

SLEEPING POSITION AND SUDDEN INFANT DEATH SYNDROME

SUDDEN INFANT Death Syndrome (SIDS) is the sudden death of a child under one 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.¹ It is the second leading cause of infant deaths in Oregon and the third leading cause of infant deaths in the United States.^{2,3}

From biblical times until the 20th century, virtually all sudden infant death was attributed to suffocation by a mother sleeping in the same bed. As it became common for infants to sleep alone, it became clear that this explanation was incomplete.⁴ Simply rolling over onto the hapless infant and smothering him was considered a common cause of death in the 19th century—often attributed to inebriated slum dwellers—or others who were obviously different from the pontificator. By the 1970s, “overlaying” was generally considered to be impossible and was rarely reported.⁵ There has been a series of hypothesized causes of SIDS, each of which has subsequently been disproved. These included hypersensitivity to cow’s milk, viremia, myocardial conduction defects, and spontaneous, idiopathic central apnea. One cause of sudden infant death that often cannot be distinguished from SIDS is infanticide, which may constitute as much as one to five percent of SIDS deaths.⁶

Factors that were associated with increased incidence of SIDS included low birthweight, preterm birth, low maternal age, high parity, maternal smoking and drug use and poverty.⁷

Sleeping in a prone position (ventral side down) emerged as a possible cause of SIDS in the 1970s.⁸

Historically most pediatricians had assumed that putting an infant to sleep on its back would increase the incidence of aspiration and pneumonia, but early work led to the conclusion that putting infants to sleep prone decreased SIDS.^{9,10} The evidence in support of this theory was the dramatic reduction in SIDS mortality in many countries after parents were advised to abandon the prone position and instead put their infants to sleep on their back or side.¹¹⁻¹⁴ Experimental work has subsequently shown that when babies sleep in the prone position with their noses embedded in soft surfaces, they rebreathe their own exhaled air, which contains high levels of carbon dioxide. It is likely that susceptible infants have blunted arousal systems and therefore do not react appropriately to elevated levels of carbon dioxide by lifting and turning their faces to the side.^{15,16} Infants of mothers who smoke in pregnancy have deficient hypoxic awakening responses.¹⁷ Thus, maternal cigarette smoking during fetal life may subtly damage critical control centers in the brain stem, leaving the infant at unsuspected risk for failure to detect high levels of inhaled carbon dioxide.¹¹

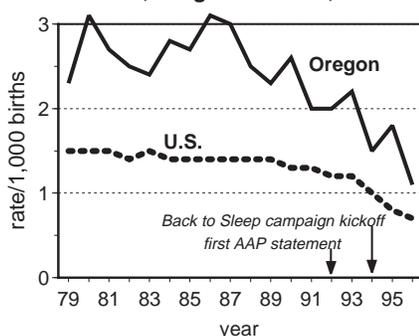
In 1992, the American Academy of Pediatrics (AAP) released a statement recommending that healthy infants be placed for sleep on their side or back, rather than being placed prone (on their stomach). The recommendation was based on numerous reports from other countries that showed that the prone sleeping position is associated with a higher incidence of SIDS.¹⁸ In 1994, AAP and others collaborated to initiate a

national Back to Sleep campaign to encourage parents and caregivers to place healthy infants on their backs when putting them down to sleep. They added a recommendation that soft surfaces that might trap exhaled air should not be in an infant’s sleeping environment.¹⁹

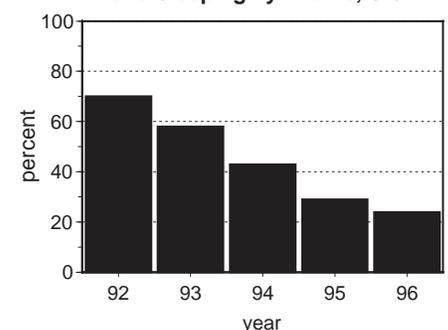
Since 1992, NIH has surveyed sleep position, showing that prone sleeping in the United States has decreased from 70% to 24%.²⁰ At the same time, the SIDS death rate has fallen 38% in the United States and 40% in Oregon.²¹ Several studies have concluded that the decrease in prone sleeping is the reason for the decrease in SIDS.^{19, 22, 23}

More recent reports indicate that the risk of SIDS is slightly greater for infants placed on their sides compared with those placed on their backs.^{24, 25} There is some evidence that the reason for this difference is that infants placed on their sides have a higher likelihood of spontaneously turning to a prone position. However, both nonprone positions (side or back) are associated with a much lower risk of SIDS than the prone position. In 1992, there was concern that sleeping supine might be associated with an increase in adverse events. Careful monitoring by English researchers has found no such increase.²⁶ A study of child care centers in 1996 found that many child care providers place infants to sleep in the prone position. Two states have found that more than one-third of

SIDS Rates, Oregon and U.S., 1979–96



Prone Sleeping by Infants, U.S.



Best practices to reduce the risk of SIDS:

- Place your baby on its back to sleep
- Don't smoke if you are pregnant*
- Provide a smoke-free environment for your baby
- Avoid overheating your baby
- Whenever possible, breast-feed your baby
- Make sure both mother and baby have regular health check-ups

SIDS deaths occur in organized child care settings.²⁷ As nonprone sleeping has become more common, the dominant modifiable risk factor for SIDS has become exposure of the infant to tobacco. Maternal smoking is associated with a three-fold increase in risk of SIDS;²⁸ risk is also increased if the father smoked.²⁹ In Oregon, 17.6 percent of mothers smoked during their pregnancy in 1996, a reduction since 1990.³⁰

Individual physicians/practitioners who wish to provide brochures to their patients may obtain bulk copies of SIDS - BACK TO SLEEP literature by calling Karen Semprevivo at (503)731-4021. These are available in both English and Spanish. Health practitioners can also obtain display posters, stickers and take-home reminder cards. Individual parents or the general public can obtain materials by calling Oregon SafeNet at 1-800-SAFENET (1-800-723-3638) or in the Portland area, 306-5858. Glossy door hangers are also available as a night time reminder to parents when putting their baby to bed.

* (or even if you're not)

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