National Action Partnership to Promote Safe Sleep – Improvement and Innovation Network

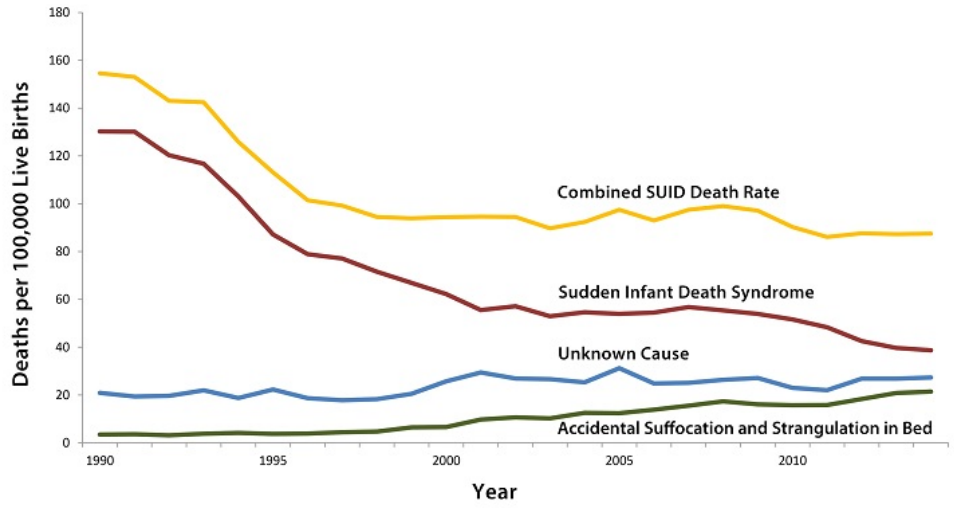
NAPPSS-IIN Charter

The Challenge: Public Health Burden of Sudden Unexpected Infant Death (SUID)

In 2015, there were about 3,700 sudden unexpected infant deaths in the United States.[i] Sleep-related deaths are the leading cause of death for infants from one month to one year of age. Among infant deaths due to SUID, 44% were attributed to Sudden Infant Death Syndome (SIDS), 31% were unknown, and 25% were accidental suffocation and strangulation in bed in 2014.[ii]

Trends in these rates over the past decade and a half reveal an important picture.[iii] Between 1990 and 2000, rates of SIDS and SUID declined steadily since 1992 when the American Academy of Pediatrics recommended that infants be placed for sleep in a supine position (Figure 1). However, in more recent years, the rate of SIDS has continued to decline, while the rate of SUID has remained relatively unchanged. The lack of progress in reducing rates of SUID is mainly the result of steady increases in accidental suffocation and strangulation in bed during this period.[iv]

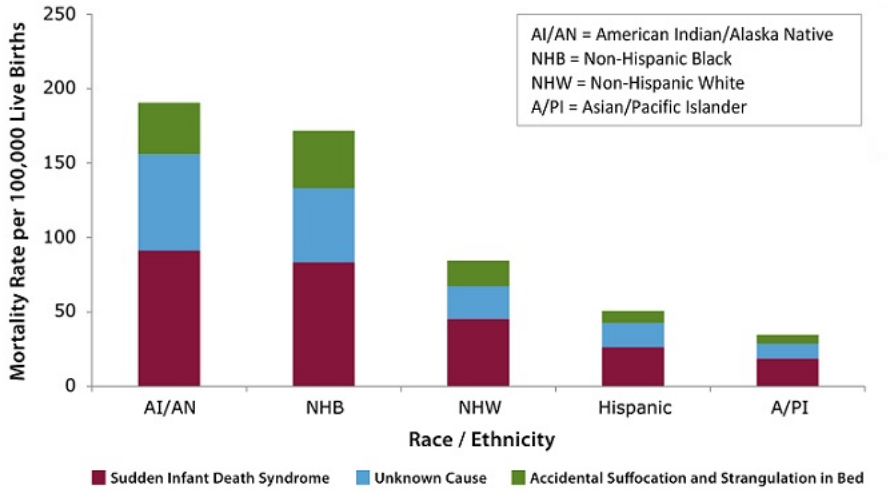
Figure 1. Deaths per 100,000 Live Births due to SUID, 1990-2015[v]



Populations at highest risk for SUID

While SUID is a public health issue across population groups, significant disparities in SUID rates exist across race, ethnicity, and geography. Data for 2010-2013 combined reveal that American Indian/Alaska Native and non-Hispanic black populations suffer disproportionately from SUID in the United States (rates of 190.5 and 171.8 infant deaths per 100,000 live births, respectively) (Figure 2). SUID rates for infants born to American Indian/Alaska Native and non-Hispanic black women were more than twice those of non-Hispanic white infants (84.4); these population groups also suffer from higher rates of accidental suffocation and strangulation in bed than other population groups (Figure 2).

