Safe Sleep Initiative

5th Annual Neonatal Conference Megan Tucker, MD April 25, 2019



© The Children's Mercy Hospital, 2015







I have no conflicts of interest to disclose



Objectives

- National and regional statistics on safe sleep
- Current American Academy of Pediatrics (AAP) safe sleep recommendations
- Impact of modeling safe sleep recommendations during hospitalization
- Safe sleep initiative our job as role models



Sudden Unexpected Infant Death (SUID)

Sudden Unexpected Infant Death (SUID) is the sudden and unexpected death of an infant less than 1 year of age in which the cause of death was not obvious before investigation





- SUID accounts for 3,500 infant deaths in the United States each year
- There are 3 commonly reported types of SUID:
 - 1. Sudden Infant Death Syndrome (SIDS)
 - 2. Accidental suffocation and strangulation in bed
 - 3. Unknown causes



Sudden Infant Death Syndrome (SIDS)

- Sudden Infant Death Syndrome (SIDS)
 - Sudden, unexplained death of a baby younger than 1 year of age of unknown cause even after a complete investigation
 - Usually occurs during sleep
- A complete investigation includes:
 - A complete autopsy
 - Examining of death scene
 - Review of the clinical history



Known Risk Factors for SIDS

- Prone or side sleep position
- Soft sleep surfaces
- Overheating
- Co-sleeping
- Exposure to smoke
- Alcohol or substance abuse





Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH, DHHS. Research on Possible Causes of SIDS.







Adapted from Sudden Unexpected Infant Death Investigations Website. www.suidi.org

Breakdown of Sudden Unexpected Infant Death (SUID) by cause, 2016





CDC/NCHS, National Vital Statistics System, Compressed Mortality File.







Kansas State Child Death Review Board 2018 Annual Report (2016 Data). www.ag.ks.gov/scdrb.



Characteristics of the 25 SIDS Deaths, 2016

- 96% had one or more elements of unsafe sleep
- 76% were not sleeping in a crib/bassinet
 - 84% of whom had a crib or bassinet in the nome
- 76% occurred at the decedent's residence, 20% at a relative's home, and 4% occurred in an unlicensed child care home
- 72% were less than 4 months old
- 60% were sleeping in an adult bed
 - o 73% of whom were co-bedding
- 52% were documented as not being placed supine to sleep (recommended position)
- 44% had current or past DCF child protective services involvement with the family
- 28% had parental alcohol or substance abuse concerns prior to or at the time of death
- 4% were sleeping on a couch, while co-bedding







Missouri

- 76% of all infant deaths in 2017 from nonmedical causes were related to sleep environment
- "Losing about 4 standard kindergarten classrooms worth of infants a year or one infant every 2.5 days"



Missouri



- In 2017, there were 79 unintentional suffocation deaths in infants < 1 year
- Peak at 1 month of age

Missouri Child Fatality Review Program Annual Report for 2017. Preventing Child Deaths in Missouri. Jefferson City, MO.

14

Missouri



- 18 deaths due to soft bedding
 - 10 in crib or bassinette with soft bedding/bumpers
 - 3 on adult beds with pillows or comforters
 - 2 on sofa/futon

Missouri Child Fatality Review Program Annual Report for 2017. 15 Preventing Child Deaths in Missouri. Jefferson City, MO.

Local Statistics



*Analysis of FIMR data Clay, Platte, and Jackson counties, Missouri Johnson & Wyandotte counties, Kansas, 2012-2016



From Birth to One: Infant Health in Greater Kansas City (2018), Mother and Child Health Coalition, Kansas City, MO https://www.mchcinfanthealthgkc.net/

