

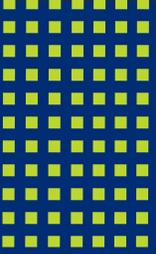


100 Years of Public Health Excellence
**HONORING OUR PAST
SHAPING OUR FUTURE**



HEALTH MATTERS BRIEF

Sleep-Related Infant Deaths in Riverside County, CA



INTRODUCTION

Sudden unexpected infant death syndrome (SUID) refers to the death of a child before the age of one due to an unexplained cause of death that occurs during sleep or in the child's sleep environment (CDC, 2024a). The SUID category includes sleep-related infant deaths classified under the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10)*, such as sudden infant death syndrome ((SIDS)-R95), other ill-defined and unspecified causes of infant mortality (R99), and accidental suffocation and strangulation in bed (W75). According to the most recent CDC data, approximately 3,700 sleep-related infant deaths occurred in the United States in 2022 (CDC, 2024b). From these deaths, 41% were considered SIDS, 31% were deaths with an unknown cause, and 28% were from accidental suffocation in a sleeping environment (CDC, 2024d).

Sleep-related infant death rates have declined since the 1990s, following safer sleep recommendations from the American Academy of Pediatrics (AAP) and other agencies which promoted placing babies on their backs to sleep (AAP, 2025). However, SUID continues to be a critical public health concern in the United States, disproportionately affecting some racial and ethnic groups more than others (AAP, 2025). Death rates for SUID are more than double for Black/African American and Native American/Alaska Native infants compared to White infants. Increased safe sleep awareness for parents of infants remains a public health priority to prevent future sleep-related infant deaths.

This brief focuses on sleep-related infant death statistics for Riverside County residents from 2013-2024. In this report, the term "sleep-related infant deaths" refers to all deaths associated with SUID that occurred during an infant's sleep or in their sleep environment. Provisional data for 2025 are presented to highlight the recent notable increase in infant deaths.

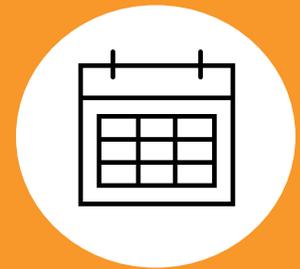
RIVERSIDE COUNTY KEY FINDINGS



Between 2013-2024, premature infants in Riverside County had a **3.4x HIGHER RISK** of dying from sleep-related causes than full-term infants



Black / African American, Multiracial, and Native Hawaiian / Pacific Islander infants had a **HIGHER RISK** of sleep-related death between 2013-2024



Preliminary 2025 data indicate a **NOTABLE INCREASE** in sleep-related deaths compared to previous years





Sleep-Related Infant Deaths

Between 2013 and 2024, a total of 147 sleep-related infant deaths were reported among Riverside County residents (Figure 1). When comparing the 3-year average rates of SUID between the County and the State, the data showed that the County’s rate remained lower overall, except during the period from 2016-2018. During this time, the County’s rate increased from 35.0 to 54.7 SUIDs per 100,000 live births, which surpassed the State’s rate of 48.8 (Figure 2). Although the rate of sleep-related infant deaths declined between 2022 and 2024 compared to the previous 3-year period, provisional data indicates an increase in the total number of SUID in 2025 (Figure 3, found in page 5). This trend will be discussed in more detail later in the report.

