Safe Sleep for Texas Babies: Comprehensive Recommendations to Reduce Risk of Sleep-Related Infant Death

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• Understanding the problem
• Recommendations
• Resources
Infant Mortality Rate for Texas and the United States, 2004-2013 Live Births

*2013 Texas data are preliminary
Source: Texas 2004-2013 Birth Files and Death Files
National Center for Health Statistics Vital Records Report
Prepared by: Office of Program Decision Support
Rates of Perinatal and Infant Deaths by Age of Fetus or Infant and by Race/Ethnicity, Texas Residents, 2012

Number of Deaths Per 1,000 Live Births

- Perinatal Deaths (fetal deaths >28 weeks gestation + early neonatal deaths <7 days)
- Neonatal Deaths (<28 days)
- Post-Neonatal Deaths 28-364 days of age

Source: DSHS. 2012 Birth and Death Files.
Rates of Sudden Infant Deaths and Other Sudden Unexplained Infant Deaths by Race/Ethnicity, Texas Residents, 2012

- **Other SUID Cases (includes Unknown Cause, Accidental Suffocation, Strangulation in Bed)**
- **SIDS Cases**

### SIDS Cases
- **White**: SUID = 0.9, Other SUID = 0.4, SUID = 0.5
- **Black**: SUID = 1.0, Other SUID = 1.1
- **Hispanic**: SUID = 0.6, Other SUID = 0.3, SUID = 0.3
- **Average, All R/E**: SUID = 0.9, Other SUID = 0.4, SUID = 0.5

**Note**: The rates are not reported for other race/ethnicities because of few deaths.

**Source**: DSHS. 2012 Birth and Death Files.
Sudden Unexplained Infant Death

- SIDS
- Poisoning or overdose
- Accidental suffocation
- Cardiac channelopathies
- Inborn errors of metabolism
- Infections
- Unknown
Types of Sleep-Related SUID

- Sudden Infant Death Syndrome
- Unknown Cause
- Accidental Suffocation and Strangulation in Bed
Sudden Infant Death Syndrome (SIDS)

- The sudden death of an infant less than 1 year of age that cannot be explained after a thorough investigation is conducted, including:
  - a complete autopsy,
  - examination of the death scene, and
  - a review of the clinical history.
• The leading cause of death in infants 1 to 12 months old
• Ninety percent of SIDS cases occur before an infant reaches the age of 6 months.
• The rate of SIDS peaks between 1 and 4 months of age.
SIDS Triple Risk Model

- Vulnerable Infant
- Critical Developmental Period
- Outside Stressor(s)

SIDS
Unknown Cause

• The sudden death of an infant less than 1 year of age that is unexplained and is not consistent with or does not meet the criteria for a diagnosis of SIDS.
Accidental Suffocation and Strangulation in Bed

• Mechanisms that lead to accidental suffocation include:
  – Suffocation by soft bedding—for example, when a pillow or waterbed mattress covers an infant's nose and mouth.
  – Overlay—for example, when another person rolls on top of or against the infant while sleeping.
  – Wedging or entrapment—for example, when an infant is wedged between two objects such as a mattress and wall, bed frame, or furniture.
  – Strangulation—for example, when an infant’s head and neck become caught between crib railings.
Breakdown of Sudden Unexpected Infant Death by Cause, 2013

- Sudden Infant Death Syndrome (SIDS): 45%
- Unknown Cause: 31%
- Accidental Suffocation and Strangulation in Bed: 24%

About SUID and SIDS

• About 3,500 US infants die suddenly and unexpectedly each year
• Difficult to distinguish causes
• Lack of standardization in investigation and classification
• “many of the modifiable and non-modifiable risk factors for SIDS and suffocation are strikingly similar.”
  – Same prevention strategies
Demographic factors associated with SIDS

