

# Culturally Competent Interventions to reduce SIDS rates among Native American/Alaska Native Nations

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### Abstract

Sudden infant death syndrome (SIDS) is the death of an infant under one year of age that remains unexplained after a case investigation. SIDS rates in the United States are disproportionately high among certain Native American/Alaska Native (NAAN) populations in comparison to white populations. One proposed reason for this disparity is a lack of cultural competence among existing educational campaigns and interventions. Therefore this review analyzes whether the use of a culturally competent SIDS campaign/intervention (I) would reduce SIDS rates (O) among NAAN communities (P) to levels closer to that of white populations (C).<sup>1</sup>

### Results

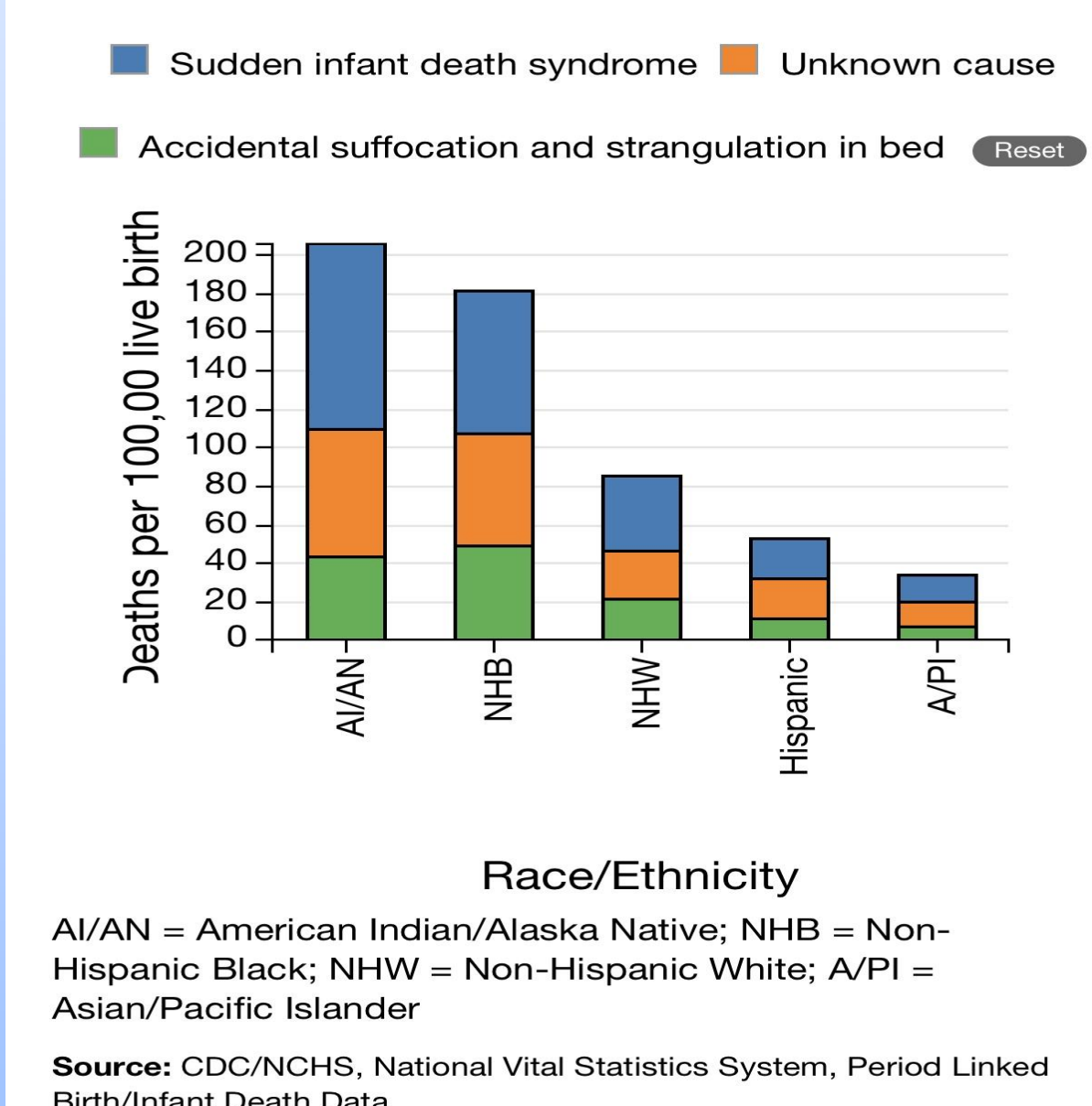
- Burd L, Peterson M, Face GC, Face FC, Shervold D, Klug MG. Efficacy of A SIDS Risk Factor Education Methodology at a Native American and Caucasian Site. *Maternal & Child Health Journal.* 2007;11(4):365-371. doi:10.1007/s10995-007-0182-7.**  
RCT of 341 participants designed to test the efficacy of a SIDS educational intervention among new mothers within the Aberdeen Area of the Indian Health Services (AAIHS) comparing outcomes when the intervention was applied during home visits in comparison to hospital based education.
- Burd L. Prevalence of prone sleeping position and selected infant care practices of North Dakota infants: a comparison of whites and Native Americans. *Public Health Reports.* 1994;109:446-449. https://arcadia.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ofm&AN=509249174&site=ehost-live. Accessed November 18, 2018.**  
Cross-sectional study comparing the prevalence of prone, supine, and side positioned sleeping of infants among members of the Chippewa, Sioux, Hiddasta, Arikara, and Mandan tribes of North Dakota compared to infant sleeping positions of white populations in North Dakota.
- Gaudino J. Progress Towards Narrowing Health Disparities: First Steps in Sorting Out Infant Mortality Trend Improvements Among American Indians and Alaska Natives (AI/ANs) in the Pacific Northwest, 1984-1997. *Maternal & Child Health Journal.* 2008;12:S12-S24. DOI:10.1007/s10995-008-0366-9.**  
Cross-sectional study of Northwestern NAAN infant mortality rates (IMR) between the years of 1984 and 1997 in order to fill in gaps in the literature and identify trends in infant mortality among these nations during this timeframe.
- Castor ML, Smyser MS, Taualii MM, Park AN, Lawson SA, & Forquera RA. A nationwide population-based study identifying health disparities between American Indians/Alaska Natives and the general populations living in select urban counties. *American Journal of Public Health.* 2006;96(8), 1478-1484.**  
Retrospective cohort study analyzing all 34 Urban Indian Health Organization service areas from 1991 to 2000 to compare health outcomes among urban NAAN community members to that of the general US population.
- Krugman, S. D., & Cumpsty-Fowler, C. J. A hospital-based initiative to reduce postdischarge sudden unexpected infant deaths. *Hospital pediatrics.* 2018;8(8), 443-449.**  
Prospective cohort study analyzing SIDS rates among two cohorts before and after employing a culturally competent educational intervention program to new mothers.
- Baddock SA, Tipene-Leach D, Williams SM, et al. Wahakura Versus Bassinet for Safe Infant Sleep: A Randomized Trial. *Pediatrics.* 2017;139(2):e20160162. https://arcadia.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=coah&AN=41228037&site=ehost-live. Accessed January 7, 2019.**  
RCT of 200 participants testing the efficacy of an indigenous sleep device in comparison to a traditional bassinet in reducing SIDS risk factors

