

New Data on Sudden Unexpected Infant Deaths by Cause and Race and Ethnicity: 2015–2022

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INTRODUCTION

The impacts of the COVID-19 pandemic on sudden unexpected infant deaths (SUIDs) are poorly understood. Monitoring SUID trends may identify opportunities to reduce infant deaths. An analysis of US SUID trends between 2015 and 2020 showed the SUID rate increased in 2020 among non-Hispanic Black (NHB) infants but not among other racial and ethnic infant groups.¹ We build on this previous study¹ by adding new years of mortality data (2021–2022) to monitor changes in SUID rates in the context of the COVID-19 pandemic and changing SUID reporting practices.

METHODS

We analyzed data from the 2015 to 2022 US period-linked birth and infant death files to calculate yearly SUID rates overall, by cause, and by single race and ethnicity; 2022 data are the most recent available.² Methods for calculating SUID rates and categorizing race and ethnicity mirrored previously described methods.¹ SUID included SIDS (*International Classification of Diseases, Tenth Revision [ICD-10]*, R95), unknown cause (*ICD-10*, R99), and accidental suffocation and strangulation in bed (ASSB) (*ICD-10*, W75).³ We used joinpoint regression (weighted Bayesian Information Criterion model) to estimate average annual percentage change (AAPC) and identify temporal changes.⁴ We calculated APC (annual percentage change) to show the magnitude of the trend for each time segment when a joinpoint was identified. *P* values <.05 were considered statistically significant. The unavailability of single race data during 2015 to 2016 precluded inclusion of those years in the joinpoint analysis to determine changes for race and ethnicity. Data were analyzed using SAS version 9.4 (SAS Institute, Inc) and Joinpoint Regression Program (version 5.2.0, National Cancer Institute). This analysis used deidentified public-use data and did not require institutional review board approval.

RESULTS

SUID Mortality

SUID rates increased from 92.2 in 2015 to 100.7 per 100 000 live births in 2022 (Figure 1). SUID rates were stable from 2015 to 2019 (APC, −0.6; *P* = .13) followed by an upward trend from 2019 to 2022 (APC, 4.0; *P* < .001). Among SUIDs, SIDS was most frequently reported, followed by unknown cause and ASSB for all years. The SIDS trend also changed significantly after 2019, with a downward trend (APC, −3.4; *P* = .002) from 2015 to 2019 and an upward trend (APC, 7.7; *P* < .001) from 2019 to 2022. ASSB rates increased significantly during 2015 to 2022 (AAPC, 3.2; *P* < .001).

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Dr Shapiro-Mendoza conceptualized and designed the study, conducted the initial analyses, drafted the initial manuscript, and reviewed and revised the manuscript. Dr Parks, Ms Geary, and Ms Erck Lambert conducted the analyses, assisted in interpreting study findings, and reviewed and revised the manuscript for important intellectual content. Ms Cottengim and Dr Barfield assisted in interpreting study findings and critically reviewed and revised the manuscript for important intellectual content. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work. All data used in this article are publicly available through US government sources. The Period Linked Birth-Infant Death public-use data sets for 2015–2022 can be downloaded from the Vital Statistics Online Data Portal: https://www.cdc.gov/nchs/data_access/vitalstatsonline.htm.

