CURRICULUM FOR NURSES

Continuing Education Program on SIDS *Risk* Reduction

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
Eunice Kennedy Shriver National Institute of Child Health and Human Development

SUDDEN INFANT DEATH SYNDROME (SIDS) ACT OF 1974

The SIDS Act of 1974 (P.L. 93-270) made the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) (formerly the National Institute of Child Health) responsible for conducting research into the causes of SIDS as well as for developing and implementing a program of public information and educational materials about SIDS risk reduction. The NICHD and other government agencies maintain a number of public health programs to deliver SIDS information and materials to families and health care providers across the United States. As mandated by the Act, agencies conducting this work provide an annual report to Congress on SIDS research, information, and counseling projects.

BACK TO SLEEP CAMPAIGN

Since its inception in 1994, the *Back to Sleep* campaign has focused on raising awareness among parents, health care providers, and caregivers about the importance of putting babies to sleep on their backs for naps and at night to reduce the risk of SIDS. Over the course of the campaign, the NICHD and its partners have distributed millions of brochures, posters, public service announcements, and informational videos explaining this message.

Since the launch of the campaign, SIDS deaths in the United States have declined by more than 50 percent. But significant disparities still exist. African American infants are more than two times as likely to die of SIDS as white infants, and American Indian/Alaska Native infants are nearly three times as likely to die of SIDS as white infants. In an effort to reach minority and underserved populations with the message about the importance of placing infants on their backs to sleep, the NICHD has partnered with organizations that serve these communities. As part of this outreach, the NICHD publishes *The NICHD Community Connection*, a newsletter that keeps the *Back to Sleep* campaign's African American outreach partners well informed about the latest research on SIDS and related outreach activities. You may obtain a free copy of the newsletter by calling 1-800-505-CRIB, or by visiting http://www.nichd.nih.gov/SIDS. The NICHD is also working with American Indian/Alaska Native partners to develop adaptable, culturally appropriate SIDS risk-reduction materials that reflect American Indian/Alaska Native daily life.

The *Back to Sleep* campaign is led by the NICHD and is co-sponsored by the Maternal and Child Health Bureau of the Health Resources and Services Administration, the American Academy of Pediatrics, First Candle/SIDS Alliance, and the Association of SIDS and Infant Mortality Programs.

FIRST CANDLE/SIDS ALLIANCE

First Candle/SIDS Alliance is a key partner in this continuing education program and is conducting live training sessions for this program at nursing conferences across the country. The mission of First Candle/SIDS Alliance is to promote infant health and survival during the prenatal period through two years of age by providing advocacy, education, and research programs. First Candle believes it is essential that everyone working with infants understand the importance of life-saving messages for reducing the risk of SIDS and other accidental infant deaths. Consistency of care—from parent to caregiver and from nighttime to naptime—is a priority for First Candle.

CURRICULUM FOR NURSES

Continuing Education Program on SIDS *Risk* Reduction

Welcome

Dear Colleague:

As Director of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD), I am pleased to present this nurses' continuing education (CE) program on Sudden Infant Death Syndrome (SIDS) risk reduction. Since the launch of the *Back to Sleep* campaign in 1994, you and your co-workers around the country have made tremendous progress in helping to reduce the incidence of SIDS. In fact, SIDS deaths in the United States have declined by more than 50 percent in the last 10 years. This is a remarkable accomplishment, but there is still progress to be made. African American infants are still twice as likely to die of SIDS as are white infants. The rate of SIDS in American Indian/Alaska Native populations is almost three times higher than the rate of SIDS in white populations. There are many people like you who are working hard to protect the health and well-being of our babies, and together we can make a difference.

To be effective, each of us must have the knowledge and information to help reduce the risk of SIDS and to ensure that our babies have the opportunity to grow up healthy and strong. We need to continue to make sure that our messages reach every parent, grandparent, and caregiver in every community across the nation. There is a role for each of us to learn more about SIDS and to share what we learn with our families, friends, neighbors, and communities.

In partnership with several nursing organizations, First Candle/SIDS Alliance, and the National Institute of Nursing Research, the NICHD has designed this CE offering to provide you with the information and tools necessary to effectively communicate SIDS risk-reduction messages.

