Safe to Sleep

Tennessee Initiative for Perinatal Quality Care

Inter-Institutional Quality Improvement Project

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The Tennessee Initiative for Perinatal Quality Care (TIPQC) would like to thank other states who have shared and/or published their Safe Sleep Quality Improvement toolkits. We have learned from your efforts and initiatives and have adapted portions from each state toolkit. Together, we can make a difference!

Specific Acknowledgments

- Tennessee Department of Health
- Tennessee Hospital Association
- Pilot Teams – University of Tennessee Medical Center in Knoxville and Vanderbilt University Medical Center

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INTRODUCTION TO THE TOOLKIT

This toolkit is a collection of evidence-based practices based on a review of current literature related to safe sleep practices. Any success realized from this toolkit is in part due to the generosity and collaborative spirit of the practices that participated in the TIPQC pilot projects and toolkits from states and organizations that have successfully implemented safe sleep programs.

This toolkit is intended for application in conjunction with learning opportunities and webinars. Included in the toolkit are guidelines for safe sleep as outlined by the American Academy of Pediatrics (AAP). As with any bundle, it is recommended the toolkit be implemented with all interventions undertaken. However, individualized institutional policy and ground work will be required as with any system process implementation and change. TIPQC is available to discuss implementation strategies with project leaders and teams as desired or needed.

SUMMARY OF THE EVIDENCE

Sleep related infant deaths are identified when a baby is found deceased in a sleeping environment and is found with his or her head pressed into the mattress or pillow, in the presence of a co-sleeper, found wedged against an object, or when an infant is found in other circumstances that may have contributed to the infant's suffocation or strangulation. Sleep-related infant deaths may also be classified as Sudden Infant Death Syndrome (SIDS).
SIDS is considered an exclusionary cause of death for children under one year of age. A diagnosis of SIDS indicates that all evidence (including an autopsy, death scene investigation, and review of the medical record) has failed to yield the specific cause of death. SIDS deaths are classified under sleep related infant deaths. The cause and manner of death in these cases are determined from the information obtained from the death scene investigation and after a medical examiner's autopsy. When seemingly healthy infants fail to awaken from sleep, their deaths may be considered to be due to SIDS, the result of suffocation related to the sleep environment, or the sign of an undiagnosed childhood malady. The exact cause of death may be difficult, if not impossible, to determine (SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment, Task Force on Sudden Infant Death Syndrome, 2016).

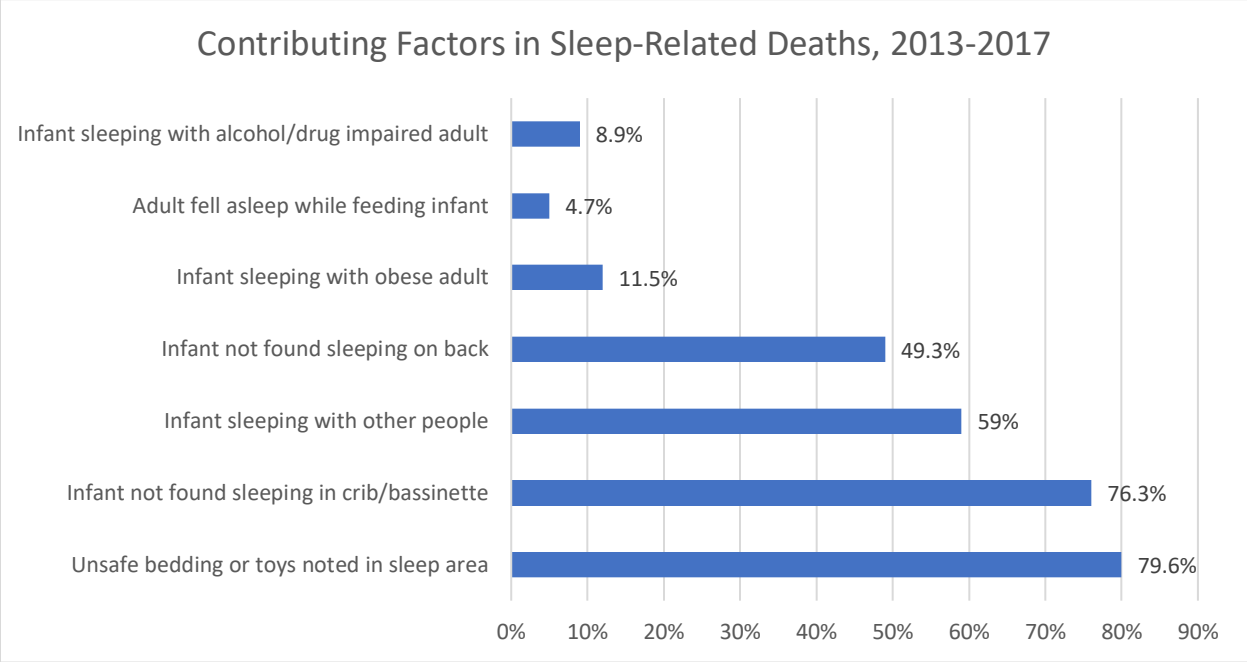
It is estimated that approximately 3500 infants die annually in the United States from sleep-related infant deaths. This includes sudden infant death syndrome, ill-defined deaths, and accidental suffocation and strangulation. After an initial decrease in the 1990s, the overall death rate attributable to sleep-related infant deaths has not declined in more recent years (SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment, Task Force on Sudden Infant Death Syndrome, 2016).