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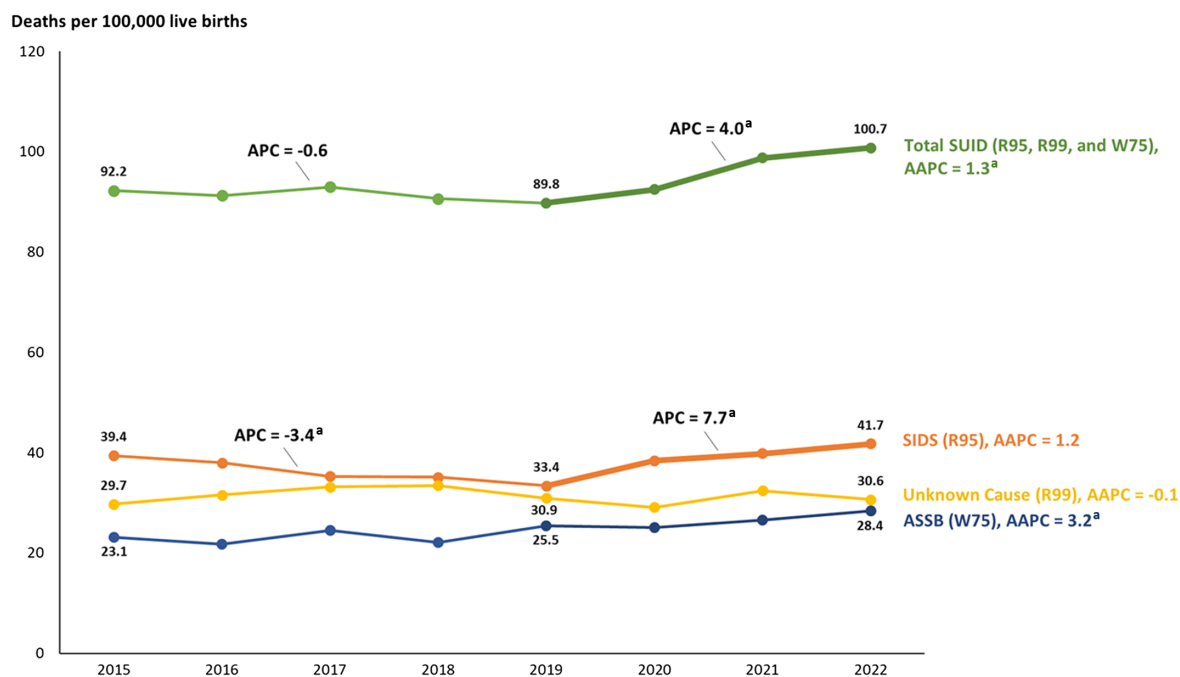


FIGURE 1.

SUID rates per 100 000 live births by cause, United States, 2015 to 2022. SUIDs included 3 underlying cause-of-death classifications coded per the *ICD-10*: SIDS (R95), unknown cause (R99), and ASSB (W75).

^aAPC and AAPC are significantly different from zero ($P < .05$). Joinpoints were identified in year 2019 for SUID and SIDS. ASSB rates increased significantly during 2015 to 2022. Significantly different post-2019 trends are distinguished by bold line segments.

Abbreviations: APC, annual percentage change; AAPC, average annual percentage change; ASSB, accidental suffocation and strangulation in bed; SIDS, sudden infant death syndrome; SUID, sudden unexpected infant death.

