Sudden Infant Death Syndrome (SIDS) in African-American Community

Barriers to following the supine sleep recommendation among mothers at four centers for the Women, Infants, and Children Program.  

Objectives: The risk for sudden infant death syndrome in black infants is twice that of white infants, and their parents are less likely to place them in the supine position for sleep. We previously identified barriers for parents to follow recommendations for sleep position. Our objective with this study was to quantify these barriers, particularly among low-income, primarily black mothers. Design/Methods: We conducted face-to-face interviews with 671 mothers, 64% of whom were black, who attended Women, Infants, and Children Program centers in Boston, Massachusetts, Dallas, Texas, Los Angeles, California, and New Haven, Connecticut. We used univariate analyses to quantify factors that were associated with choice of sleeping position and multivariate logistic regression to calculate adjusted odds ratios for the 2 outcome variables: "ever" (meaning usually, sometimes, or last night) put infant in the prone position for sleep and "usually" put infant in the supine position to sleep. Results: Fifty-nine percent of mothers reported supine, 25% side, 15% prone, and 1% other as the usual position. Thirty-four percent reported that they ever placed infants in the prone position. Seventy-two percent said that a nurse, 53% a doctor, and 38% a female friend or relative provided source of advice. Only 42% reported that a nurse, only 36% a doctor, and only 15% a female friend or relative recommended the supine position for sleep. When a female friend or relative recommended the prone position, mothers were more likely ever to place their infants in the prone position and less likely usually to choose supine compared with those who received no advice from friends or relatives. When a doctor or a nurse recommended a nonsupine position, the mothers were less likely to choose supine compared with those who received no advice from a doctor or a nurse. Mothers who trusted the opinion of a doctor or a nurse about infant sleeping position were more likely to place their infants in the supine position. Half of the mothers believed that infants were more likely to choke when supine, and they were less likely to place their infants supine. Mothers who believed that infants are more comfortable in the prone position (36%) were more likely to place their infants prone. Twenty-nine percent believed that having their infants sleep with an adult helps prevent sudden infant death syndrome, and only 43% believed that sudden infant death syndrome is related to sleeping position. Conclusions: We identified specific barriers to placing infants in the supine position for sleep (lack of or wrong advice, lack of trust in providers, knowledge and concerns about safety and comfort) in low-income, primarily black mothers that should be considered when designing interventions to get more infants onto their back for sleep.
Plant LD, Bowers PN, Liu Q, Morgan T, Zhang T, State MW, Chen W, Kittles RA, Goldstein SA.

**A common cardiac sodium channel variant associated with sudden infant death in African Americans, SCN5A S1103Y.**


Thousands die each year from sudden infant death syndrome (SIDS). Neither the cause nor basis for varied prevalence in different populations is understood. While 2 cases have been associated with mutations in type Valpha, cardiac voltage-gated sodium channels (SCN5A), the "Back to Sleep" campaign has decreased SIDS prevalence, consistent with a role for environmental influences in disease pathogenesis. Here we studied SCN5A in African Americans. Three of 133 SIDS cases were homozygous for the variant S1103Y. Among controls, 120 of 1,056 were carriers of the heterozygous genotype, which was previously associated with increased risk for arrhythmia in adults. This suggests that infants with 2 copies of S1103Y have a 24-fold increased risk for SIDS. Variant Y1103 channels were found to operate normally under baseline conditions in vitro. As risk factors for SIDS include apnea and respiratory acidosis, Y1103 and wild-type channels were subjected to lowered intracellular pH. Only Y1103 channels gained abnormal function, demonstrating late reopenings suppressible by the drug mexiletine. The variant appeared to confer susceptibility to acidosis-induced arrhythmia, a gene-environment interaction. Overall, homozygous and rare heterozygous SCN5A missense variants were found in approximately 5% of cases. If our findings are replicated, prospective genetic testing of SIDS cases and screening with counseling for at-risk families warrant consideration.


Makielski JC.