In Tennessee for the years 2014-2018, Sudden Infant Death Syndrome was the 4th leading cause of infant death. The chart below shows the number of sleep-related deaths for the past five years.

Year	Number of Sleep-Related Deaths
2017	144
2016	139
2015	142
2014	99
2013	117

Source:
https://data.tn.gov/t/Public/views/ChildFatalityDashboard/Infant-Sleep?iframeSizedToWindow=true&%3Aembed=y&%3AshowAppBanner=false&%3Adisplay_count=no&%3AshowVizHome=no&%3Aorigin=viz_share_link&%3Atabs=no&%3Atoolbar=no

The graph below displays the contributing factors in sleep-related deaths in Tennessee between 2013-2017.



Of the infant sleep-related deaths in Tennessee between 2013-2017, 21% were considered to be "probably preventable." These sleep-related deaths accounted for 23 percent of all infant fatalities in Tennessee. The overall infant mortality rate decreased from 7.4 per 1,000 live births in 2017 to 6.9 per 1,000 live births in 2018. The rate of sleep-related deaths increased slightly in 2018 to 1.8 per 1,000 live births from 1.7 per 1,000 live births in 2016.

Source: https://data.tn.gov/t/Public/views/ChildFatalityDashboard/Infant-Sleep?iframeSizedToWindow=true&%3Aembed=y&%3AshowAppBanner=false&%3Adisplay_count=no&%3AshowVizHome=no&%3Aorigin=viz_share_link&%3Atabs=no&%3Atoolbar=no