Thank you for all you have done to educate families about SIDS and to help reduce the risk in your communities. Working together, we have made great progress. Let's continue to work together to help all infants grow into healthy adults.

Sincerely yours,

Duane Alexander, M.D.
Director, NICHD

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Introduction

The *Continuing Education Program on SIDS Risk Reduction: Curriculum for Nurses* is designed to inform pediatric, obstetric, and neonatal nurses—as well as all nurses who educate family members and caregivers about caring for infants—of the latest risk-reduction strategies for SIDS. It is also designed to increase nurses' knowledge of ways to communicate SIDS risk-reduction information to parents and caregivers.

Learning Objectives

Upon completion of the continuing education (CE) materials, nurses will be able to:

1. Define SIDS, including the:

- Etiology of SIDS (triple-risk theory);
- Risk factors for SIDS (prenatal risk factors, developmental risk factors, and environmental risk factors); and
- Epidemiology of SIDS (SIDS rates, disparities in SIDS rates, and the decline in U.S. SIDS rates since 1992).

2. List the critical SIDS risk-reduction messages for parents and caregivers, including:

- Back to sleep;
- Firm sleep surface;
- Safe sleep environment (no fluffy bedding or stuffed toys);
- No smoking around the baby;
- A close but separate sleep area for the baby;
- Possible use of a clean, dry pacifier;
- Avoidance of overheating the baby;
- Avoidance of products that claim to reduce the risk of SIDS;
- Avoidance of home monitor use to reduce the risk of SIDS;
- Avoidance of positional plagiocephaly (the appearance of persistent flat spots on the baby's head), including guidelines for Tummy Time; and
- Talking to parents, child care providers, grandparents, babysitters, and everyone who cares for the baby about SIDS risk.

3. List four barriers to back sleeping, including:

- Regurgitation/aspiration concerns;
- Deep sleep;
- Plagiocephaly; and
- Contrary advice from a relative or caregiver.

4. Describe their key role as educators to parents and caregivers about SIDS, including the importance of:

- Knowing the safe sleep message; and
- Spreading and practicing the safe sleep message.

5. Describe ways that nurses can effectively communicate SIDS risk-reduction messages to parents and caregivers such as how to:

- Counter common arguments against back sleeping;
- Respond to questions about SIDS;
- Encourage parents to take action; and
- Deliver messages.

About This Program

This CE program, designed to be used as a self-study course, includes:

- A **pre-test**. The pre-test on page 4 is designed to measure baseline knowledge about SIDS and to help identify content areas that require more focus. It is not scored for CE credit. The pre-test answer key is on page 33.
- **Two educational sessions**.
- A **post-test**. The post-test can be found in the pocket on the back inside cover of this manual. It is intended to evaluate achievement of the learning objectives listed above and is scored for CE credit.
- A **program evaluation**. The program evaluation is also in the pocket on the back inside cover of this manual. Completing this form is required for CE credit and will help the CE sponsors to refine the program.

How To Receive CE Credit

This education activity for 1.1 contact hours is accredited by the Maryland Nurses Association (MNA). The MNA is accredited as a provider of continuing education by the American Nurses Credentialing Center Commission on Accreditation.

To receive CE credit, nurses should first read both educational sessions. Then, they should complete the post-test. A score of 70 percent or better is required; that is, 7 of the 10 questions must be answered correctly in order to receive CE credit. After scoring the post-test, nurses should complete the program evaluation.

Nurses seeking CE credit are then required to submit the post-test and the program evaluation by mail or by fax to the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) at:

Mail: P.O. Box 3006
Rockville, MD 20847

Fax (secure): 1-866-760-5947

If you have questions about this CE program, call the NICHD at 1-800-370-2943, or send an e-mail to NICHDInformationResourceCenter@mail.nih.gov.

PRE-TEST

This pre-test is designed to measure baseline knowledge about SIDS, risk-reduction recommendations for SIDS, and how to communicate the recommendations to parents and caregivers. Some questions may have more than one correct answer. The questions cover the major content areas of this CE program; however, the pre-test is not scored for CE credit.