**SIDS: Genetic and environmental influences may cause arrhythmia in this silent killer.**


In this issue of the JCI, Bowers et al. show that the common polymorphism of the cardiac voltage-gated sodium channel, type Valpha (SCN5A), designated S1103Y, found in African Americans is associated with an increased risk of sudden infant death syndrome (SIDS). Wild-type and mutant SCN5A channels both functioned typically under normal conditions in vitro, but exposure to acidic intracellular pH levels such as those found in respiratory acidosis--a known risk factor form SIDS--produced abnormal gain-of-function late reopening of S1103Y channels, behavior that is often associated with cardiac arrhythmias. These pathologic late reopenings were suppressed by low levels of the
channel-blocking drug mexiletine. These findings provide an excellent illustration of a causal relationship between the interaction of the environment and genetic background in SIDS and also raise interesting questions about the linkage of a genetic abnormality with a clinical phenotype.


Background: Prehospital providers are often involved in the resuscitation of apparent sudden infant death syndrome (SIDS) victims; however, data are few on the presentation and outcome of these patients. Objectives: To describe the presentation and determine the survival rate of infants who have an unwitnessed, prehospital arrest consistent with SIDS (apparent SIDS), and to compare the presentation of infants with a final diagnosis of SIDS with those who presented as apparent SIDS but had a different final diagnosis. Methods: This was a secondary analysis of data from a controlled trial whose methodology has been previously described. The setting was two large, urban emergency medical services (EMS) systems of Los Angeles and Orange Counties, California. The population included 113 apparent SIDS victims from the original interventional study who had a prehospital, unwitnessed arrest consistent with SIDS, defined by the scenario of an infant aged =12 months being placed to sleep and later found in full arrest (pulseless and apneic). Data collected included ethnicity, gender, arrest etiology, signs of death (lividity, rigor mortis), prehospital interventions, return of spontaneous circulation (ROSC), arrest rhythm, code 3 transport (lights and sirens), and survival to hospital discharge. RESULTS: One hundred ten of 113 apparent SIDS patients had survival data; 0 of 110 (95% CI 0% to 3.3%) survived, although ROSC was achieved in 5%; for three patients data on survival were missing. Arrest rhythms were determined in 94% of the subjects: asystole 87%, pulseless electrical activity (PEA) 8%, and ventricular fibrillation 4%. Only 50 of 113 (44%) of the EMS records documented code 3 transport; the remainder of the records were ambiguous. SIDS was the final coroner's diagnosis for 79 of 113 (70%) of the cases. Other causes of death in these apparent SIDS victims included respiratory causes (12%), asphyxiation 3%), abuse (2%), congenital heart disease (2%), sepsis (2%), other (4%), and unknown (5%). Apparent SIDS victims with a final diagnosis of SIDS were more likely to show signs of death (27/79, 34% vs. 5/34, 15%, p = 0.035) and were less likely to have a rhythm of PEA (4/77, 5% vs. 5/31, 16%, p = 0.08), although the latter result was not statistically significant. Conclusions: Apparent SIDS victims have a dismal prognosis; all infants presenting with apparent SIDS died, even the 30% whose final diagnosis was not SIDS. Given that there were no survivors, new prehospital policies are needed governing the use of lights and sirens, resuscitation decisions including termination of resuscitation, provision of grief support to families, and incident stress debriefing for prehospital personnel.

Shields LB, Hunsaker DM, Muldoon S, Corey TS, Spivack BS.
Risk factors associated with sudden unexplained infant death: A prospective study of infant care practices in Kentucky.

