

Pillow Use In Infants and Toddlers

Red Nose recommends six key steps to reduce the risk of sudden unexpected deaths in infancy (SUDI) including SIDS and fatal sleeping accidents:

- Always **place baby on their back to sleep**, not on the tummy or side
- Keep baby's **face and head uncovered**
- Keep baby **smoke free before birth and after**
- Provide a **safe sleeping environment** night and day
- Sleep baby in **their own safe cot in the same room as their parent/adult caregiver** for the first 6-12 months
- **Breastfeed** baby

Red Nose does not recommend placing a pillow in the sleep environment of an infant or toddler less than two years of age.

Key points:

- Pillows are not necessary for infants and increase the risk of Sudden Unexpected Death in Infancy (SUDI) including SIDS and fatal sleep accidents
- Red Nose recommends delaying the introduction of pillows into the sleep environment until the child is over two years of age and is no longer sleeping in a cot or portable cot.
- If using a pillow to support an awake infant (e.g. during feeding, while sitting up, or during tummy time) ensure that the infant is observed by an adult caregiver and never left unsupervised.
- Whatever environment an infant may sleep in, intentionally and unintentionally, it should be prepared using strategies that consider infant safety and their stage of development.

Evidence supporting this recommendation

Multiple studies have shown that the use of pillows in an infant's sleep environment increases the risk Sudden and Unexpected Deaths in Infancy, including SIDS, and fatal sleeping accidents associated with suffocation or asphyxiation¹⁻⁶. For example, a review of 250 SUDI deaths attributed to suffocation in the US reveal that soft

bedding such a loose blanket or pillow was present in the infant's sleep environment in 190/250 (69%) of cases ¹. Similarly, a case-control study in the UK found that infants whose deaths were attributed to SUDI or SIDS were more likely to have used a pillow during their last sleep (21%) compared with both random and high-risk controls (3% respectively) ⁷. A recently published prospective case-controlled study identified that pillows were found in the sleep space in 69.3% of cases where infants had died as a result of SUDI, compared with 30.4% of the most recent sleep in the control infants ⁸. The authors reported an odds risk ratio of SUDI of 3.83 in situations where a pillow was in the infant sleep space, which increased to 6.55 when the pillow was placed under the infant. Finally, a 10-year review of over 1700 accidental infant deaths in the United States, pillows were the most common item found to be associated with accidental suffocation or strangulation (24.5% of all deaths); with prone positioning on top of a pillow the most common orientation reported in these deaths (46.6%) ². This data suggests that use of pillows in the infant's sleep space substantially increases the risk of SUDI.

In 2022, the Australian Competition and Consumer Commission (ACCC) released a consultation paper relating to infant sleep products and their regulation⁹. The ACCC analysed fatalities likely attributed to Infant Sleep Products and inclined surfaces between 2001 – June 2021 (excluding WA and NT where no data was available). They report that of 160 infant deaths in that period, 112 (70%) were attributed to infants being propped up on items, including pillows.

Why do pillows pose a risk for infants?

Infants who are placed in (or who roll into) a prone position are at risk of rebreathing if their face is in contact with a pillow or other soft surface. While healthy infants respond to hypoxia (low oxygen) and hypercapnia (high carbon dioxide levels) by rousing spontaneously and moving their head, this ability may be blunted in vulnerable infants.¹⁰ Some infants may not be capable of turning their head to either side while in the prone position, even when arousal due to hypoxia occurs ¹¹ meaning they are unable to effectively clear their airway. Infants who are positioned for sleep supine but inclined or “propped up” on a pillow may be at risk of rolling or slipping down the sleep surface, resulting in their upper airways becoming occluded and the infant being in a position they are unable to correct ¹². Airway occlusion may happen due to the pillow covering the mouth and nose of the infant, or due to the infant resting in the “chin to chest” position which obstructs the infant's compressible airway.

In older infants and toddlers, pillow use has also been associated anecdotally with potential for falls if the child attempts to climb out of the cot using the pillow as a foothold.

Why do parents and caregivers use pillows?