American Academy of Pediatrics Recommendations

TABLE 2 Summary of Recommendations With Strength of Recommendation

- A-level recommendations
 - Back to sleep for every sleep.
 - Use a firm sleep surface.
 - Breastfeeding is recommended.
 - Room-sharing with the infant on a separate sleep surface is recommended.
 - Keep soft objects and loose bedding away from the infant's sleep area.
 - Consider offering a pacifier at naptime and bedtime.
 - Avoid smoke exposure during pregnancy and after birth.
 - Avoid alcohol and illicit drug use during pregnancy and after birth.
 - Avoid overheating.
 - Pregnant women should seek and obtain regular prenatal care.
 - Infants should be immunized in accordance with AAP and CDC recommendations.
 - Do not use home cardiorespiratory monitors as a strategy to reduce the risk of SIDS.
 - Health care providers, staff in newborn nurseries and NICUs, and child care providers should endorse and model the SIDS risk-reduction recommendations from birth.
 - Media and manufacturers should follow safe sleep guidelines in their messaging and advertising. Continue the "Safe to Sleep" campaign, focusing on ways to reduce the risk of all sleep-related infant deaths, including SIDS, suffocation, and other unintentional deaths. Pediatricians and other primary care providers should actively participate in this campaign.

American Academy of Pediatrics Recommendations

TABLE 2 Summary of Recommendations With Strength of Recommendation

B-level recommendations

Avoid the use of commercial devices that are inconsistent with safe sleep recommendations.

Supervised, awake tummy time is recommended to facilitate development and to minimize development of positional plagiocephaly.

C-level recommendations

Continue research and surveillance on the risk factors, causes, and pathophysiologic mechanisms of SIDS and other sleep-related infant deaths, with the ultimate goal of eliminating these deaths entirely.

There is no evidence to recommend swaddling as a strategy to reduce the risk of SIDS.



Education

- Multiple unique methods have shown efficacy in increasing parental knowledge of safe sleep practices
- NICHD has multiple resources on website
 - Online educational materials for parents to browse
 - Videos to share with parents download or order on DVD
 - Videos to train providers
 - Downloadable media Pictures/Brochures/Posters



Education

- Cribs for Kids
 - Safe Sleep Academy: Online education for parents
 - Safe Sleep Ambassador Program: Online program that trains individuals or organizations to share safe sleep message
 - Hospital certification program
- SafeKids.org
- American Academy of Pediatrics HealthyChildren.org

What Does A Safe Sleep Environment Look Like?

The image below shows a safe infant sleep environment.





Do not put pillows, blankets, sheepskins, or crib bumpers anywhere in your baby's sleep area.

Keep soft objects, toys, and loose bedding out of your baby's sleep area. Make sure nothing covers the baby's head. Dress your baby in sleep clothing, such as a wearable blanket. Do not use a loose blanket, and do not overbundle. Always place your baby on his or her back to sleep, for naps and at night.

Modeling Safe Sleep Behaviors

- When parents observe healthcare providers utilizing safe sleep practices, compliance is higher at home
- Modeling has greater impact than education and both together have greater impact than either alone





Prone Sleeping

- Babies sleep better prone- It's True!
 - Less reactive to noise
 - Sleep deeper and longer
 - Have higher arousal thresholds
 - Experience sudden decreases in BP and HR control
- Increases probability of rebreathing CO2
- Puts infants at 1.7 to 12.9 increased risk of SIDS





Side Sleeping

- Side sleeping carries just as much risk as prone sleeping
- Patient can easily roll onto their stomach from this position





Modeling

- Sleeping supine is a learned behavior
 - Help babies learn it before going home!
- If infants learn to sleep on their back in the hospital, they will be more successful at home
- If parents observe safe sleep habits utilized in the hospital they are more likely to use them at home!



Safe Sleep Initiative

- Compliance with safe sleep practices in well baby nurseries and NICUs across the country is poor
- Providers are knowledgeable and compliant with use of supine positioning
- However, the use of positioning aids and failure to remove toys or care supplies from the crib while infant is sleeping remains a problem



NICU vs Well Baby

- Certain patients with certain airway anomalies or myelomeningoceles may require prone positioning
- Positioning aids/nesting in premature and sick infants are considered appropriate developmental care but contradictory to safe sleep recommendations
- NICUs need set of criteria to help determine when infant ready for transition to safe sleep





Safe Sleep Initiative

- At our institution, multiple QI initiatives have been implemented, but changes are not sustained without intensive monitoring
- Using infant mortality data within the community to track success of safe sleep initiatives is promising (Krugman, Crumpsty-Fowler)



What can we do?