Objective: To ascertain the prevalence of infant care practices in a metropolitan community in the United States with attention to feeding routines and modifiable risk factors associated with sudden unexplained infant death (specifically, prone sleeping position, bed sharing, and maternal smoking). Methods: We conducted an initial face-to-face meeting followed by a telephone survey of 189 women who gave birth at a level I hospital in Kentucky between October 14 and November 10, 2002, and whose infants were placed in the well-infant nursery. The survey, composed of questions pertaining to infant care practices, was addressed to the women at 1 and 6 months postpartum. Results: A total of 185 (93.9%) women participated in the survey at 1 month, and 147 (75.1%) mothers contributed at 6 months. The racial/ethnic composition of the study was 56.1% white, 30.2% black, and 16.4% biracial, Asian, or Hispanic. More than half of the infants (50.8%) shared the same bed with their mother at 1 month, which dramatically decreased to 17.7% at 6 months. Bed sharing was significantly more common among black families compared with white families at both 1 month (adjusted odds ratio [OR]: 5.94; 95% confidence interval [CI]: 2.71-13.02) and 6 months (adjusted OR: 5.43; 95% CI: 2.05-14.35). Compared with other races, white parents were more likely to place their infants on their back before sleep at both 1 and 6 months. Black parents were significantly less likely to place their infants on their back at 6 months compared with white parents (adjusted OR: 0.14; 95% CI: 0.06-0.33). One infant succumbed to sudden infant death syndrome at 3 months of age, and another infant died suddenly and unexpectedly at 9 months of age. Both were bed sharing specifically with 1 adult in the former and with 2 children in the latter. Conclusions: Bed sharing and prone placements were more common among black infants. Breastfeeding was infrequent in all races. This prospective study additionally offers a unique perspective into the risk factors associated with sudden infant death syndrome and sudden unexplained infant death associated with bed sharing by examining the survey responses of 2 mothers before the death of their infants combined with a complete postmortem examination, scene analysis, and historical investigation.


Hessol NA, Fuentes-Afflick E.
Ethnic differences in neonatal and postneonatal mortality.

Objective: Ethnic disparities in infant mortality have been consistently documented in the United States, but these disparities are poorly understood. Although the infant mortality rate in the United States has fallen to record low rates, since 1971 the ethnic disparity between black and white infants has remained unchanged or increased. In 2001, the infant mortality rate among black infants was approximately 2.5 times higher than the
rate among white and Hispanic infants. The objective of this study was to identify ethnic differences in neonatal and postneonatal mortality as well as the causes and risk factors among infants born in California. Methods: Secondary analysis was performed of 1,277,393 singleton infants live-born to black, Latina, and white women from the California linked birth-infant death certificate from 1995 to 1997. The dependent variables were infant death (defined as an infant who died in the first year of life [death <365 days]), neonatal death (death during the first 27 days of life), and postneonatal death (death between 28 and 364 days of life). Cause-specific neonatal and postneonatal infant mortality rates (per 100,000 live births) were calculated for each ethnic group. Chi(2) and exact test statistics were used to compare the distribution of maternal and infant characteristics and cause-of-death rates by maternal ethnicity. Logistic regression analysis was used to compute odds ratios (ORs) and 95% confidence intervals (CIs) to estimate the relationship between maternal ethnicity, maternal and infant factors, and risk of infant mortality. Results: In both the neonatal and postneonatal periods, black women had higher infant mortality rates than Latina or white women for conditions originating in the perinatal period (including respiratory distress syndrome) and symptoms, signs, and ill-defined conditions (including sudden infant death syndrome). After adjusting for maternal and infant characteristics, there were no significant ethnic differences for neonatal mortality. For postneonatal mortality, black women had a higher risk (OR: 1.25; 95% CI: 1.10-1.42) and Latina women had a lower risk (OR: 0.80; 95% CI: 0.71-0.89) compared with white women after adjusting for maternal and infant factors. In analyses of all ethnic groups combined, as well as ethnic-specific analyses, the strongest predictors of neonatal and postneonatal death were infant birth weight of <2499 g and gestational age of <33 weeks. Conclusions: Causes of infant mortality and risk factors for infant mortality differed by maternal ethnicity, indicating a need to tailor prevention and education efforts, especially during the postneonatal period. To achieve national infant mortality goals, health professionals and policy makers should continue to emphasize the importance of early and continuous prenatal care and develop new strategies to reduce the incidence of low birth weight and premature infants. Ethnic-specific approaches may be needed to further reduce infant mortality rates and achieve our national goal to eliminate ethnic disparities in perinatal outcomes.