Figure 1. Sleep-related infant death counts in Riverside County, 2013-2024¹

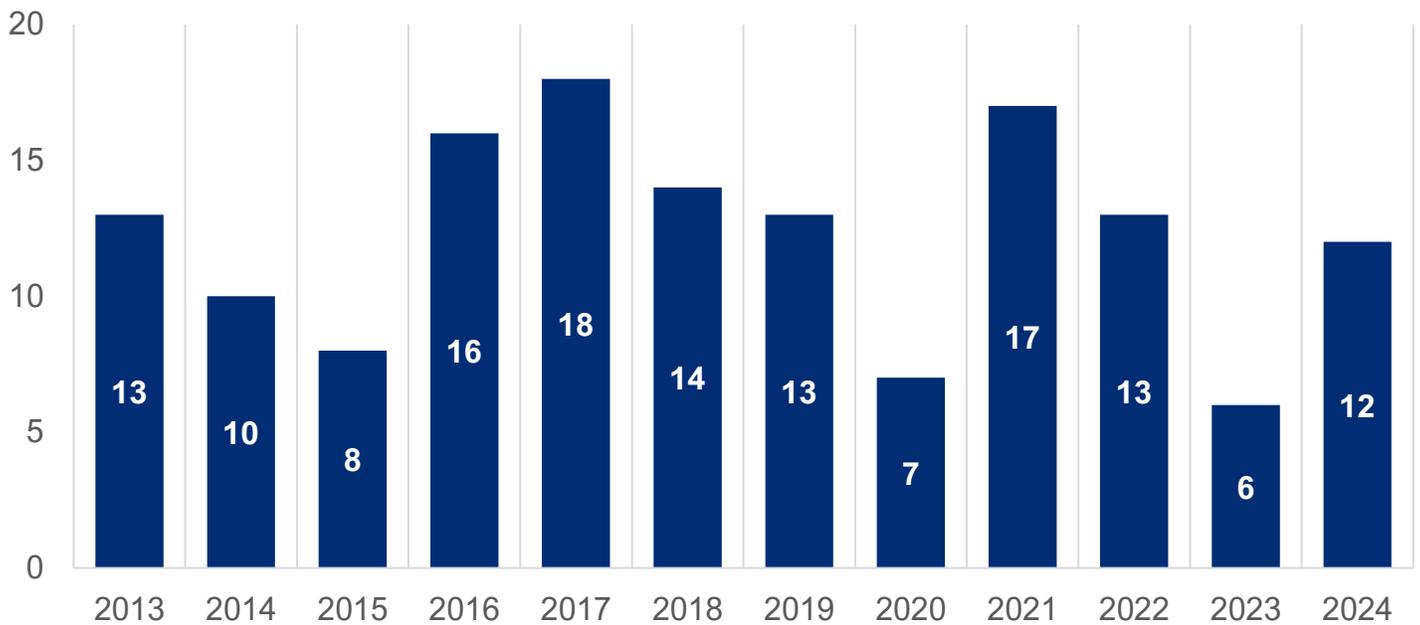
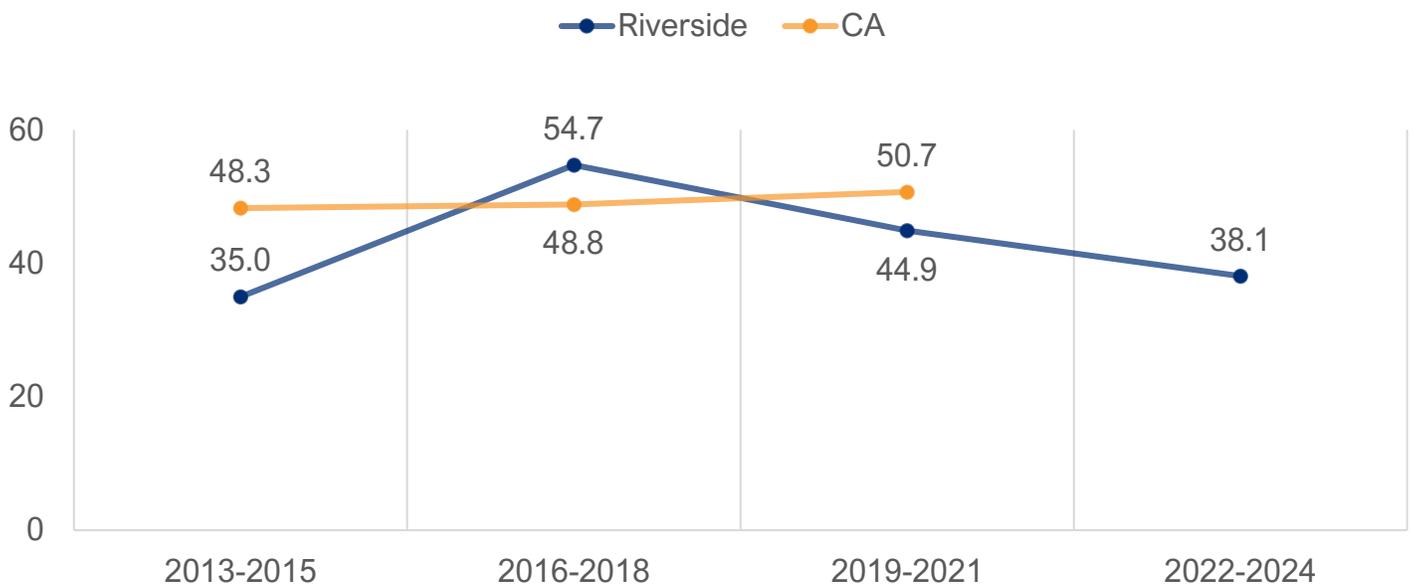