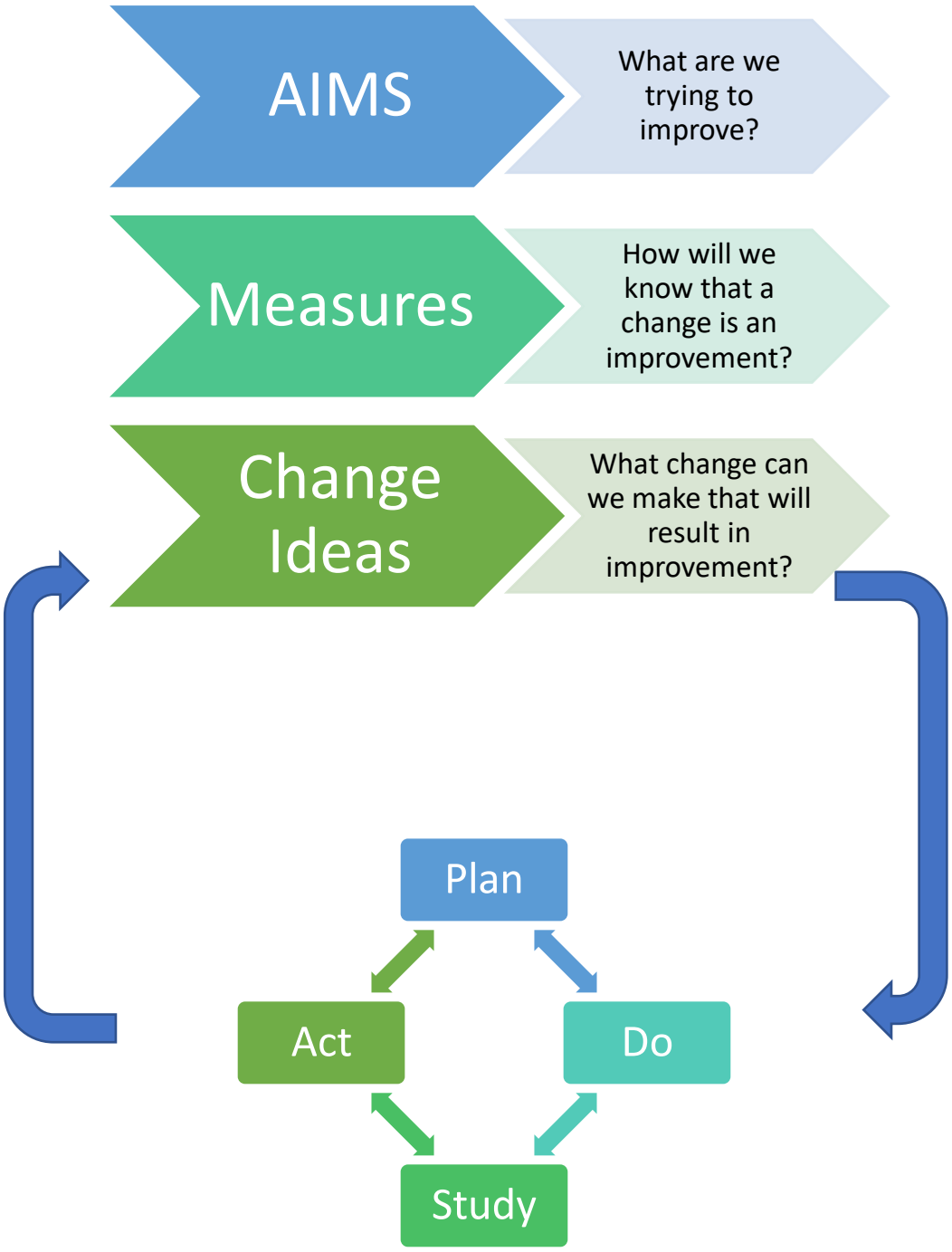
QUALITY IMPROVEMENT OVERVIEW

The Safe Sleep project was selected by stakeholders at the 2019 TIPQC Annual Meeting. This decision was supported by recent increase in sleep related deaths in Tennessee. Participating institutions will agree to the following:

- Implement the project as designed
- collecting and submit the monthly data in a timely manner
- participate in monthly webinars and statewide meetings

This QI Tool Kit is based on a set of evidence based guidelines published by the American Academy of Pediatrics in 2016. The adoption of the guidelines by health care professionals, parents, and other infant caregivers has the potential to decrease the number of sleep related deaths in Tennessee. Changes in practice, guided by these evidence based guidelines, will require testing and adaptation to the teams' circumstances and context to achieve measured improvements in outcomes. As the teams test and implement these guidelines, they should monitor the results closely to ensure they are obtaining the desired results, that no harm is being done, and that no unanticipated results are seen.

MODEL FOR IMPROVEMENT*



For more information, see https://tipqc.org/jit-pdsa/

*Used by permission and adapted from: Langley, Nolan, Nolan, Norman, Provost. The Improvement Guide. San Francisco: Jossey-Bass Publishers; 1996.

PROJECT CHECKLIST

- ☐ Form a team (refer to TIPQC Just in Time Modules for more information: https://tipqc.org/qi/)
- ☐ Research and determine current system and needs for project implementation
- ☐ Complete the TIPQC Project Application: https://tipqc.org/active-projects/
- ☐ Review TIPQC tool kit
- ☐ Begin prioritizing action items with Plan, Do, Study, Act (PDSA) cycles
- ☐ Schedule a regular recurring team meeting day and time
- ☐ Attend kick off & data training sessions
- ☐ Gather any baseline data available, find data sources, define data workflow
- ☐ Attend monthly huddles & learning sessions
- ☐ Methodically work through planned PDSA cycles
- ☐ Capture project data

AIMS, POPULATION, AND MEASURES

GLOBAL PROJECT AIM: Increase Safe Sleep Compliance in the hospital setting by 10% by March 2021 for infants 0-12 months of age.

TARGET POPULATION: Infants 0-12 months of age being cared for in Tennessee Newborn Nurseries or Newborn Intensive Care Units.

Exclusion criteria: *Infants with any of the following conditions will be excluded from this project: infants < 32 weeks corrected age and/or medically unstable*.