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Moon RY, Oden RP, Grady KC. **Back to Sleep: An educational intervention with women, infants, and children program clients.**

Objective: The incidence of sudden infant death syndrome (SIDS) is 2 to 3 times higher in the black population compared with the US population as a whole. Prone sleeping is also twice as prevalent in black infants. Standard modes of communication (media, brochures) regarding the Back to Sleep (BTS) campaign have been less effective with blacks. The objective of this study was to determine whether a 15-minute educational intervention is effective in changing sleep position practice among black parents.
Methods: A trained health educator led 15-minute sessions about safe infant sleep practices for groups of 3 to 10 parents of young infants who attended a Women, Infants, and Children clinic in Washington, DC. We performed pre- and post session surveys, asking about sleep position, reasons for choosing a sleep position, and knowledge of the relationship between sleep position and SIDS. We then interviewed parents 6 months after the intervention and compared this group with a group of parents at a different Women, Infants, and Children site who did not receive the intervention. Results: A total of 310 parents/caregivers participated in sessions from October 2001 to July 2002. Mothers comprised 84.5% of the participants, fathers 6.5%, and other relatives 9.0%. Parents had a mean age of 26.2 years (range: 15-64; standard deviation: 8.3), and 76.5% had graduated from high school. For 51%, this was their first child. Before the intervention, more than half (57.7%) of infants reportedly slept on their back, with the remainder sleeping back/side or side (15%) and prone (17.3%). Approximately 85% (266) of infants were sleeping in the same room as the parents. Only 28.1% of parents initially believed that prone sleeping definitely increases the risk of SIDS. Infants were more likely to be placed supine when previous children were placed supine or when parents had more than a high school education. Parents were also more likely to place infants supine when they believed that prone increases the risk of SIDS, they had previous knowledge of BTS, and they were aware that the American Academy of Pediatrics recommends supine position for infants. Sleep position was not affected by where the infant slept, number of parents in the home, presence of a grandmother in the home, or presence of smokers in the home. Immediately after the intervention, 85.3% planned to place infants on the back, and 55.7% now believed that prone definitely increases the risk of SIDS. When compared with a control group of parents 6 months after the intervention, parents who attended the educational intervention were more likely to place their infants on the back (75% vs 45%), less likely to bed share (16% vs 44.2%), less likely to cite infant comfort as a reason for sleep position (14.5% vs 29.2%), and more likely to be aware of BTS recommendations (72.4% vs 38.9%). Conclusions: A 15-minute educational session with small groups of black parents is effective in informing parents about the importance of safe sleep position and in changing parent behavior. The effect of the intervention is sustained throughout the first 6 months of life, when the infant is at the highest risk for SIDS.

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Serotonergic receptor binding in the arcuate nucleus, n. raphe obscurus, and other medullary regions is decreased in sudden infant death syndrome (SIDS) cases. Further, an insertion/deletion polymorphism in the promoter region of the serotonin transporter protein (5-HTT) gene has recently been associated with risk of SIDS. This polymorphism differentially regulates 5-HTT expression, with the long allele (L), the SIDS-associated
allele, being a more effective promoter than the short allele (S). To further elucidate the role of the 5-HTT gene in SIDS, we investigated the 5-HTT intron 2 polymorphism, which also differentially regulates 5-HTT expression with the 12 repeat allele being the more effective promoter. In a cohort of 90 SIDS cases (44 African-American and 46 Caucasian) and gender/ethnicity-matched controls, significant positive associations were found between SIDS and the intron 2 genotype distribution (P-value = 0.041) among African-American SIDS vs. African-American controls, specifically with the 12/12 genotype (P-value = 0.03), and with the 12 repeat allele (P-value=0.018). The frequency of the 12/12 genotype and 12-repeat allele was significantly different (P < 0.001) between the African-American and Caucasian SIDS cases. Furthermore, the promoter and intron 2 loci were in significant linkage disequilibrium, and the L-12 haplotype was significantly associated with SIDS in the African-American (P = 0.002) but not Caucasian (P = 0.117) subgroups. These results indicate a relationship between SIDS and the 12-repeat allele of the intron 2 variable number tandem repeat of the 5-HTT gene in African-Americans, and a significant role of the haplotype containing the 12-repeat allele and the promoter L-allele in defining SIDS risk in African-Americans. These data, if confirmed in larger studies, may begin to explain the differences in SIDS incidence by ethnicity, suggest a role for levels of 5-HTT expression in generation of SIDS susceptibility, and provide an important tool for identifying at-risk individuals and estimating the risk of recurrence.


