



SUDDEN INFANT DEATH SYNDROME (SIDS)

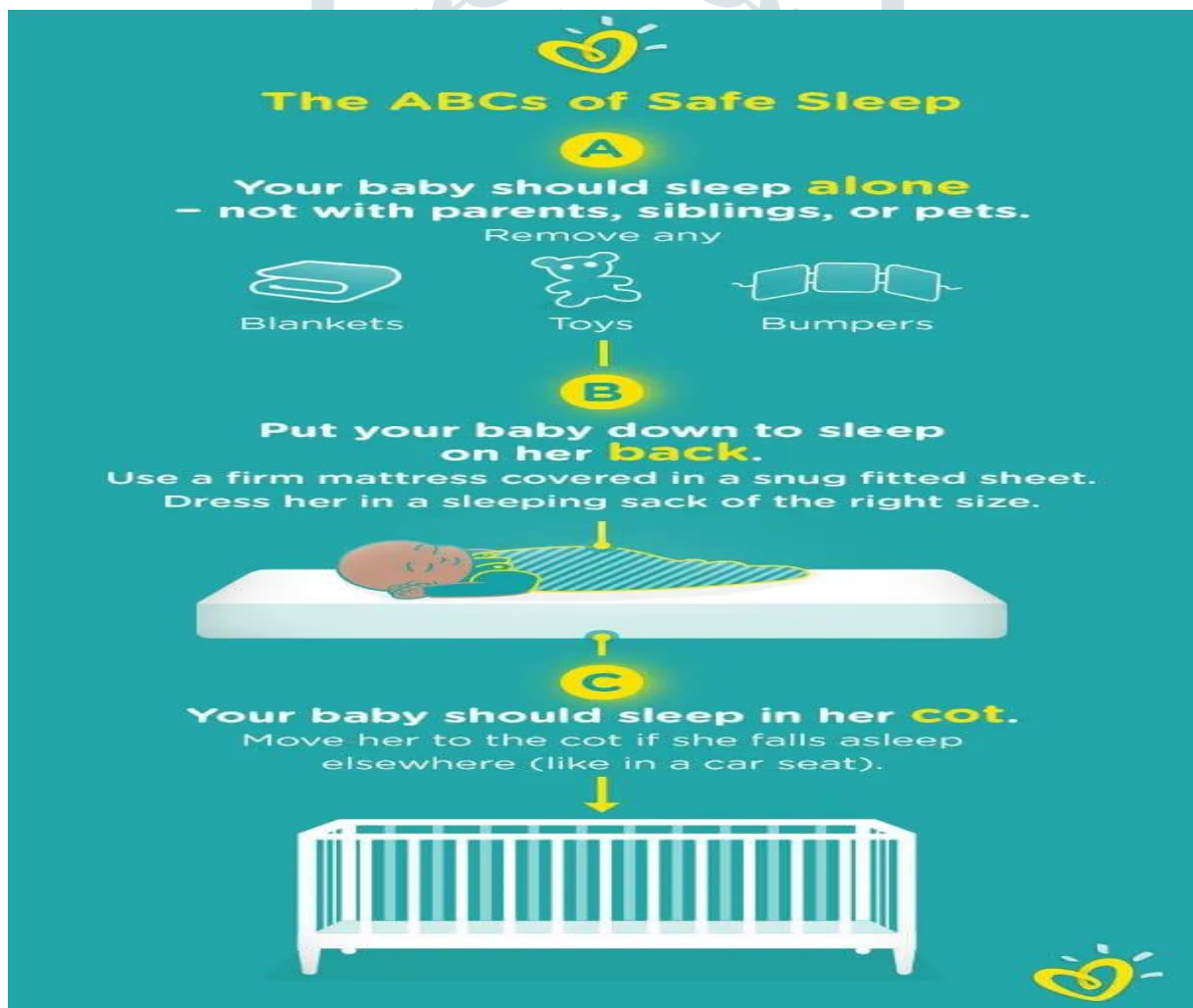
P.Ujwala rama Chandra, S.Jaya Surya, P.Satya sri, R.Satya Madhuri, P.Akhila,
P.Vyshnavi, P.Sahithi.