Figure 2. Mortality Rate per 100,000 Live Births, disaggregated by Race/Ethnicity, 2010-2013[vi]



Additionally, rates of SUID vary substantially by geographic region of the U.S. In 2014, SUID rates ranged from lows of 59.3 infant deaths per 100,000 live births in the western region and 60 in the northeast, to a high of 116.9 in the southern region. Midwestern states average rates of 92.5 per 100,000 live births.[vii] Further, when examining the data by geographic density, rates of SUID increase with decreasing population size – rates range from 77.1 per 100,000 for large central metropolitan areas to an average of 124 per 100,000 for non-metropolitan areas.[viii] These data indicate that a special focus on racial/ethnic and geographic disparities should be integrated into efforts to reduce SUID.

Breastfeeding as a Protective Factor to Infant Safe Sleep

Breastfeeding is one of the most effective preventive health measures for infants and mothers. For infants, breastfeeding decreases the incidence and severity of many infectious diseases, reduces infant mortality, and optimally supports neurodevelopment. The American Academy of Pediatrics recommends exclusive breastfeeding for six months, with continued breastfeeding through at least the first year. However, in the United States, 49% of infants are still breastfeeding at six months, and only 19% are exclusively breastfeed.

An equity gap exists when looking at exclusive breastfeeding rates by race/ethnicity as follows:

Asian/Pacific Islanders	38.7%
Non-Hispanic White	36.1%
Hispanic	25.7%
Non-Hispanic Black	19.3%

In order to measurably reduce infant mortality, efforts aimed at promoting evidence-based initiatives related to safe infant sleep and breastfeeding must be integrated into existing public and private efforts. That is, babies should breastfeed and sleep safely to help prevent infant mortality.

