Sudden Infant Death Syndrome in the Hispanic Community: A Selected Annotated Bibliography


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.

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Objective: To compare birth outcomes between non-US-born and US-born Hispanic women in North
Carolina (NC). Methods: A retrospective comparison of birth outcomes from linked NC birth/death certificate data (1993-1997) for 22,234 Hispanic births by mother's place of birth was conducted. Results: Mexico-born Hispanic women (58%) had significantly fewer medical risks, tobacco or alcohol use during pregnancy; however, they also had significantly less education and prenatal care than US-born Hispanic women (21%). Infant mortality rate, low birth weight, and prematurity were low and did not differ significantly. Lethal anomalies were the primary cause of infant mortality in non-US-born Hispanics versus Sudden Infant Death Syndrome (SIDS) in US-born Hispanics. Conclusions: Despite increased risk factors among US-born women, we found no difference in Hispanic birth outcomes in NC by mother's place of birth. These data contradict national data and may be related to findings of both positive and negative aspects of acculturation in NC.

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Purpose: To test the hypothesis that labor market contraction is associated with an elevated number of deaths due to sudden infant death syndrome (SIDS). Methods: We apply time-series methods to monthly counts of SIDS deaths and total employment from the state of California beginning January 1989 and ending December 2001. The methods control for trends, seasonal cycles, and other forms of autocorrelation that could induce spurious associations. Results: Decreases in the number of employed persons in California preceded higher than expected monthly values of SIDS cases among black, non-Hispanic White and Hispanic infants. In addition, Blacks and Hispanics appear to respond more strongly than non-Hispanic Whites to economic contraction. Conclusions: We infer support for the hypothesis that economic contraction may inhibit salutary behavior related to SIDS. We discuss various mechanisms through which the economy may affect SIDS and recommend further investigation.

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Objectives: This report presents 2002 period infant mortality statistics from the linked birth/infant death data file by a variety of maternal and infant characteristics. The linked file differs from the mortality file, which is based entirely on death certificate data. Methods: Descriptive tabulations of data are presented and interpreted. Results: The U.S. infant mortality rate increased from 6.8 infant deaths per 1000 live births in 2001 to 7.0 in 2002. The rate for infants of non-Hispanic white mothers was 5.7 in 2001 compared with 5.8 in 2002. The rate for infants of non-Hispanic black mothers was 13.5 in 2001 compared with 13.9 in 2002. Neither of the changes for non-Hispanic white nor non-Hispanic black was significant. Between 2001 and 2002, overall cause-specific rates increased 5 percent for low birthweight and 14 percent for maternal complications. The rate rose significantly for infants of mothers who smoked, 10.5 to 11.1. It also increased significantly from 10.7 to 11.5 for infants of mothers aged 15-17 years. The rate dropped significantly for triplet births, 71.4 to 60.1. Infant mortality rates ranged from 3.0 per 1000 live births for Chinese mothers to 13.9 for non-
Hispanic black mothers. Among Hispanics, rates ranged from 3.7 for Cuban mothers to 8.2 for Puerto Rican mothers. Infant mortality rates were higher for those infants whose mothers were born in the 50 States and the District of Columbia, were unmarried, or smoked during pregnancy. Infant mortality was also higher for male infants, multiple births, and infants born preterm or at low birthweight. The three leading causes of infant death—congenital malformations, low birthweight, and sudden infant death syndrome (SIDS)—taken together accounted for 45 percent of all infant deaths. For infants of non-Hispanic black mothers, the cause-specific infant mortality rate for low birthweight was nearly four times that for infants of non-Hispanic white mothers. For infants of non-Hispanic black and American Indian mothers, the SIDS rates were at least double the rate for non-Hispanic white mothers. A more intensive analysis of the rise in the infant mortality rate utilizing information on maternal and infant health risk factors available in the linked birth/infant death and fetal death data files is forthcoming.


Zuniga de Nuncio, M.L.; Nadar, P.R.; et al. 
A prenatal intervention study to improve timeliness of immunization initiation in Latino infants.

This was a prospective randomized cohort study to assess the effectiveness of an educational immunization intervention with pregnant Latinas on timely initiation of infant immunization. Study participants were recruited from two community clinics in north San Diego County. A total of three hundred and fifty-two Latinas in the third trimester of pregnancy were recruited and randomly assigned to intervention or control groups. Participants received either a culturally and linguistically appropriate session on infant immunization (intervention) or a session on prevention of sudden infant death syndrome (control). The main outcome measures were pre-post immunization knowledge change and infant immunization status at 92 days. Immunization knowledge increased significantly in the intervention group [p < .0001, 95%CI (1.76, 2.47)]. No difference was found between groups in immunization series initiation: 95 percent of the children in the intervention group were up-to-date by 92 days from birth, and 93 percent of the control group was up-to-date at 92 days. The lack of significant association between receiving immunization education and infant immunization series initiation suggests that parent education may be necessary but not sufficient for timely immunization, particularly in clinics with effective well-child programs. Given the significant increase in immunization knowledge, the broader and perhaps more important implication is that language- and culturally specific infant health education messages in the prenatal period may have a positive long-term impact on the child’s health and promote well-child care overall. Future studies should assess the role of prenatal well-child education in the context of clinics with low immunization levels. 28 references.