Serotonergic receptor binding in the arcuate nucleus, n. raphe obscurus, and other medullary regions is decreased in sudden infant death syndrome (SIDS) cases. Further, a variable tandem repeat sequence polymorphism in the promoter region of the serotonin transporter protein (5-HTT) gene has recently been associated with risk of SIDS in a Japanese cohort. This polymorphism differentially regulates 5-HTT expression, with the long allele (L), the SIDS-associated allele, being a more effective promoter than the short allele (S). We therefore investigated the 5-HTT promoter polymorphism in a cohort of 87 SIDS cases (43 African American and 44 Caucasian) and gender/ethnicity-matched controls. Significant positive associations were found between SIDS and the 5-HTT genotype distribution (P = 0.022), specifically with the L/L genotype (P = 0.048), and between SIDS and the 5-HTT L allele (P = 0.005). There was also a significant negative association between SIDS and the S/S genotype (P = 0.011). The comparisons were repeated in the African American and Caucasian subgroups. The data patterns were consistent in the subgroups, i.e., the L/L genotype and L allele were increased in the cases, but not all subgroup comparisons were statistically significant. These results indicate a relationship between SIDS and the L allele of the 5-HTT gene in African Americans and Caucasians, and if confirmed, will provide an important tool for identifying at-risk individuals and estimating the risk of recurrence.
Racial disparity and modifiable risk factors among infants dying suddenly and unexpectedly.

Background: Racial disparity in rates of death attributable to sudden infant death syndrome (SIDS) has been observed for many years. Despite decreased SIDS death rates following the "Back to Sleep" intervention in 1994, this disparity in death rates has increased. The prone sleep position, unsafe sleep surfaces, and sharing a sleep surface with others (bedsharing) increase the risk of sudden infant death. The race-specific prevalence of these modifiable risk factors in sudden unexpected infant deaths—including SIDS, accidental suffocation (AS), and cause of death undetermined (UD)—has not been investigated in a population-based study. Death rates attributable to AS and UD are also higher in African Americans (AAs) than in other races (non-AA). The potential contribution of unsafe sleep practices to this overall disparity in death rates is uncertain.

Objective: The objective of this study was to compare death rates attributable to SIDS and related causes of death (AS and UD) in AA and non-AA infants and the prevalence of unsafe sleep practices at time of death. Our hypothesis was that there is a large racial disparity in these modifiable risk factors at the time of death, and that public awareness of this could lead to improved intervention strategies to reduce the disparity in death rates.

Methods: In this population-based study, we retrospectively reviewed death-scene information and medical examiners' investigations of deaths in St Louis City and County between January 1, 1994, and December 31, 1997. The deaths of all infants <2 years old with the diagnoses of SIDS, AS, or UD were included. Sleep surfaces other than those specifically designed and approved for infant use were termed nonstandard (adult beds, sofas, etc). Denominators for our rate estimates were the number of births (AA and non-AA) in St Louis City and County during the study period. Results: The deaths of 119 infants were studied (81 AA and 38 non-AA). SIDS rates were much higher in AA than non-AA infants (2.08 vs 0.65 per 1000 live births), as was the rate of AS (0.47 vs 0.06). There was a trend for increased deaths diagnosed as UD in AA infants (0.36 vs 0.06). Bedsharing deaths were nearly twice as common in AAs (67.1% vs 35.1% of deaths), as were deaths on nonstandard sleep surfaces (79.0% vs 46.0%). Forty-nine percent (49.1%) of all infants who died while bedsharing were found on their backs or sides compared with 20.4% of infants who were not bedsharing. Overall, the fraction of infants found in these nonprone positions was not different for AA infants and non-AA infants (43.3% vs 38.5%). In AA and non-AA infants, factors that greatly increase the risk of bedsharing, such as sofa sharing or all-night bedsharing, were present in all or many bedsharing deaths. Conclusion: Among AA infants dying suddenly and unexpectedly, the high prevalence of nonstandard bed use and bedsharing may underlie, in part, their increased death rates. Public health messages tailored for the AA community have stressed first and foremost using non prone sleep positions. The observation that there was no difference between AA and non-AA infants in position found at death suggests that racial disparity in sleep position is not the most important contributor to racial disparity in death rates. The finding that more infants died on their back or side while bedsharing than otherwise
suggests that these sleep positions are less protective when associated with bedsharing. We conclude that public health information tailored for the AA community should give equal emphasis to risks and alternatives to bedsharing as to avoidance of the prone position.