Link between SUID and Breastfeeding

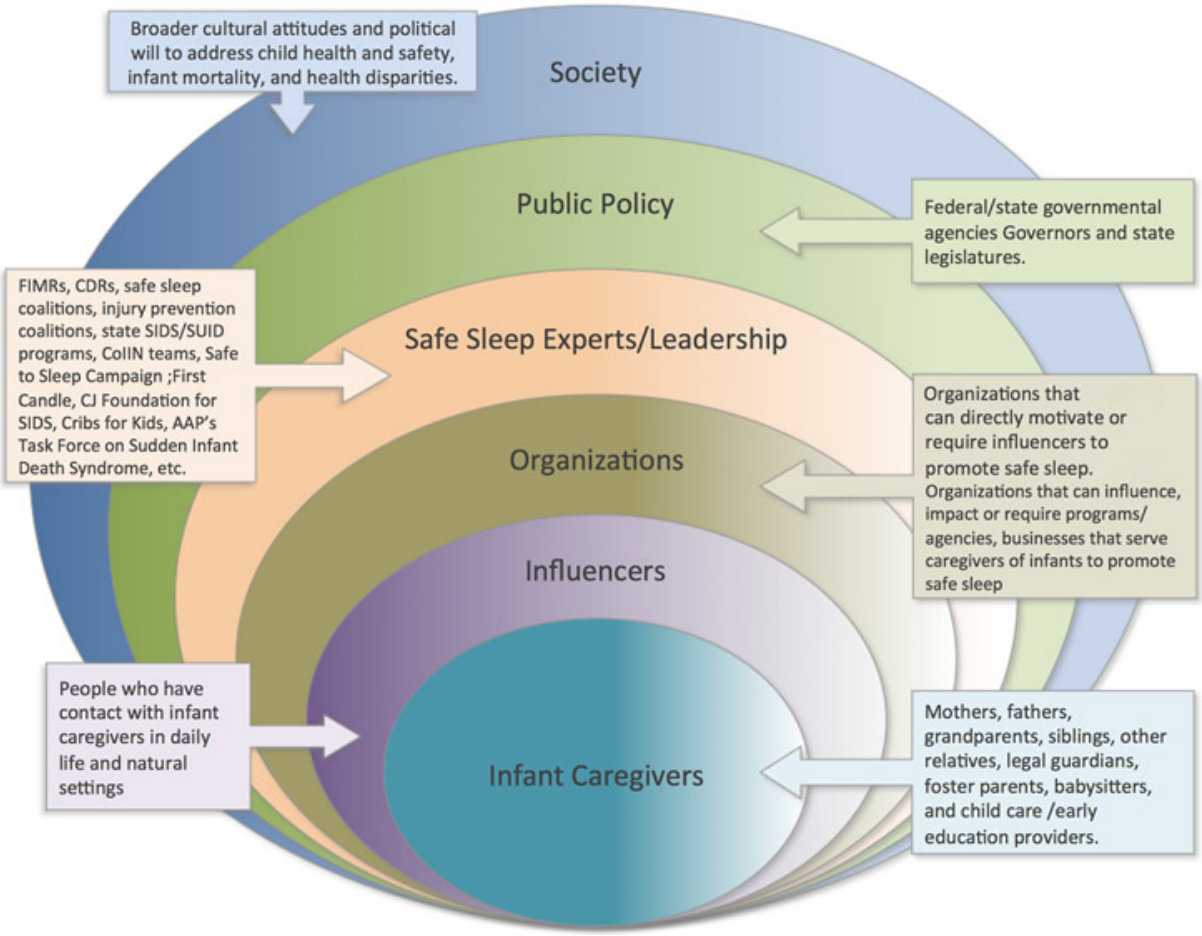
While the benefits of breastfeeding infants are well documented and evidence indicates supporting rooming in and skin-to-skin care for newborns increases exclusive breastfeeding, there are safety concerns as it relates to safe sleep practices. There have been several recent case reports of severe and sudden unexpected postnatal collapse in the neonatal period among otherwise healthy newborns and near fatal or fatal events related to sleep, suffocation, and falls from adult hospital beds. Although these are largely case reports, there are potential dangers of unobserved skin-to-skin care immediately after birth and throughout the postpartum hospital period as well as with unobserved rooming-in for at-risk situations. Moreover, behaviors that are modeled in the hospital after birth, such as sleep position, are likely to influence sleeping practices after discharge. [ix] For this and many reasons, it remains critical to model safe sleep practices in the hospital setting and provide education for both infant caregivers and healthcare providers and ensure support of breastfeeding practices while maintaining safe sleep recommendations outlined by the American Academy of Pediatrics to minimize risk of SUID or accidental falls.

NAPPSS-IIN Project Overview

The global aim of NAPPSS-IIN is to make safe infant sleep and breastfeeding a national norm. The project aims to increase infant caregiver adoption of safe infant sleep practices as recommended by the American Academy of Pediatrics, as well as breastfeeding, by empowering champions for these protective behaviors within systems that serve families at risk.

At the cornerstone of this project is the goal of changing individual behavior on a national scale through a multifaceted approach that promotes common messaging in collaboration with multiple organizations and stakeholders that intersect with infant caregivers. Infant caregivers are defined as the individual who puts a baby down for sleep and could be a parent, grandparent, other family members, child care provider or other guardian.

We will do this by engaging outpatient providers, inpatient providers, infant caregivers, early childcare, social service, home health and other partners in up to fourteen states to work collaboratively to test evidence-based best practices related to safe sleep and breastmilk feeding to decrease death from SUID. NICHQ staff and nationally identified experts will support project efforts by providing guidance and recommendations to inform and advance implementation. See illustration below.



NAPPSS-IIN Global Goals

The NAPPSS-IIN global goals are to, in the states participating:

1. Reduce the SUID mortality rate.
2. Reduce relative disparities between white and non-Hispanic Black and American Indian/Alaska native for SUID.
3. Increase the proportion of infants who are placed on their backs in a safe sleep environment that follows the American Academy of Pediatrics recommendation.
4. Increase the proportion of infants who are ever breastfed.

NAPPSS-IIN Collaborative Overview

With the support of content experts and partners, NICHQ will facilitate the NAPPSS-IIN Collaborative, a key activity of the NAPPSS-IIN project. The Collaborative will use the Model for Improvement as a framework for learning and improving. NICHQ, and identified expert faculty, will provide training and technical support on the selected change concepts, data collection and quality improvement science. Participating teams will use Plan, Do, Study, Act (PDSA) cycles to test individual and bundles of changes (initially on a very small scale in order to minimize risk while learning), quickly identify best practices, and build a degree of confidence in the changes using measures as a way to know that the changes are leading to improvement. The sequence of improvement is such that teams will first test changes on a

small scale and quickly increase the scope of the tests until such time they ready to implement, develop a sustainability plan and ultimately spread. NAPPSS-IIN expert faculty will provide guidance and feedback to hospitals throughout the Learning Collaborative.