Pydah college of pharmacy, Patavala Kakinada- Yanam road Kakinada, E.gdt, Andhra Pradesh.

Abstract: Sudden infant death syndrome (SIDS) is the unexpected and unexplained passing of a baby under 1 year old, often linked to sleep, earning it the colloquial term "crib death." Despite extensive research, the elusive nature of SIDS continues to make prevention challenging, making it the primary cause of mortality for infants aged 1 month to 1 year⁽¹⁾.

Key Words: Cot death, pacifier, SIDS, supine sleep, solitary sleep.

INTRODUCTION: It is commonly referred to as "cot death" or sudden infant death syndrome (SIDS), characterized by the abrupt, unexpected, and unexplained demise of a seemingly healthy baby. While the fundamental cause remains elusive⁽²⁾, it is believed to involve issues in the infant's brain regulating breathing and arousal during sleep.



The cause of SIDS, occurring in infants under one year old, is not definitively known. However, research analyzing SIDS cases has contributed to a better comprehension of potential contributing factors. A prevailing theory suggests that infants susceptible to SIDS possess an inherent vulnerability (unhealthy behaviors), and an external trigger (such as an

unsafe sleeping position or environment, maternal smoking, infection, or stress) occurs during a critical stage in brain or immune system development. Identifying these vulnerabilities in advance is currently impractical.

Contrary to misconceptions, there is no substantiated link between vaccines and SIDS. Extensive studies involving large cohorts of children have shown no increased risk of SIDS associated with childhood vaccinations. Reports of infants passing away shortly after vaccination are not indicative of causation, as the decline in SIDS cases by more than 50 percent since the mid-1980s has occurred alongside an increase in the number of administered vaccines⁽³⁾ during the same period. Several physical and sleep-related factors contribute to the risk of sudden infant death syndrome (SIDS):

➤ **Physical factors:**

- brain defects
- lower birth weight
- respiratory infections

➤ **Sleep factors:**

- sleeping on the stomach or side
- sleeping on a soft surface
- overheating
- sharing a bed



➤ **Risk factors:**

- sex: boys are more susceptible than girls to SIDS.
- Age: infants are at a higher risk at 2 months and during breathing transitions.
- Family history: if the first infant experiences SIDS, the second infant may also be at risk.
- Premature birth
- smoking is a risk factor for infants
- mother's health⁽⁴⁾



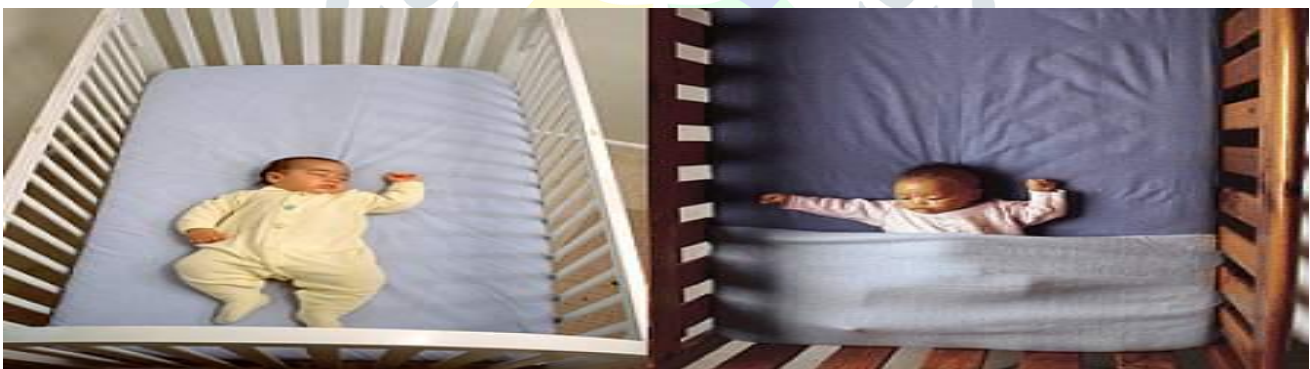
South Asian infant care practices have been observed to protect infants from key SIDS risks, such as smoking, alcohol consumption, sofa-sharing, and solitary sleep, potentially explaining the lower SIDS rate in this population⁽²⁵⁾.