### Discussion

The results confirm disproportionately elevated SIDS rates among certain NAAN communities in comparison to white populations in the same geographic area. They also confirm a lack of knowledge among NAAN communities about SIDS risk factors, and demonstrate which SIDS risk factors are most prevalent within them. The studies also confirm that educational programs and interventions tailored to the community can increase knowledge on SIDS risk factors and consequently reduce SIDS rates.

### Introduction

#### Sudden Unexpected Infant Death by Race/Ethnicity, 2013-2016



- PHYSICAL SIDS RISK FACTORS<sup>2</sup>
    - premature birth
    - low birth weight
  - MATERNAL SIDS RISK FACTORS<sup>2</sup>
    - younger than 20
    - cigarette smoking
    - drug/alcohol use
    - inadequate prenatal care
  - ENVIRONMENTAL SIDS RISK FACTORS<sup>2</sup>
    - secondhand smoke
    - sleeping on stomach
    - blanket/pillow usage
    - bed sharing
    - overheating
- Premature births and low birth weight rates in African American populations are disproportionately high in comparison to all other minorities. Based off of these risk factors an educational campaign alone would not be sufficient to reduce SIDS rates in this population.
  - In comparison NAAN populations have disproportionate rates of SIDS predominantly due to environmental risk factors. An effective educational campaign to alter such risk factors could reduce SIDS in this population.