The NAPPSS-IIN Collaborative will initially include five hospital sites- each one will be selected from Florida, Massachusetts, New York, Oklahoma and Texas and will be known as Cohort A. In subsequent project years, the Collaborative will expand to include additional teams.

NAPPSS-IIN Collaborative Aim

NAPPSS-IIN Collaborative intends to increase the proportion of infants who: (1) are placed to sleep on their backs in a safe sleep environment that follows the AAP recommendations, (2) are ever breastfed, and (3) continue to breastfeed at six months. Ultimately, this program seeks to reduce the rate of infants who tragically die due to sudden and unexplained infant deaths (SUID) with a focus on reducing geographic and racial/ethnic disparities.

NAPPSS-IIN Key Drivers for Improvement

The NAPPSS-IIN driver diagram provides a concise summary of the factors that the NAPPSS-IIN faculty and expert panel believe – based on scientific evidence and the experience of other similar initiatives – are necessary and sufficient to achieve the collaborative aim. The construct of the driver diagram provides a rationale for selecting measures that will guide the collaborative and overall project.
The driver diagram provides structure for NAPPSS-IIN Collaborative participants to prioritize and target their work while maintaining a perspective on the larger aim of the project. These drivers will be reviewed and updated yearly as the project moves forward in order to reflect the collective learning of the collaborative faculty and teams, including a prioritization of the highest leverage factors to achieve the intended aim.

The NAPPSS-IIN key drivers for improvement:

1. Active endorsement of American Academy of Pediatrics guidelines for infant safe sleep, including promoting breastfeeding in a safe sleep environment
2. Infant caregivers have the knowledge, skills and self-efficacy to practice safe sleep for every sleep
3. Activated community champions

NAPPSS-IIN Collaborative Goals

Goals for the collaborative are listed below. Early in the project, each hospital team will create an aim statement that expresses their specific goals for the project, based on the overall mission of the collaborative, their current level of performance, available resources, and local conditions.

- Increase caregivers recall of safe sleep practices at hospital discharge by $\geq$ 5% relative to hospital baseline.
- Increase exclusive breastfeeding rates at hospital discharge by $\geq$ 5% relative to hospital baseline.
- Improve breastfeeding initiation rates by $\geq$ 5% relative to hospital baseline.

NAPPSS-IIN Collaborative Expectations- Cohort A

Pre-work Activities

Prior to the first NAPPSS-IIN Learning Session on February 28 – March 2, 2018, each hospital site will undertake pre-work that will include:

- A self-assessment including current state, desire for change and goals
- Learning Collaborative orientation and NAPPSS-IIN project orientation
- Baseline data
- Forming their core team
- Developing a story board to share with colleagues

During the pre-work period, hospitals will have an opportunity to connect with NAPPSS-IIN expert faculty to clarify expectations and measurement strategies.

Learning Sessions

Cohort A will come together for focused content and quality improvement learning three times throughout the duration of the collaborative, Learning Session 1 will be in-person. A substantial part of each learning session will be devoted to participating teams developing--with coaching from NICHQ improvement experts and collaborative faculty--specific plans for the actions they will take after returning to their home organization.

The initial learning session (LS1) on March 1st – March 2nd, 2018 in Washington, DC will feature:

- Overview of the Model for Improvement
- Setting an Aim

As the collaborative proceeds, we anticipate speakers and workshop leaders increasingly will be drawn from teams from the collaborative who themselves are making progress in overcoming obstacles and achieving success.

Action Periods

In between Learning Sessions—times called Action Periods— Cohort A will be expected to make significant changes within their organizations to accomplish the overall project aim. They will do so by applying the Model for Improvement, beginning with small changes and increasing in scope and scale.

NICHQ Support

NICHQ and the NAPPSS-IIN expert faculty will provide support to Cohort A through the pilot phase. Specifically, NICHQ Improvement Advisors and evaluation experts will work closely with the hospital teams by actively monitoring each site's progress. In order to provide the most up-to-date technical assistance, Cohort A will have access to and use the NICHQ Collaboratory (CoLab) to support their sites reporting of data related to this improvement effort. This password-protected system leverages the concept of collective knowledge, enabling the continuous spread of best practices and innovation among project participants. The NAPPSS-IIN CoLab will feature two complementary components: the

community and the data portal, which offer a community space for members to interact and share resources, as well as a secure space for data entry and management.