While no definitive causes for SIDS have been identified, researchers are exploring new theories about the condition. As of March 14, 2023, despite declining rates, SIDS causes 38.4 deaths per 100,000 live births in the United States. In 2020, there were 1,389 SIDS-related deaths, 1,062 deaths of unknown causes, and 905 deaths due to accidental suffocation and strangulation in bed⁽⁵⁾.



Survival rates for SIDS remain low, with a 0% survival rate reported⁽²⁴⁾. Infants experiencing SIDS often exhibit rhythms such as asystole (87%), pulseless electrical activity (8%), and ventricular fibrillation (4%). New Zealand and the United States have the highest SIDS rates (more than 0.5/1000), while Japan and the Netherlands have the lowest rates (less than 0.2/1000)⁽⁶⁾.

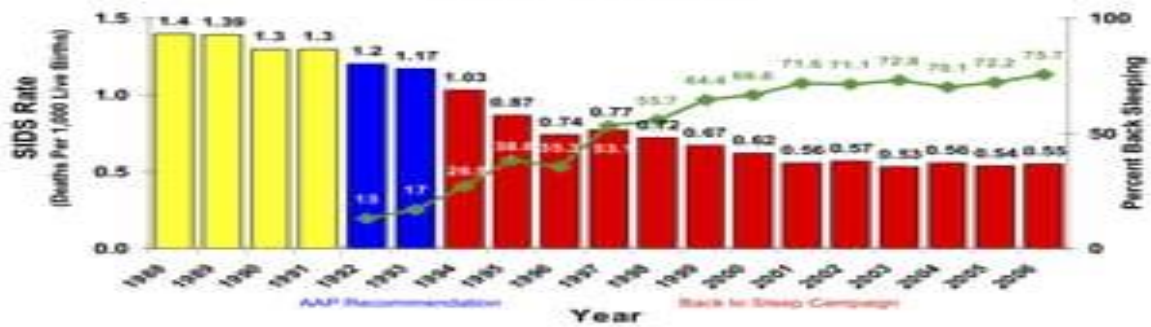
Preventive measures include avoiding overheating during sleep, placing infants on their backs to sleep on a firm, safety-approved mattress, keeping the crib free of toys and loose objects, and refraining from smoking around infants⁽⁷⁾. Over-bundling in cold weather may increase the risk of SIDS.



SIDS is most common at 2-4 months of age when the cardiorespiratory system is in rapid transition, rendering all infants in this age range susceptible to breathing control dysfunction⁽⁸⁾. Breastfed babies are at a lower risk for SIDS compared to those not fed breast milk. SIDS is more likely to affect infants aged 1 to 4 months, is more common in boys than girls, and most deaths occur during the fall, winter, and early spring months⁽²³⁾.

The safe to sleep campaign, formerly known as the back to sleep campaign, is an initiative supported by the US National Institute of Child Health and Human Development (NICHD) to encourage parents to have their infants sleep on their backs (supine position)⁽⁹⁾ to reduce the risk of sudden infant death syndrome (SIDS).

SIDS Rate and Back Sleeping (1988 – 2006)



SIDS Rate Source: CDC, National Center for Health Statistics.
Sleep Position Data: NICHD, National Infant Sleep Position Study.

Why pacifiers reduce SIDS: Pacifiers may reduce the risk of sudden infant death syndrome (SIDS) because babies using them tend not to sleep as deeply, making it easier for them to awaken if experiencing breathing difficulties⁽¹⁰⁾. Additionally, pacifiers help maintain the tongue forward in the mouth, preventing potential airway obstruction.