- **Age:** Ninety percent of SIDS cases occur before six months of age, and the rate of SIDS peaks between one and four months of life. A similar age distribution is seen for deaths from accidental suffocation and strangulation.
- **Sex:** SIDS deaths have a 3:2 male-to-female ratio
- **Race/Ethnicity:** Black infants have mortality rates from SIDS that are twice those of white infants, and almost four times those of Asian/Pacific Islander and Hispanic infants. The SIDS mortality rare for American Indian infants is about three times greater than for white infants and six times greater than for Asian/Pacific Islander infants. SIDS rates for Asian/Pacific Islander and Hispanic infants were nearly half the rate for non-Hispanic white infants.
Perinatal and environmental factors associated with SIDS

• Maternal age 20 or younger
• Inadequate prenatal care
• Preterm birth or low birth weight
• Prenatal exposure and postnatal exposure to smoking during pregnancy, environmental tobacco smoke in the pregnant woman’s environment, and in the infant’s environment
• Suboptimal breastfeeding
• Prenatal and postnatal exposure to drug or alcohol use
Sleep practices and environments associated with SIDS

- Unaccustomed sleep position
- Prone (stomach) or lateral (side) sleeping
- Solitary sleeping (sleeping far away/in a separate room from parent)
- Sleeping on a surface—such as a couch, chair, car seat, infant seat, swing, adult bed, etc.—not designed for infant sleep safety which may increase risk of rebreathing, overheating, wedging, entrapment, entanglement, positional asphyxia, and other dangerous conditions
- Sharing a bed or sleep service with another person(s) or animal
- Soft sleep surfaces and or loose bedding or other items in the sleep environment
- Overheating during sleep

https://www.nichd.nih.gov/sts/campaign/science/Pages/other.aspx#unaccustomed
Best Practice Recommendations

• AAP Task Force on Sudden Infant Death Syndrome 2011 Policy Statement: *SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment*
  
  
  http://pediatrics.aappublications.org/content/128/5/1030.full

• Technical Report—SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment

  http://pediatrics.aappublications.org/content/128/5/e1341.full

POLICY STATEMENT

SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment

abstract

Despite a major decrease in the incidence of sudden infant death syndrome (SIDS) since the American Academy of Pediatrics (AAP) released its recommendation in 1992 that infants be placed for sleep in a non-prone position, this decline has plateaued in recent years. Concurrently, other causes of sudden unexpected infant death that occur during sleep (sleep-related deaths), including suffocation, asphyxia, and entrapment, and its defined or unspecified causes of death have increased in incidence, particularly since the AAP published its last statement on SIDS in 2005. It has become increasingly important to address other causes of sleep-related infant death. Many of the modifiable and non-modifiable risk factors for SIDS and suffocation are strikingly similar. The AAP, therefore, is expanding its recommendations from focusing only on SIDS to focusing on a safe sleep environment that can reduce the risk of all sleep-related infant deaths, including SIDS. The recommendations described in this policy statement include supine positioning, use of a firm sleep surface, breastfeeding, room-sharing without bed-sharing, routine immunizations, consideration of using a pacifier, and avoidance of soft bedding, overheating, and exposure to tobacco smoke, alcohol, and illicit drugs. The rationale for these recommendations is discussed in detail in the accompanying "Technical Report: SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment," which is included in this issue of Pediatrics (www.pediatrics.org/cgi/content/full/Pediatrics.2011.1265 (14)). Pediatrics 2012;129(6):1559–1569.

INTRODUCTION

Sudden infant death syndrome (SIDS) is a cause assigned to infant deaths that cannot be explained after a thorough case investigation, including a scene investigation, autopsy, and review of the clinical history. Sudden unexpected infant death (SUID), also known as sudden unexpected death in infancy, is a term used to describe any sudden and unexpected death in infancy, whether explained or unexplained (including SIDS) that occurs during sleep. After case investigation, SUIDs can be attributed to suffocation, asphyxia, entrapment, infection, ingestion, metabolic disease, arhythmia, associated cardiac chromosome abnormality, and trauma (accidental or non-accidental). The distinction between SIDS and other SUIDs, particularly those that occur during an observed or unobserved sleep period (sleep-related infant deaths), such as suffocation, has been based on the absence of a critical marker. The absence of a critical marker, such as a history of sleep-related infant death, makes it impossible to identify SIDS deaths. The absence of a critical marker, such as a history of sleep-related infant death, makes it impossible to identify SIDS deaths. The absence of a critical marker, such as a history of sleep-related infant death, makes it impossible to identify SIDS deaths. The absence of a critical marker, such as a history of sleep-related infant death, makes it impossible to identify SIDS deaths.
Level A Recommendations
Sleep Position & Sleep Environment