Research published in 2020 revealed that of more than 3300 Australian parents sampled, 10.2% were regularly using a pillow in their infant's sleep environment in

2017 and that 21.7% stated they had used a pillow in their infant's sleep environment at least once ¹³. In some cases, pillow use may represent misinterpretation of safe-sleep messaging. One study found that some mothers interpret a "firm sleep surface" to mean a taut surface, so believing that it could include pillows/blankets placed on the mattress providing a sheet was pulled tautly over this additional padding ¹⁴.

Parents, especially those living in vulnerable circumstances, may also use pillows to try to prevent their infant from rolling and falling from a shared sleep surface, inadvertently placing their infant at risk when they were attempting to keep their infant safe ¹⁵

Pillow use is more likely when infants are sharing a sleep surface with an adult caregiver (a practice also known as co-sleeping or bed-sharing). For example, one study of infant bedding use among 18,952 respondents found that items such as pillows, comforters or loose blankets were most prevalent among infants sleeping in adult beds (71.5%) and shared sleep surfaces (70.0%) ¹⁶. In shared sleep situations, overlay with parental bedding, including pillows, can lead to overheating and asphyxiation ¹⁷.

Finally, parents may use pillows in their infant's sleep environment due to concerns regarding non-synostotic or positional plagiocephaly (flat spots on the infant's head resulting from laying in one position for extended periods). A scoping review found that the majority of parents with concerns about plagiocephaly had purchased one or more pillows marketed as reducing flat head ¹⁸. While consistently sleeping the infant in the same position increases the risk for positional plagiocephaly, the majority of cases resolve naturally over a period of months, once the infant becomes more mobile ¹⁹. Frequent repositioning of the infant while they are awake to relieve pressure on the back of the head, providing supervised tummy play time and alternating head positions when the infant is put down to sleep can slow and help to reverse head flattening if it does occur ¹⁹.

If any health practitioner recommends the use of a pillow during unobserved sleep, it is recommended that the advice be given in writing. While the risk of a flattened head may appear greater to parents than the risk of a sleep related infant death, it is essential that the measures used to alleviate one problem do not increase the risk of another ¹⁸

Summary Statement

Pillows should be avoided in the sleep environment of infants and children under two years of age because they are not necessary and they are associated with increased risk of SUDI.

1. Erck Lambert, A. B., Parks, S. E., Cottengim, C., Faulkner, M., Hauck, F. R., & Shapiro-Mendoza, C. K. (2019). Sleep-related infant suffocation deaths attributable to soft bedding, overlay, and wedging. *Pediatrics*, *143*(5). <https://doi.org/10.1542/peds.2018-3408>
2. Gaw, C. E., Chounthirath, T., Midgett, J., Quinlan, K., & Smith, G. A. (2017). Types of Objects in the Sleep Environment Associated With Infant Suffocation and Strangulation. *Academic Pediatrics*, *17*(8), 893–901. <https://doi.org/10.1016/j.acap.2017.07.002>
3. Scheers, N. J., Dayton, ; C Mitchell, & Kemp, J. S. (1998). Sudden Infant Death With External Airways Covered Case-Comparison Study of 206 Deaths in the United States. *Arch Pediatr Adolesc Med*, *152*, 540–547. <https://jamanetwork.com/>
4. Thompson, J. M. D., Thach, B. T., Becroft, D. M. O., & Mitchell, E. A. (2006). Sudden infant death syndrome: Risk factors for infants found face down differ from other SIDS cases. *The Journal of Pediatrics*, *149*(5), 630-633.e1. <https://doi.org/10.1016/j.jpeds.2006.07.041>
5. Blair, P. S., Sidebotham, P., Evason-Coombe, C., Edmonds, M., Heckstall-Smith, E. M. A., & Fleming, P. (2009). Hazardous cosleeping environments and risk factors amenable to change: case-control study of SIDS in south west England. *BMJ*, *339*(7726), 911. <https://doi.org/10.1136/BMJ.B3666>
6. Byard, R. W., Beal, S., & Boume, A. J. (1994). Potentially dangerous sleeping environments and accidental asphyxia in infancy and early childhood. *Archives of Disease in Childhood*, *71*, 497–500.
7. Blair, P. S., Mitchell, E. A., Heckstall-Smith, E. M. A., & Fleming, P. J. (2008). Head covering - a major modifiable risk factor for sudden infant death syndrome: a systematic review. *Archives of Disease in Childhood*, *93*(9), 778–783. <https://doi.org/10.1136/adc.2007.136366>
8. MacFarlane, M. E., Thompson, J. M. D., Wilson, J., Lawton, B., Taylor, B., Elder, D. E., Baker, N., McDonald, G. K., Zuccollo, J., Schlaud, M., Fleming, P., & Mitchell, E. A. (2022). Infant Sleep Hazards and the Risk of Sudden Unexpected Death in Infancy. *Journal of Pediatrics*, *245*, 56–64. <https://doi.org/10.1016/j.jpeds.2022.01.044>
9. Australian Competition and Consumer Commission. (2022). *Consultation Paper: Infant Sleep Products*. <https://consultation.accc.gov.au/accc/infant-inclined-consultation-regulation-impact/>
10. Ramirez, J.-M., Ramirez, S. C., & Anderson, T. M. (2018). Sudden Infant Death Syndrome, Sleep, and the Physiology and Pathophysiology of the Respiratory Network. *SIDS Sudden Infant and Early Childhood Death: The Past, the Present and the Future*, 615–640. <https://doi.org/10.20851/sids-27>
11. Paluszynska, D. A., Harris, K. A., & Thach, B. T. (2004). Influence of sleep position experience on ability of prone-sleeping infants to escape from asphyxiating microenvironments by changing head position. *Pediatrics*, *114*(6), 1634–1639. <https://doi.org/10.1542/peds.2004-0754>
12. BYARD, R., & BEAL, S. (1997). V-shaped pillows and unsafe infant sleeping. *Journal of Paediatrics and Child Health*, *33*(2), 171–173. <https://doi.org/10.1111/j.1440-1754.1997.tb01024.x>
13. Cole, R., Young, J., Kearney, L., & Thompson, J. M. D. (2020). Infant care practices and parent uptake of safe sleep messages: a cross-sectional survey in Queensland, Australia. *BMC Pediatrics*, *20*(1), 27. <https://doi.org/10.1186/s12887-020-1917-5>