- Provide education to families
- Model safe sleep behaviors for families while infant in hospital
- Ask parents if they have a crib/bassinet
- Help infant adjust to safe sleep environment prior to discharge home







Which of the following is NOT an American Academy of Pediatrics Safe Sleep Recommendation?

- A. Place infant back to sleep every sleep
- **B.** Consider offering pacifier
- C. Use a hat for thermoregulation
- D. Use a firm sleep surface



Which of the below is an acceptable commercial device to use at home for safe sleep?



D. None of the above



The incidence of sudden unexpected infant death as increased due to:

- A. Sudden Infant Death Syndrome (SIDS)
- **B. Unknown Causes**
- C. Accidental suffocation and strangulation
- D. None of the above





- AAP Task Force on Sudden Infant Death SyndromeSIDS and other sleep-related infant deaths: expansion of recommendations for a safe sleep environment. *Pediatrics*. 2011;128:1030-9.
- AAP Task Force on Sudden Infant Death Syndrome. SIDS and other sleep-related infant deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. *Pediatrics*. 2016; 138(5):e20162938.
- Barsman SG, Dowling DA, Damato EG, Czeck P. Neonatal nurses' beliefs, knowledge, and practices in relation to sudden infant death syndrome risk-reduction recommendations. *Advances in Neonatal Care*. 2015;15(3):209-219.
- Brenner RA, Simons-Morton BG, Bhaskar B, et al. Prevalence and predictors of the prone sleep position among inner-city infants. *JAMA*. 1998;280(4): 341-346.
- Center for Disease Control and Prevention (CDC)/National Vital Statistics System (NCHS). Compressed Mortality File. Sudden Unexpected Infant Death and Sudden Infant Death Syndrome. https://cdc.gov/sids/data.htm.
- Colson ER, Joslin SC. Changing nursery practice gets inner-city infants in the supine position for sleep. Arch Pediatr Adolesc Med. 2002;156:717-720.
- Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH, DHHS. Research on Possible Causes of SIDS. Retrieved April 1, 2019 from https://safetosleep.nichd.nih.gov/research/science/causes.
- From Birth to One: Infant Health in Greater Kansas City (2018), Mother and Child Health Coalition, Kansas City, MO https://www.mchcinfanthealthgkc.net/.





- Grazel R, Phalen AG, Polomano RC. Implementation of the American Academy of Pediatrics recommendations to reduce sudden infant death syndrome risk in neonatal intensive care units: an evaluation of nursing knowledge and practice. *Advances in Neonatal Care*. 2010;10(6):332-342.
- Kansas State Child Death Review Board 2018 Annual Report (2016 Data). www.ag.ks.gov/scdrb.
- Kohorn IV, Corwin MJ, Rybin DV, Heeren TC, Lister G, Colson ER. Influence of prior advice and beliefs of mothers on infant sleep position. Arch Pediatr Adolesc Med.2010;164(4):363-369.
- Krugman SD and Crumpsty-Fowler CJ. (2018). A Hospital- Based initiative to reduce postdischarge Sudden unexpected infant deaths. Hospital Pediatrics. Aug 2018; 8 (8):443-449. DOI: 10.1542/hpeds.2017-0211.
- Levy Raydo LJ, Reu-Donlon CM. Putting babies "Back to Sleep": can we do better? *Neonatal Network*. 2005;24(6):9-16.
- Missouri Child Fatality Review Program Annual Report for 2017. Preventing Child Deaths in Missouri. Jefferson City, MO. http://www.dss.mo.gov/stat/mcfrp.htm.
- Stastny PF, Ichinose TY, Thayer SD, Olson RJ, Keens TG. Infant sleep positioning by nursery staff and mothers in newborn hospital nurseries. *Nursing Research*. 2004;53(2):122-129.
- Willinger M, Ko CW, Hoffman HJ, Kessler RC, Corwin MJ. Factors associated with caregivers' choice of infant sleep position, 1994-1998 the national infant sleep position study. *JAMA*. 2000;283(16):2135-2142.