In addition, NICHQ and NAPPSS-IIN expert faculty will also support Cohort A during the pilot phase with regular virtual engagement that will feature content-driven topics and coaching teams to overcome obstacles and accelerate their efforts.

Team Requirements and Expectations of Participating Organizations

All members of the hospital team will need to commit significant time and effort to participate in the NAPPSS-IIN Collaborative and all accepted hospitals must participate in the full duration of the collaborative, including attendance at one in-person learning session. At a minimum, we recommend team members initially meet weekly to plan and review their work. Teams that meet weekly, even if only for a stand-up huddle, experience the most improvement. Specific requirements and expectations for participation include:

Collaborative Activities:

- ❑ Participate in one project kick-off call and one Pre-work training call
- ❑ Perform and submit assigned Pre-work activities to prepare for the first Learning Session;
- ❑ Demonstrate a connection between the goals of the NAPPSS-IIN Collaborative and your hospital team's goals
- ❑ Recruit a senior leader to serve as sponsor for the team
- ❑ Attendance of at least four team members at the in-person Learning Session March 1st – March 2nd, 2018 in Washington, DC.
- ❑ Apply the Model for Improvement along with other change strategies to implement selected interventions and activities
- ❑ Work with other team members to select and plan for interventions and activities recommended by Collaborative faculty to focus your work
- ❑ Actively participate in two virtual Learning Sessions led by NICHQ and the NAPPSS-IIN Collaborative faculty.
- ❑ Actively participate in monthly Action Period webinars led by the NAPPSS-IIN Collaborative faculty (hospital teams will be expected to share progress and alternate presenting with the NAPPSS-IIN Collaborative Faculty).
- ❑ In years 1 and 3 of the collaborative, hospital pilot site staff who become mentors will be asked to attend an in-person meeting
- ❑ Perform tests of change that lead to widespread implementation of improvements in your hospital
- ❑ Report required data in timely manner in recommended format
- ❑ Collect data for required measures that support selected strategies and interventions and report data monthly using the provided interactive web portal, NICHQ's CoLab
- ❑ Share information with the Collaborative teams and faculty: create and post reports, including a narrative description of changes tested and results, and run charts of data showing progress on the aim
- ❑ Welcome coaching and technical assistance from Collaborative faculty
- ❑ Network with other Collaborative teams using the CoLab

- ❑ Endorse and track a core set of process, outcome, and balancing measures and hold all team members accountable for them
- ❑ Make substantive contributions to discussion threads on the community of CoLab

Organizational Activities:

- ❑ Provide the resources to support the improvement team, including time to devote to this effort (incorporated into the daily routine work of the staff) and active senior leadership involvement
- ❑ Use a planning process that engages both hospital leadership and team members in collectively designing and prioritizing changes that will move the team towards the stated project goals
- ❑ Engage high-level hospital leaders to support and provide support and resources for the unit improvements in care

Sustainability and Spread

The strategies adopted by the hospitals in this collaborative are designed to promote measurable, sustainable improvements that will reduce the proportion of infants who die from Sudden Unexpected Infant Death Syndrome. During the collaborative, we will actively engage interested stakeholders through a virtual presence in which learning from the project is shared. Following the close of this project, we anticipate that the change strategies and learnings from this collaborative will be applied by other hospitals seeking to reduce the proportion of infants who die from Sudden Unexpected Infant Death Syndrome.

References

[i] https://www.cdc.gov/sids/AboutSUIDandSIDS.htm
[ii] Ibid.
[iii] Ibid.
[iv] Ibid.
[v] Ibid.
[vi] CDC/NCHS, National Vital Statistics System, Period Linked Birth/Infant Death Data. Accessed at http://www.cdc.gov/sids/data.htm
[vii] Centers for Disease Control and Prevention, National Center for Health Statistics. (2015). *CDC WONDER Online Database*. Retrieved from http://wonder.cdc.gov/ucd.icd10.htm
[viii] Ibid.
[ix] 2. Feldman-Winter L, Goldsmith J. Safe Sleep and Skin-to-Skin Care in the Neonatal Period for Healthy Term Newborns. PEDIATRICS. 2016;138(3):e20161889-e20161889. doi:10.1542/peds.2016-1889.