14. Ajao, T. I., Oden, R. P., Joyner, B. L., & Moon, R. Y. (2011). Decisions of black parents about infant bedding and sleep surfaces: A qualitative study. *Pediatrics*, *128*(3), 494–502. <https://doi.org/10.1542/peds.2011-0072>
15. Pease, A., Garstang, J. J., Ellis, C., Watson, D., Ingram, J., Cabral, C., Blair, P. S., & Fleming, P. J. (2021). Decision-making for the infant sleep environment among families with children considered to be at risk of sudden unexpected death in infancy: A systematic review and qualitative metasynthesis. *BMJ Paediatrics Open*, *5*(1). <https://doi.org/10.1136/bmjpo-2020-000983>
16. Shapiro-Mendoza, C. K., Colson, E. R., Willinger, M., Rybin, D. v, Camperlengo, L., & Corwin, M. J. (2015). Trends in Infant Bedding Use: National Infant Sleep Position Study, 1993-2010. *Pediatrics*, *135*(1).
17. Carlin, R. F., & Moon, R. Y. (2017). Risk Factors, Protective Factors, and Current Recommendations to Reduce Sudden Infant Death Syndrome. *JAMA Pediatrics*, *171*(2), 175. <https://doi.org/10.1001/jamapediatrics.2016.3345>
18. Martiniuk, A., Jacob, J., Faruqui, N., & Yu, W. (2016). Positional plagiocephaly reduces parental adherence to SIDS Guidelines and inundates the health system. *Child: Care, Health and Development*, *42*(6), 941–950. <https://doi.org/10.1111/cch.12386>
19. Jung, B. K., & Yun, I. S. (2020). Diagnosis and treatment of positional plagiocephaly. In *Archives of Craniofacial Surgery* (Vol. 21, Issue 2, pp. 80–86). Korean Cleft Palate-Craniofacial Association. <https://doi.org/10.7181/acfs.2020.00059>



Red Nose Safe Sleep & Safer Pregnancy Advice Hub

1300 998 698

(during business hours)

education@rednose.org.au

rednose.org.au/advice

© Red Nose Limited 2021

Except as permitted by the copyright law applicable to you, you may not reproduce, copy or communicate any of the content from this document, without the express and written permission of the copyright owner, Red Nose Limited

**red
nose**
saving little lives