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Hauck FR, Herman SM, Donovan M, Iyasu S, Merrick Moore C, Donoghue E, Kirschner RH, Willinger M.
Sleep environment and the risk of sudden infant death syndrome in an urban population: the Chicago Infant Mortality Study.

8/9/06
Objective: To examine risk factors for sudden infant death syndrome (SIDS) with the goal of reducing SIDS mortality among blacks, which continues to affect this group at twice the rate of whites. Methods: We analyzed data from a population-based case-control study of 260 SIDS deaths that occurred in Chicago between 1993 and 1996 and an equal number of matched living controls to determine the association between SIDS and factors in the sleep environment and other variables related to infant care. Results: The racial/ethnic composition of the study groups was 75.0% black; 13.1% Hispanic white; and 11.9% non-Hispanic white. Several factors related to the sleep environment during last sleep were associated with higher risk of SIDS: placement in the prone position (unadjusted odds ratio [OR]: 2.4; 95% confidence interval [CI]: 1.7-3.4), soft surface (OR: 5.1; 95% CI: 3.1-8.3), pillow use (OR: 2.5; 95% CI: 1.5-4.2), face and/or head covered with bedding (OR: 2.5; 95% CI: 1.3-4.6), bed sharing overall (OR: 2.7; 95% CI: 1.8-4.2), bed sharing with parent(s) alone (OR: 1.9; 95% CI: 1.2-3.1), and bed sharing in other combinations (OR: 5.4; 95% CI: 2.8-10.2). Pacifier use was associated with decreased risk (unadjusted OR: 0.3; 95% CI: 0.2-0.5), as was breastfeeding either ever (OR: 0.2; 95% CI: 0.1-0.3) or currently (OR: 0.2; 95% CI: 0.1-0.4). In a multivariate model, several factors remained significant: prone sleep position, soft surface, pillow use, bed sharing other than with parent(s) alone, and not using a pacifier. Conclusions: To lower further the SIDS rate among black and other racial/ethnic groups, prone sleeping, the use of soft bedding and pillows, and some types of bed sharing should be reduced.

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Rasinski KA, Kuby A, Bzdusek SA, Silvestri JM, Weese-Mayer DE.
Effect of a sudden infant death syndrome risk reduction education program on risk factor compliance and information sources in primarily black urban communities.

Background: In the US, a higher incidence of sudden infant death syndrome (SIDS) and a slower decline in the incidence of SIDS has been found among blacks when compared with white infants. The continued racial disparity in SIDS is thought to be attributable to lack of compliance with SIDS risk reduction recommendations. Objectives: To better understand the disparities in SIDS risk reduction behaviors, we sought to study compliance and information sources related to SIDS among primarily black communities in a city with a high SIDS incidence rate before and after a targeted educational campaign. Design: Pre- and post-SIDS Risk Reduction Education Program telephone surveys were performed in targeted Chicago communities with at least 86% blacks. Data collection for Survey 1 was from September 22 to November 4, 1999. Data collection for Survey 2 was from November 17, 2001, to January 12, 2002, 24 months after the aggressive implementation of a comprehensive, ethnically sensitive risk reduction program. Results: Survey 1 analyzed data from 480 mothers with an infant <12 months of age (327 black, 66 white, and 87 Hispanic) and Survey 2 had 472 mothers (305 black, 77 white, and 90 Hispanic). The incidence of nighttime prone sleeping at Survey 1 was 25% among black respondents, 17% in whites, and 12% in Hispanics and decreased (but not significantly) among all groups by Survey 2. Overall, in Survey 2 compared with Survey 1, fewer mothers reported putting their infants on an adult bed, sofa, or cot both during the day and at night, with the biggest change seen in black mothers for daytime naps. Despite the same educational initiative, blacks increased the use of pillows, stuffed toys, and soft bedding in the sleep environment as compared with whites. More mothers in Survey 2 than in Survey 1 said that they noticed their infants sleeping on their back during the newborn hospitalization. Significantly more black and white mothers in Survey 2 compared with Survey 1 reported that a doctor or nurse had told them what the
The best position was for putting their infants to sleep, and all 3 groups said that the health care providers indicated that placing the infant on its back was the best sleep position. In examining the relationship between information sources and SIDS risk behaviors, among all groups observation of sleep position in hospital had no effect on behavior after newborn discharge; however, specific instruction by a nurse or doctor in the hospital about how to properly place the infant for sleep influenced behavior after the mother left the hospital. Conclusions: The Surveys indicate the greatest impact of the SIDS risk factor educational initiative targeted at black communities was changing behaviors regarding safe sleep locations by reducing the incidence of infants placed for nighttime and daytime sleep in adult beds, sofas, or cots. Although these data indicate considerable progress as a result of the targeted educational initiative, our findings suggest that cultural explanations for specific infant care practices must be more clearly understood to close the gap between SIDS risk factor compliance and apparent knowledge about SIDS risk factors.