Instructions: Please check the correct response and score your test using the answer key on page 33.

1. Which of the following statements about SIDS is true?
   - ❑ **A.** SIDS is the leading cause of death of infants between one month and one year of age.
   - ❑ **B.** SIDS is completely preventable.
   - ❑ **C.** Most infants seem sick before they die from SIDS.
   - ❑ **D.** SIDS is caused by immunizations.
2. Which of the following statements is not a SIDS risk-reduction recommendation?
   - ❑ **A.** Do not smoke around infants.
   - ❑ **B.** Place infants on their backs to sleep.
   - ❑ **C.** Do not use fluffy bedding or stuffed toys in the sleeping area.
   - ❑ **D.** Keep infants warm by wrapping tightly with blankets.
3. Among parents and caregivers, common reasons for not complying with the back sleeping recommendations include:
   - ❑ **A.** Fear of aspiration or choking
   - ❑ **B.** Relatives recommending the prone position
   - ❑ **C.** Concern about a flattened skull (plagiocephaly)
   - ❑ **D.** All of the above
4. Current SIDS research supports a theory that describes the convergence of factors that may lead to SIDS deaths. The theory is called:
   - ❑ **A.** Vulnerable infant model
   - ❑ **B.** Critical development theory
   - ❑ **C.** Triple-risk model
   - ❑ **D.** Double-risk theory
5. Since the release of the American Academy of Pediatrics Task Force on SIDS risk-reduction guidelines in 1992, the SIDS rate in the United States has decreased by:
   - ❑ **A.** 30%
   - ❑ **B.** 50%
   - ❑ **C.** 70%
   - ❑ **D.** 15%
6. SIDS rates remain disproportionately high in which of the following ethnic groups:
   - ❑ **A.** African Americans
   - ❑ **B.** American Indians/Alaska Natives
   - ❑ **C.** Hispanics
   - ❑ **D.** Both A and B
7. Which of the following constitutes a safe sleeping environment for an infant:
   - ❑ **A.** Soft sleeping surfaces
   - ❑ **B.** A firm mattress with stuffed toys surrounding the perimeter
   - ❑ **C.** Loose bedding, such as quilts and comforters
   - ❑ **D.** A firm mattress, free of loose bedding and stuffed toys
8. Research shows that parents are more likely to follow SIDS recommendations when they:
   - ❑ **A.** Receive specific advice from health care providers
   - ❑ **B.** Observe the nursing staff placing the baby on his or her back to sleep
   - ❑ **C.** Receive SIDS incidence statistics
   - ❑ **D.** Both A and B
9. When nurses speak to parents and caregivers about SIDS, it is important that their messages:
   - ❑ **A.** Be detailed
   - ❑ **B.** Include statistics
   - ❑ **C.** Be clear and simple
   - ❑ **D.** Include medical terminology
10. The appropriate time to deliver SIDS risk-reduction recommendations to parents is:
    - ❑ **A.** Within the first 24 hours after delivery
    - ❑ **B.** During pregnancy
    - ❑ **C.** At well-baby visits
    - ❑ **D.** All of the above

Session 1

SESSION 1

What You Need To Know About Sudden Infant Death Syndrome (SIDS)

"SIDS" is the term used to describe the sudden death of an infant younger than one year of age that remains unexplained after a complete investigation.[1] Over the past two decades, nurses, physicians, other health care providers, and caregivers have made significant progress in reducing the number of American infants who die each year of SIDS. This change was not brought about by breakthroughs in understanding the cause or causes of SIDS, although researchers have made substantial progress in this area; this decrease was largely the result of the actions of health care providers and public health campaigns that have educated parents and caregivers about risk factors for SIDS.

As a result, the United States has seen a 50 percent decrease in the SIDS rate and a significant decline in the number of infants who are placed to sleep on their stomachs (prone position).

Despite this progress, SIDS remains the leading cause of death among U.S. infants between one month and one year of age.[2] Several studies show that the safe sleep message is not sufficiently reaching all segments of society.[3, 4] Reducing the SIDS rate requires knowledge and action by parents, caregivers, and all health care providers.

