Preventing Sleep-Related Deaths in Infants

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INTRODUCTION

It is early morning in the emergency department when EMS arrives with a previously healthy infant who was found unresponsive and lifeless in bed by the family upon awakening. The infant was last seen well during a feed at 3 a.m., after which the parents fell asleep with the infant in their bed surrounded by blankets and pillows. This is unfortunately an all-too-familiar occurrence for emergency medical teams. In most cases, immediate resuscitative measures at the scene and hospital are unsuccessful, and comforting a devastated family, gathering historical information, and arranging medical examiner investigations become the only interventions that medical teams can provide. The tragedy of such loss is compounded by historical information that suggests that the infant was sleeping in an unsafe environment, making the death preventable.[1,2] Despite widespread public health campaigns that promote evidence-based safe sleep practices, infants continue to die from unsafe sleep environments.

IMPORTANCE

In the United States, approximately 3,500 infants die of sleep-related deaths each year.[3] Furthermore, a recent examination of 7,595 sudden infant deaths in the US between 2011 and 2020 found that 76% of the infant deaths were associated with multiple unsafe sleep practices.[4] In addition, the leading cause of injury-related deaths in infants in the US is unintentional suffocation, with 82% of these categorized as accidental suffocation and strangulation in bed (ASSB).[1] In 2020, approximately 25 infants out of 100,000 live births died of ASSB in the United States.[5]

Rhode Island is not immune. In 2022, six children under the age of one died in this state, increasing to 12 in 2023. In an average year, 50% of these Rhode Island infant deaths are shown to be due to unsafe sleep practices.[6]

RISK FACTORS

Certain practices significantly increase the risk of infant suffocation while sleeping. Accidental infant suffocation is most often caused by airway obstruction from **loose, soft objects** such as pillows and blankets.[1-3] Specifically, the use of soft-bedding is associated with a 16-fold increase in the odds of suffocation.[7]

Infants placed in **non-supine positions** (e.g., not on their backs) have approximately two times the odds of sleep-related suffocation.[7]

Infants **sharing a sleep surface** with another person are 2.5 times more likely to die of suffocation, most commonly from overlaying of a caregiver.[1,7] Surface sharing becomes five to ten times riskier if the caregiver is using sedating medications or substances (such as alcohol), if there is prenatal or postnatal exposure to tobacco smoke, or if the infant is less than four months old.[3,4]

In contrast to surface sharing, room sharing (i.e., having the infant in the same room as the caregiver, but on a different surface) is protective against sudden infant death syndrome (SIDS).[3] Specifically, infants who do not room share with their caregiver are 19 times more likely to die of sleep-related suffocation.[7]

There is also a four-fold increase in the odds of suffocation if a **non-approved sleep surface** is used, as wedging can occur.[2,7] The key characteristics of an approved sleep surface are firm, flat, and non-inclined.[3]

Additional risk factors for ASSB include male infant, low gestational age, low infant birth weight, multiple birth, high birth order, lack of prenatal care, young maternal age, and mothers with low educational attainment.[8]

DISPARITIES

There are notable racial and ethnic disparities associated with sleep-related deaths. Specifically, non-Hispanic Black and American Indian/Alaska Native infants are disproportionately affected, both having a five-fold increase in the odds of sleep-related suffocation.[3,5,7] These disparities often reflect socioeconomic inequities that may limit families' choices in sleep surfaces and environments.[3] It is important to remember that race and ethnicity have intersectionality with socioeconomic status, housing stability, employment status, and domestic violence, all of which are also documented risk factors for sleep-related infant deaths.[3,9,10] Recognizing and addressing these disparities during routine maternal and pediatric care is essential to design the most effective, sustainable interventions to reduce sleep-related infant mortality.

BARRIERS

Most caregivers are aware of the American Academy of Pediatrics (AAP) safe sleep recommendations.[11] However, prior studies have shown that knowledge of the safe sleep guidelines does not always correlate with adherence to them.[11-13] For example, one study found that even though 85% of parents believed that the back was the safest sleeping position, only 69% had their infant sleep on their back.[11] Another study found that parents made "deliberate decisions to violate recommendations," especially bedsharing.[13] Previously cited reasons for the discrepancy between knowledge and practice include concerns about infant comfort, convenience, and parent-infant bonding.[13] Parents' willingness to deviate from recommended practices may also be related to their perceived immunity to Sudden Unexpected Infant Death (SUID), as has been found in prior studies.[10,14]

SAFE SLEEP RECOMMENDATIONS

Among the strongest safe sleep recommendations in the updated 2022 AAP guidelines are the following: (a) place the infant in the supine position (i.e., on their back), (b) use a firm, flat, non-inclined sleep surface, (c) keep soft objects (such as blankets, pillows, stuffed toys, and bumper pads) away from the infant's sleep area, and (d) room share without surface sharing. Instead of using blankets to keep infants warm, infant sleep clothing and/or non-weighted wearable blankets are recommended. Additional recommendations encourage breastfeeding, pacifier use, and routine immunizations and discourage smoke and nicotine exposure, as well as parental substance use.[3]

Local and national initiatives led by the Centers for Disease Control, the National Institute of Child Health and Development, HRSA Maternal and Child Health Bureau, and the Consumer Product Safety Council support research, education, and strategies to prevent infant sleep-related deaths. Programs providing no cost or low-cost safe sleep surfaces and education to families directly addresses disparities in access to safe sleep surfaces are available across the country including Rhode Island. [22,23]

TIPS FOR PEDIATRIC PROVIDERS

According to the 2022 AAP recommendations, it is essential for healthcare providers to "endorse and model safe infant sleep guidelines."[3] Parents consider healthcare providers to be trusted sources of information.[14-17] Studies have shown that parents are likely to model practices their child's healthcare provider engages in, whether or not it is consistent with the AAP guidelines.[10,18] In fact, "seeing or hearing of a healthcare professional not following the AAP recommendations [has been shown to send] a clear message to mothers that these recommendations were unimportant."[10] Healthcare providers therefore play an integral role in reducing sleep-related infant mortality.

Accompanying these recommendations, the AAP has developed the Sudden Unexpected Infant Death (SUID) Prevention Program. This includes evidence-based counseling and educational resources for infant caregivers and providers. Its goal is to reduce disparities in SUID and decrease the overall SUID rates.[19] In the most recent "Safe Sleep Initiatives Newsletter," various tips for providers were emphasized including (a) applying an equity lens to safe sleep efforts, (b) forming multidisciplinary, diverse partnerships between physicians, other healthcare workers, and parents, and (c) engaging in frequent community outreach and education.[19-21]

Overall, healthcare providers must work collaboratively with families to explain and promote the AAP guidelines, model safe practices, and have thoughtful conversations with caregivers about the challenges they are experiencing in relation to infant sleep. Asking about what barriers they may be facing and normalizing that infant sleep is challenging can lessen parents' fears and allow for more honest, productive conversations. These conversations must always be nonjudgmental, especially when discussing breastfeeding and surface sharing, and focus on risk reduction. Finally, pediatric providers must communicate that they have the same goals as caregivers – to make sure the infant is healthy and safe. Aligning themselves on the same team as the parents helps break down the communication barriers and establish trust.

CONCLUSIONS

Infants continue to die from unsafe sleep environments. These deaths can largely be prevented by encouraging caregivers to follow the AAP guidelines and helping them overcome barriers. Pediatric providers must work collaboratively with families to reduce ASSB and other causes of sleep-related infant mortality.

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