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Corwin MJ, Lesko SM, Heeren T

Objective: Prone sleeping among infants has been associated with an increased risk of sudden infant death syndrome. The objective of this study was to compare factors associated with sleep position in 1995-1996 and 1997-1998 and to assess secular trends in use of prone infant sleep position from 1995 through 1998 among families stratified by race and education. Methods: A prospective cohort study was conducted in eastern Massachusetts and northwest Ohio of 12 029 mothers of infants who weighed > or =2500 g at birth. Descriptive statistics and multivariate odds ratios were used to relate maternal and infant characteristics to prone and supine sleeping. Results: A total of 14 206 mothers (25% of those eligible) were enrolled. A total of 12 029 mothers (85% of enrolled) responded to the 1-month and 11 552 mothers (81% of enrolled) responded to the 3-month follow-up questionnaire. A decline in use of the prone sleep position and increase in use of the supine position was observed during the 4 years of the study. Factors associated with prone and supine sleep position were similar in 1995-1996 and 1997-1998. In 1997-1998, use of prone sleeping at 1 month of age reached the goal of < or =10% only among infants of white and Asian women, married women, women who were older than 25 years, women who were college graduates, and women with incomes >$55 000 per year. At 3 months of age, however, prone sleeping increased to 12% to 17% in these groups. These same groups were most likely to use the supine position; 38% to 45% were supine at 1 month, increasing to 56% to 64% by 3 months of age. However, as of the end of 1998, approximately 27% of infants of non-college-educated black and Hispanic mothers were placed to sleep in the prone position and only 20% to 30% were being placed to sleep in the supine position at 3 months of age. Conclusions: Recommendations to avoid prone sleep position and especially the recommendation that supine sleep position is preferred have not been effectively delivered to black and Hispanic families and to families of low-income and less than a college education.

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Mathews, T.J.; Menacker, F.; MacDorman, M.F.
8/9/06
Objectives: This report presents the 2000 period infant mortality statistics from the linked birth/infant death data set (linked file) by a variety of maternal and infant characteristics. Methods: Descriptive tabulations of data are presented and interpreted. Results: Infant mortality rates ranged from 3.5 per 1,000 live births for Chinese mothers to 13.5 for black mothers. Among Hispanics, rates ranged from 4.5 for Cuban mothers to 8.2 for Puerto Rican mothers. Infant mortality rates were higher for those infants whose mothers had no prenatal care, were teenagers, had 9-11 years of education, and were unmarried or smoked during pregnancy. Infant mortality was also higher for male infants, multiple births, and infants born preterm or at low birthweight. The three leading causes of infant death--Congenital malformations, low birthweight, and Sudden infant death syndrome (SIDS)--taken together accounted for 45 percent of all infant deaths in the United States in 2000. Cause-specific mortality rates varied considerably by race and Hispanic origin. For infants of black mothers, the infant mortality rate for low birthweight was nearly four times that for white mothers. For infants of black and American Indian mothers, the SIDS rates were 2.4 and 2.3 times that for non-Hispanic white mothers.


Pollack, H.A.; Frohna, J.G.
**Infant sleep placement after the Back to Sleep Campaign.**

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 concerning infant sleep position were drawn from the 1996-1998 Pregnancy Risk Assessment Monitoring System for 15 states. Weighted multiple logistic regression analysis was used to examine correlates of infant sleep position. The prevalence of prone infant sleeping significantly declined between 1996 and 1998 (adjusted odds ratio [AOR] = 0.70; 95 percent confidence interval [CI] = [0.63, 0.78]). African Americans were more likely than non-Hispanic whites to sleep prone, (AOR = 1.45; 95 percent CI = 1.33, 1.59), and were less likely to sleep supine (AOR = 0.52; 95 percent CI = 0.48, 0.57). Hispanic/Latinos were less likely overall than non-Hispanic whites to sleep prone (AOR = 0.81; 95 percent CI = 0.69, 0.95), but were also less likely to sleep supine (AOR = 0.78: 95 percent 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 = 0.57; 95 percent CI = 0.45, 0.72) were especially unlikely to sleep supine. Infants in households with more than 3 other children (AOR = 1.72; 95 percent CI = 1.08, 2.74) were more likely to sleep prone. Conclusions: Showed 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.

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