbody>
</table>

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a Limited to the most recent pregnancy resulting in a livebirth after January 1990.

b Does not include “not the same position” response (n = 232).

c Period I, two missing values.

d Period I, one missing value; period II, 3 missing values.

e Period II, three missing values.

MSA indicates metropolitan statistical area.
perhaps are less likely to offer new recommendations to these mothers.

Because infant-rearing practices and interventions vary from country to country, we should determine whether patterns found elsewhere are similar to patterns in the United States. Few studies have been published on the correlates of the prone sleep position. One was conducted in New Zealand and one in Australia. Tuohy and colleagues\(^28\) reported that the prone sleeping position was closely associated with sociodemographic factors such as lower maternal education, younger maternal age, unmarried motherhood, lower socioeconomic status, higher parity (\(\geq5\)), and mothers of non-European origin from a study conducted after interventions. Ponsonby and colleagues\(^29\) examined correlates of prone infant sleeping position by period of birth. They found that after the intervention period, predictors of prone infant sleeping position were more closely associated with younger mothers, low maternal education, paternal unemployment, unmarried motherhood, and bottle-feeding than before the intervention period.

Impact on SIDS Mortality in Georgia

Georgia SIDS rates have declined in the past few years; its 1996 rate was 0.96 per 1000 live births (Dr Jim Buehler, Office of Perinatal Epidemiology, Georgia Department of Human Resources, personal communication, September 1997), a 36% decrease from its 1994 rate of 1.5.\(^30\) The decrease in SIDS mortality in Georgia coincides with the decrease in the prevalence of the prone position found in our survey. Three other factors may have contributed to the decrease in SIDS mortality in Georgia: the change in SIDS definitions in 1991, the 1990 Georgia law requiring autopsy for all SIDS cases, and the decrease in the percentage of women who smoked during pregnancy from 15.5% in 1990 to 11.8% in 1994.\(^31\) To determine the contribution of these factors, we would need to know whether there was a diagnostic shift, whether there was an increasing trend in autopsy rates, and whether the decreasing trend in smoking preceded the SIDS declining trend and whether it impacted adverse birth outcomes attributed to smoking. To link the decreasing mortality trend with any one particular factor would require a prospective study such as that done in Tasmania.\(^4\)

Analysis of national infant mortality data found that these three factors are unlikely to have been major contributors to the SIDS trends observed.\(^1\) Evidence from studies have shown that other risk factors including smoking and breastfeeding have contributed little to the decline observed in SIDS.\(^1,7\)

National Data

The decreased prevalence in prone sleeping position found in our survey is consistent with the decreasing national trends reported by NICHD. However, several differences in methodology require that additional comparisons be interpreted with caution. NICHD's survey was a cross-sectional national questionnaire of 40 items focused on SIDS risk factors in which primary night caretakers of infants \(\leq8\) months of age were asked in what usual position they put the infant to sleep in the last 2 weeks. Our own was a cross-sectional survey that asked women how they put their most recently born child (in the past 5 years) to sleep every time in the first 2 months of life. The lower prone-prevalence estimate seen in our survey could be attributable to several causes including the difference in age of infant, time frame, and number and type of response options.

Limitations of the survey include potential for recall bias. Many of these women were recalling sleep position behaviors practiced up to 5 years ago and may have been less likely to remember the position accurately and more likely to remember the recommended position. Although our results show a similar trend when compared with national data, our prevalence of prone sleep position is lower than that for the national aggregate data, probably because of the differences in methodology described earlier. Another limitation is that respondents did not include women in households without telephones, and in weighting the data, we assumed that women in households without telephones but with the same race, age, and educational background would give similar answers as their counterparts who live in households with telephones.

We were unable to examine the "not the same position" option, which represented one third of our sample, because we could not separate women who might have used both of the two recommended positions consistently from those who used a combination of recommended and not-recommended positions. Regardless, different sleeping positions for the child are quite common and advocates should highlight practices they want to promote and reassure mothers that certain combinations are acceptable, whereas others are not. The Ponsonby study reported that the most common reason for the prone position was that babies slept better or were more comfortable or content in this position.\(^29\) Child care campaigns also should include appropriate advice to parents and caregivers on how to comfort an infant without resorting to the prone position. Because of the small number of women in the sample who consistently placed their child in the back position, we...
could not characterize what group of women used this position.

The GWHS was a cross-sectional survey originally designed to examine practices and behaviors of women of reproductive age, not solely at sleep position and its predictors. Thus, we were not able to examine all relevant predictors, or to perform detailed analyses, because these data were not collected. Yet, we were able to examine several correlates because GWHS collected information about many characteristics and health behaviors of women. Because of the survey’s cross-sectional design, we can only report associations. It would have been ideal to follow women over time and see how and if positioning changed with subsequent children. The GWHS was carried out during a period of many interventions and recommendations, thus allowing us to examine a cumulative effect of recommendations in Georgia.

In January 1997, the AAP modified its policy and recommended the back position as the safest sleeping position for babies3,33 because of the greater risk of SIDS for those who sleep in the side position compared with the back position.32,33 Although the side position has been deemphasized, the AAP still recommends it as an alternative because of its relative safety over the prone position. Prevention efforts in Georgia and other states need to reach women using the prone position as well as women using the side position. Priority should be given first to educating mothers who place their infant in the prone position and then those who use the side position. Results of this survey will be helpful in providing general trends and predictors of sleep position to public and private health care providers nationally.

Campaign efforts should target groups who are more likely to use the prone or stomach position, with an educational component emphasizing the back position as the best position to attain the national “Back to Sleep” campaign goal of ≤10% of prone position prevalence by the year 2000. Also, these campaign efforts should include promotion of breastfeeding, as well as smoking cessation during and after pregnancy.

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REFERENCES

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