Table 1. Comparison of Study Designs

Study	Design	Sample Size	Population Demographics	Intervention/Comparison	Assessment tool	Outcome measure
1. Burd et al <sup>9</sup>	RCT	252 89	white NA	SIDS risk factor education	Post-test after education (20 minutes)	Pre vs. Post-test percentage
2. Burd L. <sup>10</sup>	Cross-sectional	259 66	white NA	White vs. NA sleeping practices	Questionnaire	Prone sleeping prevalence
3. Gaudino J. <sup>11</sup>	Cross-sectional	8,904	10.6% Idaho NA 23.5% Oregon NA 66% Washington NA	Different Northwest NA tribe IMR	Birth-death cohort files	IMR trends
4. Castor et al <sup>12</sup>	Retrospective Cohort	400,000	NA served by UIHO	NA vs. general urban population health outcomes	US Census data on urban populations	SIDS rates & risk factor prevalence
5. Krugman et al <sup>13</sup>	Prospective Cohort	29,180	23% AA 2% Asian 69% white 6% other	Hospital-based SIDS risk reduction program	Follow-up/Infant death rates post-program	Infant death rates
6. Baddock et al <sup>14</sup>	RCT	200	Maori pregnant women	Indigenous sleep device (wahakura)	Questionnaires & overnight infrared video	Demonstrated SIDS risk behaviors

Key: RCT=randomized controlled trial; SIDS=Sudden Infant Death Syndrome; NA= Native American; IMR= Infant Mortality Rate; UIHO= Urban Indian Health Organizations; AA=African American

#### Gaps in knowledge

- Sources 1 and 5 test SIDS risk factor knowledge through exams
  - The results show a profound lack of knowledge among certain NAAN communities in comparison to white populations in the same geographic location

#### Most prevalent SIDS risk factors

- Sources 2 and 4 outline the most prevalent SIDS risk factors among NAAN nations
  - Maternal tobacco use
  - Maternal alcohol use
  - Teen pregnancy
  - Inadequate prenatal care
  - Bed sharing
  - Blanket/pillow usage
  - Prone sleeping

#### Efficacy of culturally competent interventions

- Sources 5 and 6 administer interventions that take the study population's values/culture into account
  - Source 5 demonstrates a reduction in SIDS rates among the cohort that received a culturally competent educational series
  - Source 6 demonstrates how an indigenous sleeping device allows for bed sharing but reduces SIDS risk factors with the same efficacy as a traditional bassinet

### Methods

#### Literature Search

Performed in November 2018 using

- PubMed
- Academic Search Ultimate
- Google Scholar
  - Search terms: "American Indian OR Native American AND sudden infant death syndrome OR sleeping practices"
  - Inclusion Criteria:
    - Published in peer-reviewed journal
    - Based upon case studies, cohort studies, randomized control trials focusing on indigenous peoples
    - SIDS occurring due to unsafe practices during/after pregnancy among otherwise healthy full term infants
  - Exclusion Criteria:
    - Clinical trials/studies of non-indigenous peoples
    - Studies focused on physical risk factors for SIDS
    - Cohort studies addressing NAAN as one whole population rather than individual tribes

### Conclusion

Ultimately the question stands, can a preventative SIDS campaign tailored to NAAN communities reduce their rates of SIDS to levels closer to that of the white population? With results that were clinically significant, the research confirms several pivotal points needed to answer this question. One, it shows that SIDS rates are disproportionately elevated among certain NAAN nations in comparison to white populations in the same geographic area. Two, it demonstrates that NAAN communities possess a lower level of knowledge on SIDS risk factors than their white counterparts. Three, the research established which SIDS risk factors are most prevalent among the select NAAN nations with elevated SIDS rates. Finally, it exemplified how educational programs and solutions that involved community members and their values could reduce negative sleeping practices and health behaviors to decrease SIDS rates. This pool of information justifies the need for cultural competency in any further SIDS reduction campaigns in order to reach the NAAN nations most affected by it.

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