Can SIDS occur twice: The likelihood of a second child succumbing to SIDS is less than 1%⁽¹¹⁾ for most families. SIDS is unrelated to choking, vomiting, or suffocation, and it is not hereditary, although its occurrence has persisted across generations, with decreasing numbers⁽²²⁾.

SIDS in India: As of 2019, in India, there are approximately 32 infant deaths per 1000 live births⁽¹²⁾.

Is SIDS painful: SIDS victims often appear to pass away peacefully during sleep, with no awareness of the event. There is no indication of pain or suffering, as no cries or struggles have been reported⁽¹³⁾.



Room sharing to prevent SIDS: Sleeping in the same room as parents helps prevent SIDS by maintaining a level of background noise or stirrings that prevent overly deep sleep, thus enhancing baby safety⁽¹⁴⁾. Room sharing also facilitates breastfeeding, which is protective against SIDS.



Stomach sleeping risks: Stomach sleeping is considered dangerous as it may potentially block the airway, and it can increase the risk of re-breathing⁽²¹⁾.



Responsibility for SIDS: No one is held responsible for SIDS, as it is not attributable to parental actions or negligence⁽¹⁵⁾.

Highest risk factors for SIDS: Infants born to mothers who smoked, drank, or used drugs during pregnancy or post-birth are at higher risk. However, the chance of SIDS occurring is very low, affecting about 0.0001%⁽¹⁶⁾ of infants under one year old in India. Many infants who died of SIDS had recently experienced a cold.

Treatment and prevention: There is no specific treatment for SIDS. Investigation is required when an infant death is suspicious for SIDS. Parents should be comforted and educated about SIDS. If a genetic cause is suspected⁽¹⁷⁾, genetic counseling may be necessary.



Prevention efforts: While there is no foolproof method to prevent SIDS, adherence to safe sleep practices can significantly reduce the risk. Since the initiation of the American academy of pediatrics' safe sleep⁽¹⁸⁾ recommendations and the "back to sleep" campaign in 1992 and 1994, respectively, the SIDS rate has substantially decreased. In 2018, the SIDS death rate was 35 per 100,000 live births, compared to 103 per 100,000 live births in 1994⁽¹⁹⁾.

Does SIDS still exist? Nearly 2,300 babies are dying due to SIDS in US⁽²⁰⁾.



Reference:

1. Medically Reviewed by Renee Anushka Alli, MD on July 01, 2021 Written by Rachel Reiff Ellis WebMD.
2. Medically Reviewed by: Renee Anushka Alli, MD Mayo Clinic: "Sudden Infant Death Syndrome (SIDS): Definition," "Sudden Infant Death Syndrome (SIDS): Risk factors.
3. Published: 08 September 2021 Sudden infant death syndrome prevention Sophie Jullien BMC Pediatrics volume 21, Article number: 320 (2021) Cite this article BMC Pediatrics ISSN: 1471-2431