• Supine position for every sleep until age 1
  – Side sleeping is not safe and is not advised
• Use firm sleep surface, well fitting mattress
  – Free of cords, wires, other hazards
  – Sitting devices not recommended for routine sleep
• Keep soft objects / loose bedding out of sleep area
Level A Recommendations
Sleep Position

• Supine position for every sleep until age 1
  – Side Sleeping Is Not Safe and Is Not Advised
    • Similar risk to prone, and more side position is more commonly used
    • Unstable position which results in falling/rolling to prone or to wedging
  – Unaccustomed prone AOR 8.7-45.3 greater risk for death
  – Once an infant can roll from the supine to prone and from the prone to supine position, the infant can be allowed to remain in the sleep position that he or she assumes
Approximately 68% of mothers reported that they usually lay their baby down to sleep/nap on their back. White (72%) and Hispanics (70%) were significantly more likely than Blacks (67%) to usually lay their baby down to sleep or nap on their backs.
Figure 5.20. Infants Placed on Back to Sleep by Race/Ethnicity, Texas 2004-2011

Error Bars: 95% Confidence Interval
Source: 2002-2011 Texas PRAMS
Prepared by: Office of Program Decision Support
Sleep Environment

• Use firm sleep surface, well fitting mattress
  – Keep soft objects / loose bedding out of sleep area
  – Free of cords, wires, other hazards
  – Sitting devices not recommended for routine sleep
  – Avoid overheating
More than three-quarters of all mothers reported that their infant usually sleeps on an appropriate sleep surface, such as a crib, bassinet or cradle. Nearly 90% of Whites lay their infant to sleep in an appropriate sleeping surface, opposed to 73% and 65% for Hispanic and Blacks, respectively.
Room sharing without bed sharing decreases the risk of SIDS by as much as 50% 
- May bring baby to bed for feeding / comforting; return to crib when ready to sleep
- Infants should not be fed on a couch or armchair when there is a high risk that the parent might fall asleep
- AAP does not recommend any specific bed-sharing situations as safe
- Lists absolute contraindications for highest risk
Considerations

• Cultural differences and styles
• Protective factors/ “keeping care”
• Convenience
• For some populations, mitigate hazards
There Are Specific Circumstances in Which Bed-Sharing Is Particularly Hazardous, and It Should Be Stressed to Parents That They Avoid the Following Situations at All Times (AAP)

Bed-sharing is especially dangerous when:
- 1 or both parents are smokers
- the infant is younger than 3 months regardless of parental smoking status
- the infant is placed on excessively soft surfaces such as waterbeds, sofas, and armchairs
- soft bedding accessories such as pillows or blankets are used
- there are multiple bed-sharers
- The parent has consumed alcohol
- There is also a higher risk of SIDS when the infant is bed-sharing with someone who is not a parent (unaccustomed sleep)
Percent of Babies who Usually Sleep in Same Room where Adult Sleeps at Night, TISS 2009

- 72.3% Sleeps in Same Room at Night
- 27.7% Does Not Sleep in Same Room at Night
Percent of Babies who Usually Sleep in Same Room where Adult Sleeps at Night, by Race/Ethnicity, TISS 2009

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<td>Other</td>
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TISS, 2009

Three quarters of all mothers reported ever lying down or sleeping with their infant. Blacks (87%) and Hispanics (79%) were significantly more likely to report ever bed-sharing with their infants as opposed to Whites (62%).
Percent of Babies who have Slept or Napped on a 'Surface' with Smoker by Race/Ethnicity, TISS 2009

- **White**: 11.0%
- **Black**: 4.9%
- **Hispanic**: 4.5%
- **Other**: 5.8%
Percent of Babies who have Slept or Napped on a 'Surface' with a Prescription, Sleeping Pill, or Alcohol User by Race/Ethnicity, TISS 2009