Figure 2. 3-year sleep-related infant death rate per 100,000 live births comparison between Riverside County and California, 2013-2024^{1,2,3}



Sleep-Related Infant Deaths

Between 2013 and 2024, 68.0% of sleep-related infant deaths were classified with an ICD-10 code for SIDS (Table 1). Previous County data indicated that the prevalence of SIDS was higher from 2016-2018 with 35 reported cases, followed by 27 cases from 2019-2021 and 21 cases from 2022-2024 (Table 1). While SUID include all three groupings shown below, SIDS remains one of the leading causes of death among infants under the age of one in the United States (Moon et al., 2016). Among sleep-related infant deaths in Riverside County, SIDS is the most common cause for infants under one year of age.

Table 1. Sleep-related infant deaths by ICD-10 groupings in Riverside County, 2013-2024^{2,3}

Year	SIDS (R95)	III - Defined and Unknown Cause of Mortality (R99)	Accidental Strangulation/ Suffocation in Bed (W75)	Total
2013-2015	17 (54.8%)	12 (38.7%)	2 (6.5%)	31
2016-2018	35 (72.9%)	10 (20.8%)	3 (6.3%)	48
2019-2021	27 (73.0%)	6 (16.2%)	4 (10.8%)	37
2022-2024	21 (67.7%)	9 (29.0%)	1 (3.2%)	31
Total	100 (68.0%)	37 (25.2%)	10 (6.8%)	147

Risk Factors Associated with Sleep-Related Infant Deaths

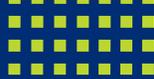
There are several risk factors associated with sleep-related infant deaths. Research indicates that infants born prematurely (before 37 weeks of gestation) are at a higher risk of a sleep-related death (Moon et al., 2016). In Riverside County, data presented in Table 2 illustrates this disparity; premature and extremely premature infants face approximately 3.4 times the risk of sleep-related infant death compared to full-term infants (Table 2).

Table 2. Relative risk of sleep-related infant deaths by gestational period in Riverside County, 2013-2024^{2,3}

Gestational Period	Sleep-Related Infant Deaths	Live Births	Relative Risk (RR) vs Full Term (37 Weeks or Later)
Full Term (≥37 gestational weeks)	111	310,402	REF
Premature (<37 gestational weeks)	36	29,715	3.4* [2.3-4.9]
Extremely Premature (<32 gestational weeks)	6	4,953	3.4* [1.5-7.7]

Note: * (one star) means the result is statistically significant ($p < 0.05$).

“REF” indicates the reference group that was used as a baseline to compare all other groups against to see how they differ.