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Moon RY, Omron R.

**Determinants of infant sleep position in an urban population.**

The incidence of SIDS has decreased by 40% since the Back to Sleep campaign was initiated. However, the rate of SIDS in the District of Columbia continues to be approximately double the national rate. The purpose of this study was to determine the prevalence and determinants of prone sleeping among infants in the District of Columbia and to ascertain what information is being provided to parents by health care professionals by a cross-sectional survey of parents of infants 0-6 months of age presenting for well child care at Children's Health Center, Children's National Medical Center, in Washington, DC. We recruited a consecutive sample of 126 parent-infant pairs, of which 92.9% were African-American. The average infant was 73 days old, was 3,003 grams at birth, and was full term. When asked how the infants were placed for sleep the night before the interview, 34.1% of parents had placed the infant supine, 50.8% side, and 15.1% prone. Nearly half (48%) of infants slept in an adult bed with the mother. More than one third of the infants had been placed prone for sleep at least once since hospital discharge. Most common reasons for sleeping supine included SIDS risk reduction or health care professional advice. Side sleepers did so primarily because of concern about vomiting, health care provider advice, or SIDS. Infants were placed prone primarily because the infant slept better. When asked about information received from a health care provider, 70.6% of parents stated that they had received information about sleep position and 64.3% about the hazards of passive smoking. Eight parents observed nursery personnel placing their infants prone. Only 16.7% of the total study population had received a Back to Sleep brochure, read it, and recalled that it recommended back sleeping. Infants were more likely to sleep prone if there was a grandparent in the home (OR 2.9, p<0.05) or if they were the firstborn (OR 2.17, p<0.05). Infants were more likely to sleep supine if parents had heard a back recommendation from a health care professional (OR 5.7, p<0.001). Infants were least likely to sleep supine if the parents had heard a side or a side/back recommendation (OR 0.26, p=0.001). Infant sleep position was not affected by reading the Back to Sleep brochure. In conclusion, more than one third (35.7%) of infants in this predominantly African-American population have been placed prone for sleep at least once; 15% slept prone the night before the interview. Almost one third of parents received no information about sleep position, but parents receiving a verbal supine recommendation were most likely to place their infant supine. Receiving written information did not affect sleep position. Improved educational efforts for parents of African-American newborns should continue to focus on encouraging supine positioning, smoke cessation, and other safe sleep practices.
Background: Rates of sudden infant death syndrome (SIDS) are over twice as high among African Americans compared with Caucasians. Little is known, however, about the relationship between prone sleeping, other sleep environment factors, and the risk of SIDS in the United States and how differences in risk factors may account for disparities in mortality. Objective: To assess the contribution of prone sleeping position and other potential risk factors to SIDS risk in a primarily high-risk, urban African American population. Design, Setting, And Population: Case-control study consisting of 260 infants ages birth to 1 year who died of SIDS between November 1993 and April 1996. The control group consists of an equal number of infants matched on race, age, and birth weight. Prospectively collected data from the death scene investigation and a follow-up home interview for case infants were compared with equivalent questions for living control participants to identify risk factors for SIDS. Main Outcome Measures: Risk of SIDS related to prone sleeping position adjusting for potential confounding variables and other risk factors for SIDS, and comparisons by race-ethnicity. Results: Three quarters of the SIDS infants were African American. There was more than a twofold increased risk of SIDS associated with being placed prone for last sleep compared with the non prone positions (odds ratio [OR]: 2.4; 95% confidence interval [CI]: 1.6-3.7). This OR increased after adjusting for potential confounding variables and other sleep environment factors (OR: 4.0; 95% CI: 1.8-8.8). Differences were found for African Americans compared with others (OR: 1.8; 95% CI: 1.2-2.6 and OR: 10.3, 95% CI: 10.3 [3.2-33.8, respectively]). The population attributable risk was 31%. Fewer case mothers (46%) than control mothers (64%) reported being advised about sleep position in the hospital after delivery. Of those advised, a similar proportion of case mothers as control mothers were incorrectly told or recalled being told to use the prone position, but prone was recommended in a higher proportion of black mothers (cases and controls combined) compared with non black mothers. Conclusions: Prone sleeping was found to be a significant risk factor for SIDS in this primarily African American urban sample, and approximately one third of the SIDS deaths could be attributed to this factor. Greater and more effective educational outreach must be extended to African American families and the health personnel serving them to reduce prone prevalence during sleep, which appears, in part, to contribute to the higher rates of SIDS among African American infants.