- White: 2.9%
- Black: 4.9%
- Hispanic: 2.5%
- Other: 5.0%
AAP on Swaddling

• Although Swaddling May Be Used as a Strategy to Calm the Infant and Encourage Use of Supine Position, There Is Not Enough Evidence to Recommend It as a Strategy for Reducing the Risk of SIDS
Swaddling Key Points

• Swaddling can be an effective tool for comforting babies and helping them to accept supine sleep position
• Swaddling is particularly good for neuro-organization/development for preterm and fussy babies
• Swaddling too tight or in a hyper-extended position (vs. swaddling that allows flexion (newborn’s natural position)/abduction) can be harmful (respiratory difficulty and increased risk of respiratory infection from the first, and hip dysplasia from the second)
• Swaddling with heavy blankets or if infant is overdressed can lead to hyperthermia
• Swaddling an older infant who has begun to roll can increase the risk of SIDS as infants in unaccustomed prone + swaddled are at higher risk for SIDS.
• Consider offering a pacifier at nap time and bedtime
• Two meta-analyses revealed that pacifier use at the time of sleep decreased the risk of SIDS by 50% to 60%
• lowered arousal thresholds, favorable modification of autonomic control during sleep, and maintaining airway patency during sleep have been proposed as mechanisms
• increased risk of SIDS when the pacifier was usually used but not used the last time the infant was placed for sleep (unaccustomed sleep ecology)
• Delay use until 3-4 weeks when breastfeeding is well established
“Parental sleep decisions seemed to be driven by perceptions of what would make their infant most comfortable and safe, and what would be most convenient. Parents were aware of safe sleep recommendations but unaware of the rationale. Because they generally did not believe that their infants were at risk for a sleep-related death, day-to-day decisions seemed to focus on what was most effective in getting their infant to sleep...

Adherence with safe sleep recommendations may be enhanced if health care providers and educational materials discussed rationale underlying recommendations and addressed common parental concerns.”

Level A Recommendations

Other

• Do not use home cardiorespiratory monitors as a strategy for reducing the risk of SIDS
• Expand the national campaign to reduce the risks of SIDS to include a major focus on:
  – the safe sleep environment and ways to reduce the risks of all sleep-related infant deaths, including SIDS, suffocation, and other accidental deaths
  – pediatricians, family physicians, and other primary care providers should actively participate in this campaign
AAP: Avoid the following bed-sharing situations at all times:

• Bed-sharing with an infant younger than 3 months.
• Bed-sharing with a current smoker or with a mother who smoked during pregnancy.
• Bed-sharing with someone who is excessively tired, is using medications or substances (e.g. alcohol or illicit drugs) that could impair alertness or ability to arouse.
• Bed-sharing with anyone who is not a parent, including twins/multiples or other siblings.
• Bed-sharing on a soft surface such as a waterbed, old mattress, sofa, couch, or armchair.
• Bed-sharing on a surface with soft bedding, including pillows, blankets, and comforters.
Safe Sleep Environment
Safe Sleep Environment

Breastfeeding

Attentive, responsive, close by parent

Smoke Free Environment
Level A Recommendations
Infant Exposures and Protection

• Pregnant women should receive regular prenatal care
• Avoid smoke exposure during pregnancy and after birth
  – The risk of SIDS is particularly high when the infant bed-shares with an adult smoker
• Avoid alcohol and illicit drug use during pregnancy and after birth
• Breastfeeding is recommended
• Consider offering a pacifier at nap time and bedtime
• Avoid overheating
Level A Recommendations
Infant Exposures and Protection

• Pregnant women should receive regular prenatal care (increased risk with LBW and PTB)

• Avoid alcohol and illicit drug use during pregnancy and after birth
Level A Recommendations
Infant Exposures and Protection

• Avoid smoke exposure during pregnancy and after birth
  – The risk of SIDS is particularly high when the infant bed-shares with an adult smoker
Women Smoking During Pregnancy, Texas, 2012 Births

Legend
- <=1.2% (HP2020 Target)
- 1.3% - 6.3% (State Average)
- 6.4% - 11.3%
- 11.4% - 16.3%
- > 16.3%
- Fewer than 100 Live Births