Risk Factors Associated with Sleep-Related Infant Deaths

Published literature indicates varying risk levels for sleep-related infant deaths across racial and ethnic groups, with notably higher risk observed among American Indian/Alaska Native, Black/African American, and Native Hawaiian/Pacific Islander infants compared to Asian and White infants (Wolf et al., 2025). Data in Table 3 compare the risk of sleep-related infant deaths among racial and ethnic groups in Riverside County to that of the White population. Native Hawaiian/Pacific Islander infants face a significantly higher risk of sleep-related infant death (RR=9.0, 95% CI 2.7-29.6) compared to White infants, followed by multiracial infants (RR= 4.1, 95% CI 2.3-7.4), and Black/ African American infants (RR= 2.6, 95% CI 1.4-4.9) (Table 3). Further, the risk is exacerbated among birthing parents who do not receive adequate (or any) prenatal care or who smoke or use illicit substances during pregnancy (U.S. Department of Health and Human Services, n.d.). Table 4 from Riverside County reveals that the risk of sleep-related infant death is over four and a half times greater for infants whose birthing parent smoked compared to those whose birthing parent did not.

Additional risk factors include the infant’s sleep position (sleeping on their side), sleep location (such as a shared bed, couch, or car-seat), feeding method (not being breastfed), and overall health status (including illnesses like the flu), all of which can increase the likelihood of sleep-related infant deaths (U.S. Department of Health and Human Services, n.d.). Recent studies also show that approximately 60% of sleep-related infant deaths involve the risk factor of sleep-surface sharing, such as infants sleeping in an adult bed with caregivers or bed-sharing with pets or other children (Erck Lambert et al., 2024). This practice significantly increases the risk of sleep-related infant deaths and should be a critical focus in family education on safe sleep practices (Erck Lambert et al., 2024).

Table 3. Relative risk of sleep-related infant death by race/ ethnicity, 2013-2024

Race/Ethnicity	Sleep-Related Infant Deaths	Live Births	Relative Risk vs Hispanic/Latino Infants
White	26	78,702	REF
Asian	3	21,919	0.4 [0.1-1.4]
Black / African American	15	17,427	2.6* [1.4-4.9]
Hispanic / Latino	80	195,837	1.2 [0.8-1.9]
Multirace	19	14,132	4.1* [2.3-7.4]
Native Hawaiian / Pacific Islander	3	1,012	9.0* [2.7-29.6]

Table 4. Relative risk of sleep-related infant deaths by smoking status during pregnancy, 2013-2024

Smoked Cigarettes During Pregnancy	Sleep-Related Infant Deaths	Live Births	Relative Risk vs No Smoking
No	138	335351	REF
Yes	9	4766	4.6* [2.3-9.0]

Note: * (one star) means the result is statistically significant (p < 0.05).

“REF” indicates the reference group that was used as a baseline to compare all other groups against to see how they differ.





Provisional 2025 Data

Sleep-related infant deaths in Riverside County have risen sharply in the past year. As of December 2025, 26 deaths have been recorded, surpassing all previous annual totals since 2013 (Figure 3). So far in 2025, 38.5% of these deaths have been attributed to SIDS, while 53.8% remain classified under unknown cause of death, and 7.7% have been categorized as accidental strangulation or suffocation in bed (Table 5). Although the data for 2025 is provisional, the significant increase in cases this year highlights the ongoing public health concern regarding sleep-related infant deaths.

Figure 3. Number of sleep-related infant deaths in Riverside County by year, 2013-2025^{1,5}

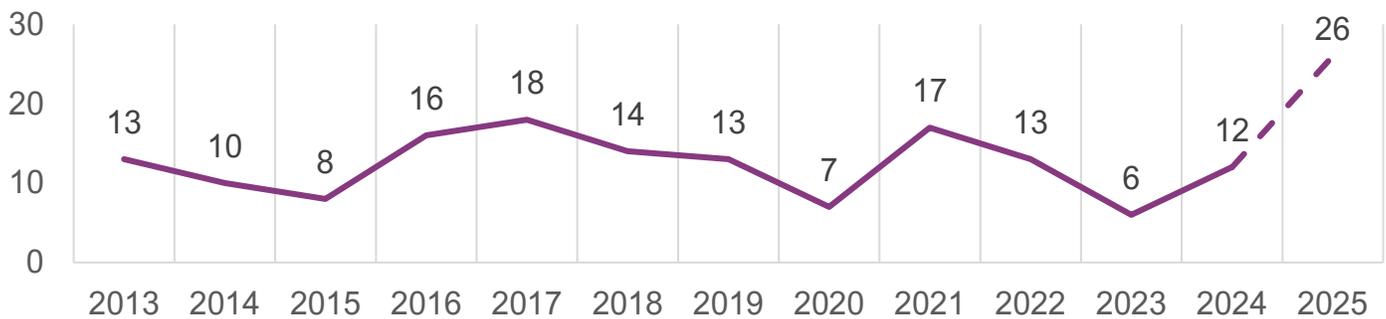


Table 5. Sleep-related infant deaths by ICD-10 groupings in Riverside County, 2025^{1,5}