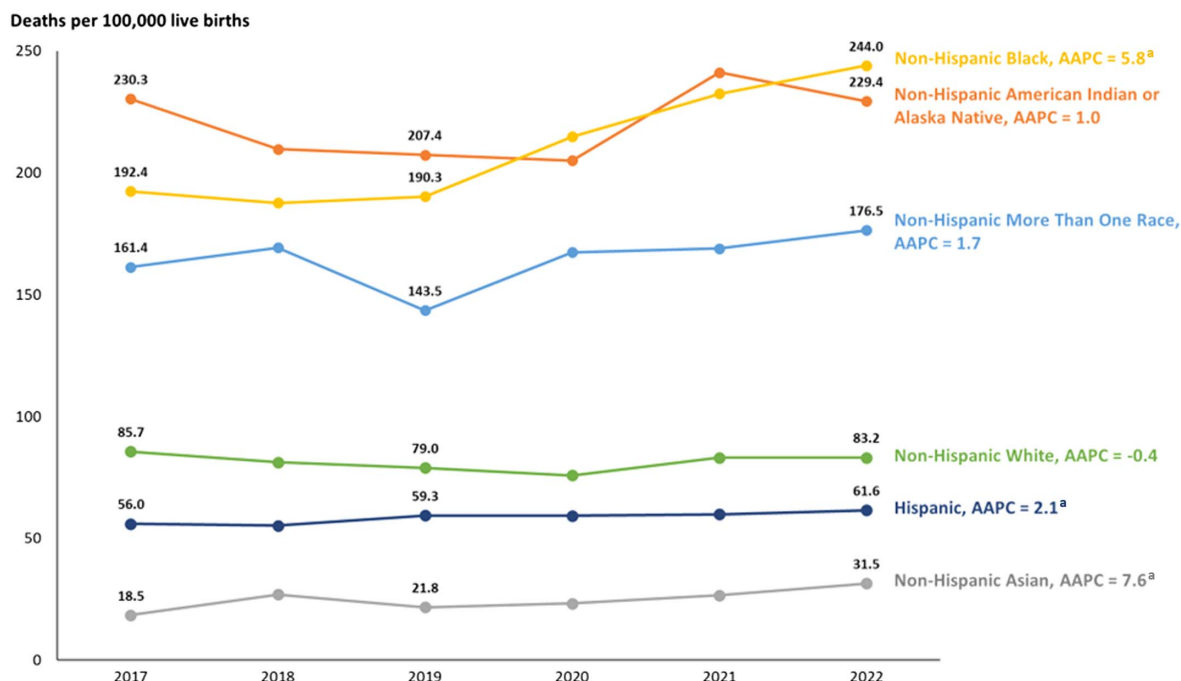


FIGURE 2.

SUID rates per 100 000 live births by race and ethnicity, United States, 2017 to 2022. SUID rates with a death count less than 20 are considered “unreliable” and therefore not presented for non-Hispanic Native Hawaiian and other Pacific Islanders;

^aAAPC is significantly different than zero ($P < 0.05$).

Abbreviations: APC, annual percentage change; AAPC, average annual percentage change; SUID, sudden unexpected infant death.

From 2017 to 2022, SUID rates were highest for NHB, non-Hispanic American Indian/Alaskan Native (NHAIAN), and non-Hispanic infants of more than 1 race (Figure 2). Significant increases in SUID rates were found for NHB infants (AAPC, 5.8; $P < .001$), as well as for Hispanic (AAPC, 2.1; $P < .001$) and non-Hispanic Asian (AAPC, 7.6; $P = .03$) infants. The disparity ratio in SUID rates increased from 2.2 (2017) to 2.9 (2022) for NHB relative to non-Hispanic white (NHW) infants ($P = .04$). For NHAIAN infants compared with NHW, SUID disparity ratios were 2.7 in 2017 and 2.8 in 2022 ($P = .12$).

DISCUSSION

Despite recommendations of safe sleep practices to reduce the risk of sleep-related infant deaths,⁵ SIDS and unintentional injury deaths (of which 85% are ASSB)⁶ remain leading causes of US infant mortality.⁷ These analyses showed an increase in SUID rates from 2019 through 2022 together with a greater than 2-fold disparity among NHB and NHAIAN infants relative to NHW infants. The disparity in SUID rates among NHB to NHW infants also significantly widened and rates for Hispanic and non-Hispanic Asian infants increased. As previously reported, the COVID-19 pandemic and changing SUID certification practices both occurred during this time¹; we did not directly assess how these factors influenced the observed trends.

Factors influencing these worsening trends and widening racial disparities are likely diverse and related to social drivers of health.^{8,9} Ensuring consideration of the social context within which infant safe sleep practices are taught to and implemented by caregivers is critical to optimizing infant safety and reducing disparities.^{8,9} Innovative approaches are needed to address barriers to providing safe sleep environments.¹⁰ Continued national and jurisdictional surveillance can help identify infants at risk for SUID and associated disparities, providing opportunities for prevention. Public health programs and health care providers can leverage this information to implement data-informed risk reduction strategies (eg, safe sleep promotion) and support local efforts to reduce SUIDs.

ABBREVIATIONS

AAPC: average annual percentage change
APC: annual percentage change
ASSB: accidental suffocation and strangulation in bed
CDC: Centers for Disease Control and Prevention

ICD-10: International Classification of Diseases, Tenth Revision

NHAIAN: non-Hispanic American Indian/Alaska Native

NHAPI: non-Hispanic Asian or Pacific Islander

NHB: Non-Hispanic Black

NHW: non-Hispanic white

SIDS: sudden infant death syndrome

SUID: sudden unexpected infant death

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