Source: 2012 Birth File
Prepared by: Office of Program Decision Support
Texas Women who Reported Smoking During Pregnancy by Race/Ethnicity, 2008-2013 Births

*2013 Texas data are preliminary
Source: 2009-2013 Birth Files
Prepared by: Office of Program Decision Support
Percent of Women Who Recently Gave Birth and Who Reported that Smoking is Allowed in Their Homes Race/Ethnicity, Texas, 2009-2011

Source: DSHS. 2009-2011 Texas PRAMS.
• Breastfeeding is recommended
• Well designed studies have found that ever breastfeeding reduces risk of SIDS by more than half. Exclusive breastfeeding of any duration is most protective (reducing risk by ~2/3rds), but any breastfeeding is also protective.
• Do not use home cardiorespiratory monitors as a strategy for reducing the risk of SIDS

• Expand the national campaign to reduce the risks of SIDS to include a major focus on:
  – the safe sleep environment and ways to reduce the risks of all sleep-related infant deaths, including SIDS, suffocation, and other accidental deaths
  – pediatricians, family physicians, and other primary care providers should actively participate in this campaign
Level B Recommendations

- Infants should be immunized in accordance with recommendations of the AAP and Centers for Disease Control and Prevention
  - Immunizations don’t increase the risk of SIDS and may be protective
- Avoid commercial devices marketed to reduce the risk of SIDS
- Supervised, awake tummy time is recommended to facilitate development and to minimize development of positional plagiocephaly
Level C Recommendations

- Health care professionals, staff in newborn nurseries and NICUs, and child care providers should endorse the SIDS risk-reduction recommendations from birth.
- Media and manufacturers should follow safe-sleep guidelines in their messaging and advertising.
- Continue research and surveillance on the risk factors, causes, and pathophysiological mechanisms of SIDS and other sleep-related infant deaths, with the ultimate goal of eliminating these deaths entirely.
National and State Initiatives
National Initiatives

- *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) *Safe to Sleep Campaign*
- Collaborative Improvement & Innovation Network (COIIN) to reduce infant mortality
- Title V MCH Block Grant 3.0
- National Action Partnership to Promote Safe Sleep (NAPPSS)
NICHD Safe to Sleep
Public Education Campaign

• Formerly the Back to Sleep Campaign
• Uses targeted marketing and outreach to spread comprehensive key messages about safe sleep
• Research-informed and experience-informed strategies
• Tailored materials for specific audiences

http://www.nichd.nih.gov/sts/
COIIN

• Sponsored by the Health Resources and Services Administration (HRSA)
• Establishes cross-state collaborations and exchanges that support collaborative learning to reduce infant mortality and improve outcomes
• Safe sleep is a focus area

http://mchb.hrsa.gov/infantmortality/coiin/
NAPPSS

• National coordinated strategy to engage the full set of partners to make safe sleep a national norm
• Develop strategies to move from awareness (campaign) – to action (conversations)
• Developing strategies to integrate safe sleep into systems
  – identifying barriers to safe sleep practices
  – developing a comprehensive rationale for safe sleep recommendations
  – crafting individually tailored strategies responsive to personal beliefs and circumstances and that promote both infant safety and developmental nurturing

http://www.nappss.org/
State Programs and Initiatives—DSHS

• Safe Sleep for Babies information, Community Training, CPS training
• THSteps OPE Platform—Safe Sleep module
• Texas WIC Services (nutrition, screening & referral → improved birth and child health outcomes; breastfeeding support; partnership with tobacco prevention program, etc.)
• Comprehensive Program of Breastfeeding Support (EOC, TTS, MFW, DSHS Infant Feeding Workgroup DSHS/HHSC workgroup, etc.)
• Healthy Texas Babies Campaign
  – Some Day Starts Now Campaign
  – Collaborative for Healthy Mothers and Babies
• State Child Fatality Review Team Committee
• Programs across the agency provide direct- and population-based services to women, children, families, providers (e.g. MedCares)
State Initiatives—DFPS

- Room to Breathe Campaign
- CPS Training