Year	SIDS (R95)	Ill - defined and Unknown Cause of Mortality (R99)	Accidental Strangulation/ Suffocation in Bed (W75)	Total
2025	10 (38.5%)	14 (53.8%)	2 (7.7%)	26

Provisional counts of sleep-related infant deaths in 2025 surpass all previous annual totals since 2013

Conclusion

Sleep-related infant deaths also known as SUID, continues to impact our communities as reflected in recent County trends. Among the categories within SUID, SIDS remains the leading cause of sleep-related deaths for infants under the age of one. County data had similar findings to published literature showing that premature infants are at higher risk of dying from sleep-related cause compared to full-term infants. In addition, consistent with known race/ethnicity disparities, County data also showed that Black/African American and Native Hawaiian/Pacific Islander infants had higher risk of dying from sleep-related causes compared to Asian and White infants. The data further indicated that birthing parents who smoked during pregnancy have a higher risk of their infant passing away from SUID compared to non-smoking birthing parents. Provisional 2025 data show a concerning rise in sleep-related infant deaths in the County. To reduce these risks, it is essential to provide respectful, inclusive communication and education about prevention strategies and community resources. While multiple risk factors are associated with sleep related infant deaths, following safe sleep practices can significantly reduce the risk contributing to these tragedies.



✔ DO's



- ✔ Place infants **on their backs** for naps and bedtime until they are 1 year old



- ✔ Place infant's crib or bassinet in the same room as parents for at least the first 6 months of life (**room sharing**)



- ✔ Place infant on **a flat, firm mattress** covered with a **fitted sheet** for naps and bedtime



- ✔ Breastfeed **if possible**

✘ DON'Ts



- ✘ Infants should **not be placed on their side** to sleep



- ✘ Infants should **not share a bed** with adults, pets, or other children, and should not sleep on **couches, armchairs, strollers, car seats, or other sitting devices**



- ✘ Infants should **not sleep with loose blankets, pillows, toys, or other soft items**



- ✘ If you choose to breastfeed, pacifier should **not be introduced** until breastfeeding is well established

DATA AND METHODOLOGY

1. The data on sleep-related infant deaths and live births presented in this brief were obtained from the California Integrated Vital Records System (Cal-IVRS). Records spanning from 2013 and 2025 were selected for observation based on the following criteria:
 - The record identified the individual as a Riverside County resident.
 - The infant's age at the time of death was under 1 year.
 - The record included at least one of the following ICD-10 diagnosis codes associated with sleep-related infant deaths as final cause of death:
 - R99 (unknown cause of death)
 - R95 (SIDS)
 - W75 (accidental suffocation and strangulation in bed)
2. Infant death records were linked to live birth records to provide information on birthing parent's age and race/ethnicity.
3. Records for 2025 are reported as estimates because the data is still provisional and may be revised and updated before being finalized.
4. Observations lacking a resident address, containing an unknown address, or outside of Riverside County were excluded from this brief.

NOTES

1. Sudden unexpected infant deaths include cases of sudden infant death syndrome (SIDS-R95), other ill-defined and unspecified causes of infant mortality (R99), and accidental suffocation and strangulation in bed (W75).
2. Data on sleep-related infant deaths in the State was obtained from the CDPH infant mortality dashboard and used for data transformation and analysis to capture the 3-year average rate of sleep-related infant deaths.
3. Data to calculate the 3-year average rate for the years 2022-2024 for the State was not available.
4. Data with fewer than five infant deaths were suppressed and reported as "<5" instead of the exact number count to protect confidentiality.
5. Infant mortality and birth data for 2025 are provisional and may be revised and updated once finalized.