Nurses who care for newborns and infants play a critical role in this effort. The partners in *Back to Sleep*, a national campaign that seeks to educate caregivers about SIDS risk-reduction strategies, are working with national nursing associations to spread safe sleep messages to their members.

As a nurse, you are an important role model for parents and families. By consistently placing infants to sleep on their backs and using other safe sleep practices while infants are still in the hospital, you can help to model the risk-reduction recommendations. By disseminating information, you can also help to educate families about SIDS risk factors and to reinforce ways to reduce the risk of SIDS.

Lesson 1: Understanding SIDS

What Is SIDS?

SIDS is defined as:

The sudden death of an infant younger than one year of age that remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the infant's and family's clinical histories.[5]

Although associated with a sleep period, SIDS deaths are unpredictable. SIDS is often referred to as a "diagnosis of exclusion" because it is applied only after ruling out all probable alternatives, including suffocation, viruses, or other illnesses. A diagnosis of SIDS is made by collecting information and conducting forensic tests, and by talking with parents, other caregivers, and health care providers.[6] In the absence of an identifiable cause of death after this process, infant fatalities may be diagnosed as SIDS.[7]

SIDS can affect infants up to one year of age, but most SIDS deaths occur by the end of the sixth month of age; the greatest number of SIDS deaths occur in infants between two and four months of age.[8] SIDS is generally rare during the first month of life. However, recent data suggest a slight shift in the age of death over the last few years. In 2001, more infants died of SIDS during the first month of life and after six months of age than did so for the same age ranges in 1992.[9]

Because most cases of SIDS occur when a baby is sleeping in a crib, SIDS is also commonly known as "crib death." However, the cribs themselves do not cause SIDS.

WHAT IS SIDS?

SIDS IS:

The leading cause of death in infants from one month to one year of age, with most deaths occurring between two and four months of age;

A sudden and silent medical disorder that can happen to a seemingly healthy infant;

A death often associated with sleep and with little or no signs of suffering;

Determined only after an autopsy, an examination of the death scene, and a review of the infant's and family's clinical histories that provide no other cause of death; and

A diagnosis of exclusion, in which the cause of death can be determined only after ruling out other causes.

SIDS IS NOT:

Entirely preventable, but the risk can be reduced;

The same as suffocation;

Caused by vomiting and/or choking;

Caused by the diphtheria, pertussis, and tetanus (DPT) vaccine or by other immunizations;

Contagious;

The result of child abuse or neglect; and/or

The cause of every unexpected infant death.

Source: National SIDS/Infant Death Resource Center. (2004). *What is SIDS?*

Current Research Findings and Theories About SIDS

Most scientists believe that babies who die of SIDS are born with one or more conditions that cause unexpected responses to the common internal and external stressors that occur during an infant's life. Many researchers argue that the clue to finding the cause(s) of SIDS lies in a deeper understanding of the development and functions of the brain and nervous system of infants, including those who succumb to SIDS.[10]

Brain Abnormalities

Mounting evidence suggests that some babies who succumb to SIDS are born with brain abnormalities. These abnormalities are typically within a network of neurons that use serotonin as a neurotransmitter and are located in a portion of the brain stem likely to control breathing, heart rate, blood pressure, temperature, and waking during sleep.[11]

But scientists believe that brain abnormalities alone may not be sufficient to cause SIDS death. They theorize that other events must also occur, such as lack of oxygen, excessive carbon-dioxide intake, overheating, or an infection, for an infant to succumb to SIDS. (See the description of the "triple-risk model" on page 9 for further explanation.) For example, many babies experience a lack of oxygen and excessive carbon-dioxide levels when they have respiratory infections or when they re-breathe exhaled air that has become trapped in bedding as they sleep on their stomachs. Normally, infants sense this inadequate air intake, and their brains trigger them to wake up or trigger their heartbeats or breathing patterns to change or compensate. In a baby with a flawed brain stem, however, these protective mechanisms may be missing, so the child may succumb to SIDS. Such a scenario might explain why babies who sleep on their stomachs are more susceptible to SIDS.