METRIC LEVEL AIMS:

1. Hospitals will develop and implement safe sleep policies in compliance with AAP guidelines. Policies will include guidelines for care in the newborn nursery and Special Care Nursery/Newborn Intensive Care Unit, as appropriate.
2. Participating hospitals will train 100% of staff members who provide care to newborns.
3. Hospitals will provide and document safe sleep education for all families admitted to participating units with 90% compliance.
4. Hospitals will perform and document safe sleep audits monthly (preferable on the same day and time each month).

DEFINITIONS

(Source: SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment, Task Force on Sudden Infant Death Syndrome)

Bed-sharing: Parent(s) and infant sleeping together on any surface (bed, couch, chair).

Caregivers: Throughout the document, "parents" are used, but this term is meant to indicate any infant caregivers.

Cosleeping: This term is commonly used, but the task force finds it confusing, and it is not used in this document. When used, authors need to make clear whether they are referring to sleeping in close proximity (which does not necessarily entail bed-sharing) or bed-sharing.

Room-sharing: Parent(s) and infant sleeping in the same room on separate surfaces.

Sleep-related infant death: SUID that occurs during an observed or unobserved sleep period.

Sudden infant death syndrome (SIDS): Cause assigned to infant deaths that cannot be explained after a thorough case investigation, including a scene investigation, autopsy, and review of the clinical history.

Sudden unexpected infant death (SUID), or sudden unexpected death in infancy (SUDI): A sudden and unexpected death, whether explained or unexplained (including SIDS), occurring during infancy.

RECOMMENDATIONS TO REDUCE THE RISK OF SIDS

AND OTHER SLEEP-RELATED DEATHS

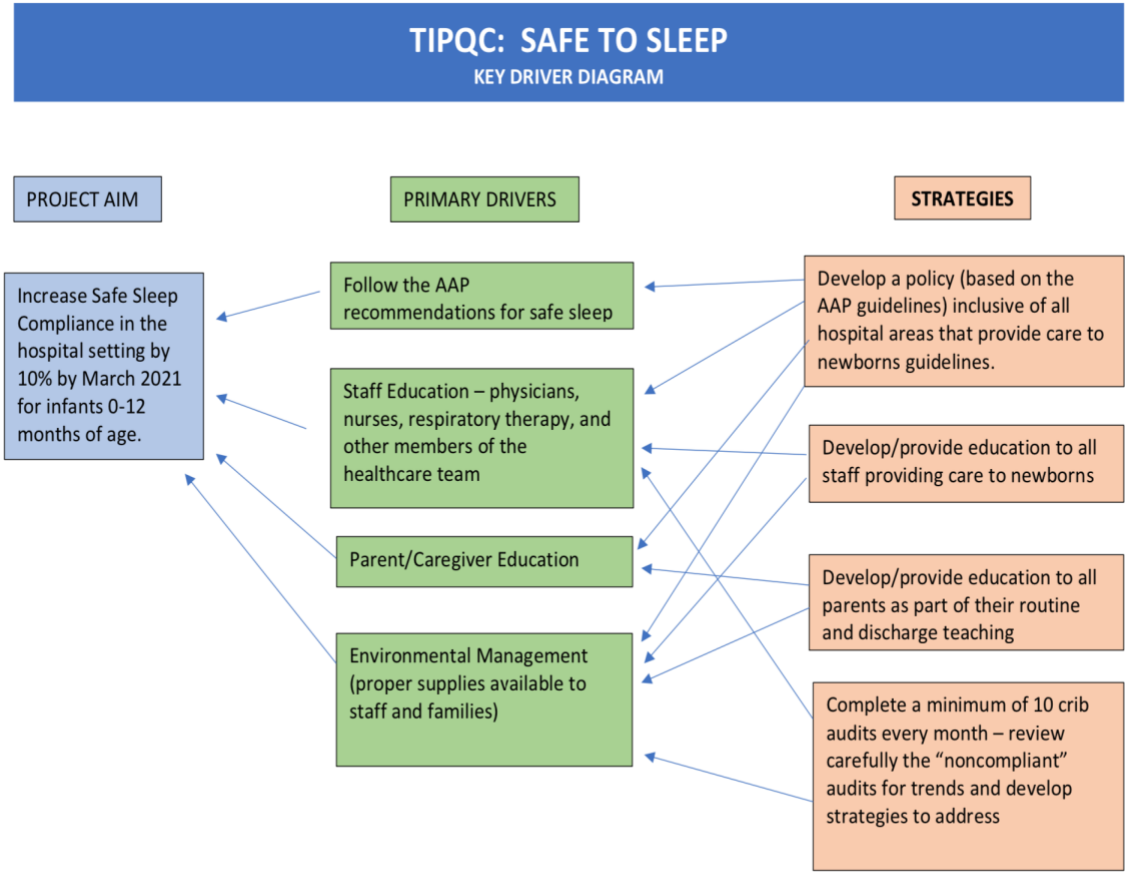
Back to sleep for every sleep. The following steps are taken directly from AAP SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment, Task Force on Sudden Infant Death Syndrome:

1. Back to sleep for every sleep.
2. Use a firm sleep surface.
3. Breastfeeding is recommended.
4. Recommend that infants should sleep in the parents' room, close to the parents' bed, but on a separate surface designed for infants, ideally for the first year of life, but at least for the first six months of life.
5. Keep soft objects and loose bedding away from the infant's sleep area to reduce the risk of SIDS, suffocation, entrapment, and strangulation.
6. Consider offering a pacifier at nap time and at bedtime.
7. Avoid smoke exposure during pregnancy and after birth.
8. Avoid alcohol and illicit drug use during pregnancy and after birth.
9. Avoid overheating and covering the infant's head.
10. Pregnant women should obtain regular prenatal care.
11. Infants should be immunized in accordance with the recommendations of the AAP and the Center for Disease Control.
12. Avoid the use of commercial devices that are inconsistent with safe sleep recommendations.
13. Do not use home cardiorespiratory monitors as a strategy to reduce the risk of SIDS.
14. Supervised, awake tummy time is recommended to facilitate development and to minimize the development of positional plagiocephaly.
15. There is no evidence to recommend swaddling as a strategy to reduce the risk of SIDS.
16. Health care professionals, staff in the newborn nursery and NICU, and child care providers should endorse and model the SIDS risk-reduction recommendations from birth.
17. Media and manufacturers should follow safe sleep guidelines in their messaging and advertising.
18. Continue the "Safe to Sleep" campaign, focusing on ways to reduce the risk of all sleep-related infant deaths, including SIDS, suffocation, and other unintentional deaths. Pediatricians and other primary care providers should actively participate in this campaign.
19. Continue research and surveillance on the risk factors, causes, and pathophysiologic mechanisms of SIDS and other sleep-related infant deaths, with the ultimate goal of eliminating these deaths altogether.

SAFE SLEEP IN THE NICU

1. Recommend following and modeling safe sleep practices by 32 weeks corrected age, as long as the infant is considered medically stable.
2. Certain medical conditions may necessitate a prone or side-lying position, but these deviations from the AAP recommendations must be explained to the parents.

APPENDIX A: KEY DRIVER DIAGRAM



APPENDIX B: SAFE SLEEP AUDIT TOOL

TIPQC SAFE SLEEP MONTHLY AUDITS

Audit guidelines:

- Audits should be conducted monthly, preferably on the same day and time each month.
- Complete 10 audits for infants in your *unit that are eligible for safe sleep*. This includes infants rooming-in with their parent(s).
- Infants excluded from this audit include those <32 weeks corrected age and/or medically unstable.
- The selection of eligible infants to audit should be as random as possible. Fitting the audits into your existing workflow is also recommended.
- If there are fewer than 10 eligible infants to audit, audit all eligible infants available *across multiple consecutive days* until 10 audits are reached.
- *If you have a NICU*, you may also complete 10 audits for infants in your *NICU that are eligible for safe sleep*. If you do, *please complete a separate audit sheet*.

Date of Audit: _____ Time of Audit: _____ Auditor: _____

Audit No.	Infant Location: Newborn Nursery *(NN)* / NICU *(NI)* / Parent Room *(PR)*	Is infant compliant with the Safe Sleep recommen-dations?	If ***not*** compliant, why? *(check all that apply)*								If ***not*** compliant, was non-compliance addressed with caregiver (physician, nurse, parent) ***at time of audit***?	Notes / Comments *(Additional space available on back)*
			Infant not supine	Head of bed elevated	Posi-tioning devices being used	Unsafe bedding with thick or excess or poorly swaddled blankets	Additional objects in crib including toys, washcloth, or burp cloth, etc	Bed sharing while parent asleep	Infant un-attended while asleep not in crib	Other, ***please specify***		
1	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
2	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
3	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
4	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
5	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
6	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
7	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
8	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
9	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	
10	NN / NI / PR	N / Y	☐	☐	☐	☐	☐	☐	☐	☐	N / Y	