Objectives: This study sought to determine whether neighborhood impoverishment explains the racial disparity in urban postneonatal mortality rates. Methods: Stratified and multivariate logistic regression analyses were performed on the vital records of all African-Americans and whites born in Chicago by means of a linked 1992-1995 computerized birth-death file with appended 1990 U.S. census income and 1995 Chicago Department of Public Health data. Four community-level variables (low median family income, high rates of unemployment, homicide, and lead poisoning) were analyzed. Communities with one or more ecologic risk factors were classified as impoverished.

Results: The postneonatal mortality rate of African-Americans (N = 104,656) was 7.5/1000 compared to 2.7/1000 for whites (N = 52,954); relative risk (95% confidence interval) equaled 2.8 (2.3-3.3). Seventy-nine percent of African-American infants compared to 9% of white infants resided in impoverished neighborhoods; p < 0.01. In impoverished neighborhoods, the adjusted odds ratio (controlling for infant and maternal individual-level risk factors) of postneonatal mortality for African-American infants equaled 1.5 (0.5-4.2). In non impoverished neighborhoods, the adjusted odds ratio of postneonatal mortality for African-American infants equaled 1.8 (1.1-2.9). Conclusions: We conclude that urban African-American infants who reside in non impoverished neighborhoods are at high risk for postneonatal mortality.

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Pollack HA, Frohna JG.
**Infant sleep placement after the back to sleep campaign.**

Objectives: The Back to Sleep campaign has been credited with recent declines in the incidence of sudden infant death syndrome. Using survey data for the 1996-1998 birth cohorts, this epidemiologic study examines infant sleep position in a large, population-based sample. Data and Methods: Data concerning infant sleep position are drawn from the 1996-1998 Pregnancy Risk Assessment Monitoring System for 15 states. Weighted multiple logistic regression analysis is used to examine correlates of infant sleep position. Results: The prevalence of prone infant sleeping significantly declined between 1996 and 1998 (adjusted odds ratio [AOR] = 0.70; 95% confidence interval [CI] = [0.63, 0.78]). African Americans were more likely than non-Hispanic whites to sleep prone, (AOR = 1.45; 95% CI = 1.33,1.59), and were less likely to sleep supine (AOR = 0.52; 95% CI = 0.48, 0.57). Hispanic/Latinos were less likely overall than non-Hispanic whites to sleep prone (AOR = 0.81; 95% CI = 0.69, 0.95), but were also less likely to sleep supine (AOR = 0.78; 95% CI = 0.69, 0.87). Adherence to sleep position recommended by the American Academy of Pediatrics increased sharply among Hispanic/Latino infants. Very low birth weight infants and infants in larger families were less likely to sleep in the recommended supine position. Infants born between 1001 and 1500 g (AOR = 0.67; 95% CI = 0.57, 0.79), and extremely low birth weight infants between 500 and 1000 g (AOR =
0.57; 95% CI = 0.45, 0.72) were especially unlikely to sleep supine. Infants in households with more than 3 other children (AOR = 1.72; 95% CI = 1.08, 2.74) were more likely to sleep prone. Conclusions: The prevalence of supine infant sleep increased between 1996 and 1998. Low adherence to sleep position recommendations of the American Academy of Pediatrics among African Americans, very low birth weight infants, and infants in large families remain public health concerns.