Genetic Mutations and Polymorphisms

Even though it is unlikely that one defective gene predisposes a baby to SIDS, genes may act in combination with environmental risk factors to result in SIDS.[12] Predisposing factors may include mutations and/or polymorphisms in genes involved in metabolism and the immune system, as well as conditions that affect the brain stem and cause neurochemical imbalances in the brain. Mutations can give rise to genetic disorders that can cause death, while polymorphisms may predispose infants to death in critical situations.

One example of a genetic mutation that may be misdiagnosed as SIDS is a deficiency in fatty acid metabolism.[13] Some babies who die suddenly may be born with a metabolic disorder that prevents them from properly processing fatty acids. A build-up of fatty acid metabolites can lead to a rapid disruption in breathing and heart function—a disruption that can be fatal. If there is a family history of a metabolic disorder, genetic screening can determine if one or both of the parents are carriers of the mutation and, if so, the baby can be tested soon after birth. If the condition is not identified, however, the resulting death may be mistaken for SIDS.

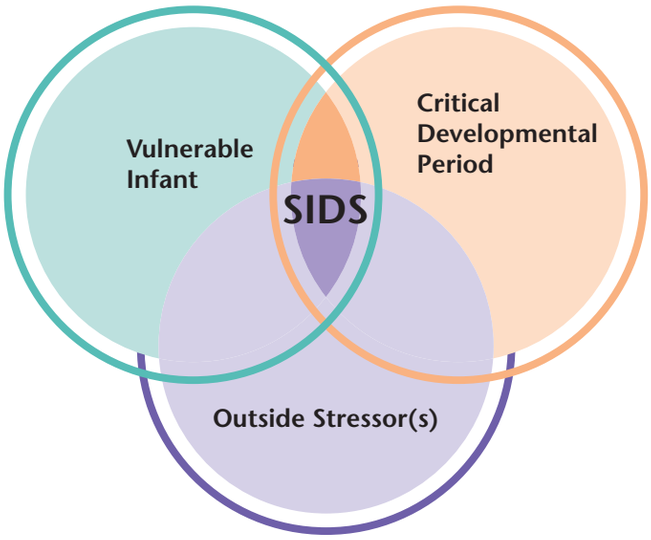
With sudden infant death, it is important to search for genetic mutations that are deadly; infants with such mutations should be excluded from those diagnosed as dying of SIDS.[14] In the future, some infants, who would today be diagnosed as dying from SIDS, will probably be diagnosed as having metabolic or cardiac disease. With the current level of knowledge, however, using genetic markers and mutations in relation to SIDS requires caution. Because this area of research is new, a thorough postmortem investigation must be performed before a final diagnosis is made.

An example of a genetic polymorphism that may be associated with SIDS involves the immune system. Studies in Norway and Germany have revealed an association between partial deletions of the highly polymorphic *C4* gene and mild respiratory infections in infants who have died of SIDS.[15] Differences in *C4* expression may contribute to differences in the strength of the immune system by regulating the predisposition to infectious and autoimmune diseases that put infants at higher risk of SIDS. Partial deletions of the *C4* gene are fairly common and are found in up to 20 percent of the white population. Also, many SIDS infants have an activated immune system, which may indicate that they are vulnerable to simple infections. In fact, approximately 50 percent of infants who die of SIDS will have had a mild upper-airway infection before death.[16]

The Triple-Risk Model

Researchers currently believe that the triple-risk model is a useful construct for understanding SIDS deaths. The triple-risk model describes the convergence of three conditions that may lead to the death of an infant (see Figure 1).