APPENDIX B: SAFE SLEEP AUDIT TOOL, *continued*

Audit No.	Additional notes / comment
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

APPENDIX C: SUGGESTIONS FOR COMPLETING THE MONTHLY AUDIT

There are many ways to complete your monthly audit. The important point to remember is that you want to RANDOMLY select which eligible infants to audit - or at least as best you can. You also want to make sure that you are not auditing only babies being cared for by one nurse. Here are some suggestions:

1. To systematically select the 10 eligible infants, first, divide your census of eligible infants on the day of the audit by 10 and then select every n^{th} eligible infant where n is the result of that division.
2. Ask the providers (attending physicians, resident physicians, nurse practitioners) to complete the audit as they round on audit day.
3. If a staff member is performing the audit, remind them that they need to audit babies in different areas of the unit – mother's room, NICU (if applicable), and in the newborn nursery. Again, infants being cared for by different staff members.
4. If your facility does leadership rounds or patient satisfaction rounds, the manager could audit safe sleep practices at this time.

APPENDIX D: ADDITIONAL RESOURCES

https://www.aap.org/en-us/about-the-aap/aap-press-room/campaigns/Safe-Sleep/Pages/default.aspx
https://www.tn.gov/health/health-program-areas/fhw/vipp/safe-sleep/safe-sleep-hospital-project.html
https://safetosleep.nichd.nih.gov/:
https://www.nichq.org/how-safe-sleep-savvy-are-you?submissionGuid=330f1156-7cf7-4455-89d9-80881f1be422:
https://www.ncemch.org/suid-sids/documents/NAPPSS-ImageVettingChecklist.pdf

PARENT EDUCATION:

https://www.safesleepacademy.org/why-back-to-sleep/
https://healthychildren.org/English/ages-stages/baby/sleep/Pages/A-Parents-Guide-to-Safe-Sleep.aspx
https://safetosleep.nichd.nih.gov/safesleepbasics/about
https://www.marchofdimes.org/baby/safe-sleep-for-your-baby.aspx
https://www.cdc.gov/sids/parents-caregivers.htm
https://www.healthychildren.org/English/ages-stages/baby/sleep/Pages/Safe-Sleep-for-Babies.aspx
(video)
https://www.mass.gov/info-details/safe-sleep-information-for-parents-and-caregivers

STAFF EDUCATION:

https://www.michigan.gov/mdhhs/0,5885,7-339-71548_57836_58080---,00.html
https://www.halosleep.com/education-resources/
https://extranet.nichd.nih.gov/nursececourse/ProgressTracking/RequestProgressTracking.aspx
https://cribsforkids.org/wp-content/uploads/Cribs-for-Kids-Infant-Sleep-Safety-Education-Module-2019-1.pdf
http://www.healthystartepic.org/wp-content/uploads/2016/05/SafeSleepKit.pdf
https://www.nichq.org/sites/default/files/resource-file/PromisingPractices_MO_SSSP_Final%20for%20Web.pdf

REFERENCES

Guideline Newborn Safe Sleep, 2019
National Association of Neonatal Nurses
Gail A. Bagwell, Editor

SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment
TASK FORCE ON SUDDEN INFANT DEATH SYNDROME
Pediatrics Nov 2016, 138 (5) e20162938; **DOI:** 10.1542/peds.2016-2938

SIDS and Other Sleep-Related Infant Deaths: Evidence Base for 2016 Updated Recommendations for a Safe Infant Sleeping Environment
Rachel Y. Moon, TASK FORCE ON SUDDEN INFANT DEATH SYNDROME
Pediatrics Nov 2016, 138 (5) e20162940; **DOI:** 10.1542/peds.2016-2940

Tennessee Department of Health, Child Fatality Dashboard
https://data.tn.gov/t/Public/views/ChildFatalityDashboard/Infant-Sleep?iframeSizedToWindow=true&%3Aembed=y&%3AshowAppBanner=false&%3Adisplay_count=no&%3AshowVizHome=no&%3Aorigin=viz_share_link&%3Atabs=no&%3Atoolbar=no. Accessed on December 12, 2019.