REFERENCES

- American Academy of Pediatrics. (2025, July 7). *Safe sleep*. <https://www.aap.org/en/patient-care/safe-sleep/>
- California Department of Public Health, Center for Family Health, Maternal, Child and Adolescent Health Division, Infant Mortality Dashboard, Last Modified July 2025. go.cdph.ca.gov/Infant-Mortality-Dashboard
- California Department of Public Health (CDPH), Center for Health Statistics and Informatics (CHSI). (2013- 2025). California Integrated Vital Records System (Cal-IVRS). California Comprehensive Birth File (CCBF). [Data set]. Extracted Oct. 24, 2025.
- California Department of Public Health (CDPH), Center for Health Statistics and Informatics (CHSI). (2015-2025). California Integrated Vital Records System (Cal-IVRS). California Comprehensive Death File (CCDF). [Data set]. Extracted Jan. 22, 2026

REFERENCES

- Centers for Disease Control and Prevention. (2024a). *About SUID and SIDS*. Sudden Unexpected Infant Death and Sudden Infant Death Syndrome. <https://www.cdc.gov/sudden-infant-death/about/index.html>.
- Centers for Disease Control and Prevention. (2024b). *Data and Statistics for SUID and SIDS*. Sudden Unexpected Infant Death and Sudden Infant Death Syndrome. <https://www.cdc.gov/sudden-infant-death/data-research/data/index.html>.
- Centers for Disease Control and Prevention. (2024c). *Providing Care for Babies to Sleep Safely*. Sudden Unexpected Infant Death and Sudden Infant Death Syndrome. <https://www.cdc.gov/sudden-infant-death/sleep-safely/index.html>
- Centers for Disease Control and Prevention. (2024d). *SUID by Cause of Death, 2022*. Sudden Unexpected Infant Death and Sudden Infant Death Syndrome. <https://www.cdc.gov/sudden-infant-death/data-research/data/suids-deaths-by-cause.html>.
- Erck Lambert, A. B., Cottengim, C., Faulkner, M., & Hauck, F. R. (2024). Characteristics of sudden unexpected infant deaths on shared and nonshared sleep surfaces. *Pediatrics*, 153(3), e2023061984. <https://doi.org/10.1542/peds.2023-061984>
- Moon, R. Y., Darnall, R. A., Feldman-Winter, L., Goodstein, M. A., Hauck, F. R., ... AAP Task Force on SIDS. (2016). *SIDS and other sleep-related infant deaths: Updated 2016 recommendations for a safe infant sleeping environment*. *Pediatrics*, 138(5), e20162938.
- Moon, R. Y., Abu Jawdeh, E. G., Carlin, R. F., Colvin, J., Goodstein, M. H., Hand, I., Hauck, F. R., & Hwang, S. S. (2022). *Sleep-Related Infant Deaths: Updated 2022 recommendations for reducing infant deaths in the sleep environment*. *Pediatrics*, 150(1), e2022057990. <https://doi.org/10.1542/peds.2022-057990>.
- U.S. Department of Health and Human Services, Eunice Kennedy Shriver National Institute of Child Health and Human Development. (n.d.). *What are the known risk factors? Safe to Sleep®*. Retrieved November 21, 2025, from <https://safetosleep.nichd.nih.gov/about/risk-factors>
- Wolf, E. R., Rivara, F. P., Sen, A., & Woolf, S. H. (2025). Sudden unexpected infant death and disparities in infant mortality in the US, 1999–2022. *JAMA Pediatrics*, 179(3), 344–346. <https://doi.org/10.1001/jamapediatrics.2024.6200>

SUGGESTED CITATION

Martinez Luna, D., Patton, T., Escobar, S. (2026). Sleep-Related Infant Deaths (2018-2025). Riverside University Health System-Public Health, Epidemiology Program Evaluation.

ACKNOWLEDGEMENTS

Aaron Gardner, Deja Castro, and Wendy Hetherington contributed to this brief. Their assistance is greatly appreciated.