4. Blair PS, Sidebotham P, Pease A, Fleming PJ. Bed-sharing in the absence of hazardous circumstances: is there a risk of sudden infant death syndrome? An analysis from two case-control studies conducted in the UK. *PLoS One*. 2014;9(9):e107799. Article Google Scholar
5. Laughlin J, Luerssen TG, Dias MS. The committee on practice and ambulatory medicine section on neurological surgery. Prevention and Management of Positional Skull Deformities in infants. *Pediatrics*. 2011;128(6):1236–41.
6. Salm Ward TC, Balfour GM. Infant safe sleep interventions, 1990–2015: A review. *J Community Health*. 2016;41(1):180–96.
7. Psaila K, Foster J, Pulbrook N, Jeffery H. Infant pacifiers for reduction in risk of sudden infant death syndrome (Review). *Cochrane Database Syst Rev*. 2017;4:Art. No.: CD011147.
8. de Visme S, Chalumeau M, Lemieux K, Patural H, Harrewijn I, Briand-Huchet E, et al. National variations in recent trends of sudden unexpected infant death rate in Western Europe. *J Pediatr*. 2020;226:179–185.e4.
9. Willinger M, James LS, Catz C. Defining the sudden infant death syndrome (SIDS): deliberations of an expert panel convened by the National Institute of Child Health and Human Development. *Pediatr Pathol*. 1991;11(5):677–84.
10. Muhammad N, Sharif M, Amin J, Mehboob R, Gilani SA, Bibi N, et al. Neurochemical alterations in sudden unexplained perinatal deaths — a review. *Front Pediatr*. 2018;6:6.
11. A Book: Mayo Clinic Guide to Your Baby's First Years.
12. Moon RY, et al. Task Force on Sudden Infant Death Syndrome and the Committee on Fetus and Newborn. Sleep-related infant deaths: Updated 2022 recommendations for reducing infant deaths in the sleep environment. *Pediatrics*. 2022; doi:10.1542/peds.2022-057990.
13. About SIDS and safe infant sleep. National Institute of Child Health and Human Development. <https://safetosleep.nichd.nih.gov/safesleepbasics/about>. Accessed March 11, 2023.
14. Kliegman RM, et al., eds. Sudden infant death syndrome. In: *Nelson Textbook of Pediatrics*. 21st ed. Elsevier; 2020. <https://www.clinicalkey.com>. Accessed March 11, 2023.
15. AskMayoExpert. Breastfeeding. Mayo Clinic; 2022.
16. Neil K. Kaneshiro, MD, MHA, Clinical Professor of Pediatrics, University of Washington School of Medicine, Seattle, WA. Also reviewed by David Zieve, MD, MHA, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.
17. Das RR, Sankar MJ, Agarwal R. Bed sharing versus no bed sharing for healthy term neonates. *Cochrane Database Syst Rev*. 2021;4(4):CD012866. PMID: 33831222 pubmed.ncbi.nlm.nih.gov/33831222/.
18. Task Force On Sudden Infant Death Syndrome; Moon RY, Darnall RA, Feldman-Winter L, Goodstein MH, Hauck FR. SIDS and other sleep-related infant deaths: Updated 2016 Recommendations for a safe infant sleeping environment. *Pediatrics*. 2016;138(5). pii: e20162938. PMID: 27940804 pubmed.ncbi.nlm.nih.gov/27940804/.
19. Hauck FR, Carlin RF, Moon RY, Hunt CE. Sudden infant death syndrome. In: Kliegman RM, St. Geme JW, Blum NJ, Shah SS, Tasker RC, Wilson KM, eds. *Nelson Textbook of Pediatrics*. 21st ed. Philadelphia, PA: Elsevier; 2020:chap 402.
20. reviewed by a Cleveland Clinic medical professional on 05/22/2023. SIDS (Sudden Infant Death Syndrome)
21. Adams SM, Ward CE, Garcia KL. Sudden infant death syndrome (<https://pubmed.ncbi.nlm.nih.gov/26034855/>). *Am Fam Physician*. 2015 Jun 1;91(11):778-83. PMID: 26034855. Accessed 5/22/2023.
22. Centers for Disease Control and Prevention (U.S.). About SUID and SIDS (<https://www.cdc.gov/sids/about/index.htm>). Accessed 5/22/2023.
23. National Health Services (U.K.). Sudden infant death syndrome (<https://www.nhs.uk/conditions/sudden-infant-death-syndrome-sids/>) (SIDS). Accessed 5/22/2023.
24. American Academy of Family Physicians. Sudden Infant Death Syndrome (SIDS) (<https://familydoctor.org/condition/sudden-infant-death-syndrome-sids/>). Accessed 5/22/2023.
25. National Institutes of Health (U.S.) — Safe to Sleep. About SIDS and Safe Infant Sleep (<https://safetosleep.nichd.nih.gov/safesleepbasics/about>). Accessed 5/22/2023.