Figure 1. The Triple-Risk Model



- **Vulnerable Infant.** An underlying defect or brain abnormality makes the baby vulnerable. In the triple-risk model, certain factors, such as **defects** in the parts of the brain that control respiration or heart rate, or **genetic mutations**, confer vulnerability.
- **Critical Developmental Period.** During the infant's first six months of life, rapid growth phases and changes in homeostatic controls occur. These changes may be evident (e.g., **sleeping and waking** patterns), or they may be subtle (e.g., **variations in breathing, heart rate, blood pressure, and body temperature**). Some of these changes may temporarily or periodically destabilize the infant's internal systems.
- **Outside Stressor(s).** Most babies encounter and can survive environmental stressors, such as **second-hand tobacco smoke**, **overheating**, a **stomach sleep position**, or an **upper-respiratory infection**. However, an already-vulnerable infant may not be able to overcome them. Although these stressors are not believed to single-handedly cause infant death, they may tip the balance against a vulnerable infant's chances of survival.[17]

According to the triple-risk model, all three elements must be present for a sudden infant death to occur:

1. The baby's **vulnerability** is undetected;
2. The infant is in a **critical developmental period** that can temporarily destabilize his or her systems; and
3. The infant is exposed to one or more **outside stressors** that he or she cannot overcome because of the first two factors.

If caregivers can remove one or more outside stressors, such as placing an infant to sleep on his or her back instead of on the stomach, they can reduce the risk of SIDS.[18]

SIDS Occurrence and Risk-Reduction Outreach

For every year between 1983 and 1992, the average number of reported SIDS deaths in the United States ranged from 5,000 to 6,000. In 1992, the American Academy of Pediatrics (AAP) Task Force on Infant Sleep Position and SIDS (now the AAP Task Force on SIDS, and hereafter the AAP Task Force) issued a recommendation that all healthy infants younger than one year of age be placed to sleep on their backs or sides to reduce the risk of SIDS. The AAP made this recommendation after numerous international research reports concluded that infants who slept on their stomachs had a significantly higher risk of dying from SIDS than infants who slept on their sides or backs.[19]

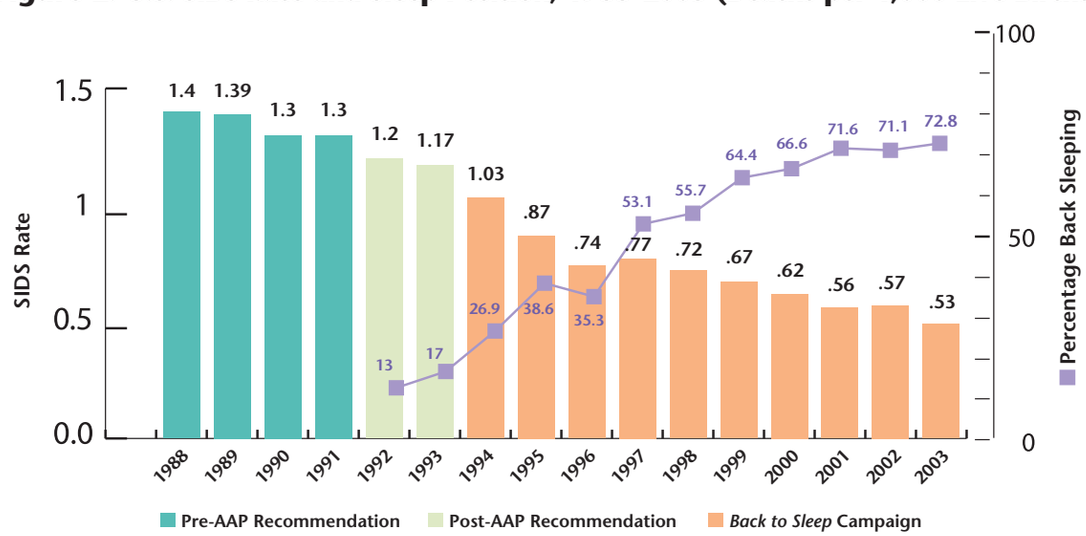
In 1994, the NICHD and a number of partners, including the AAP, the Maternal and Child Health Bureau of the Health Resources and Services Administration, the SIDS Alliance (now First Candle/SIDS Alliance), and the Association of SIDS and Infant Mortality Programs, launched the *Back to Sleep* campaign to raise awareness among parents and caregivers about ways to reduce the risk of SIDS. The primary recommendation for reducing the risk of SIDS was to place healthy infants to sleep on their backs. *Back to Sleep* and other awareness campaigns helped to spread safe sleep messages among parents, families, and caregivers, while the AAP helped to spread the message in the physician community.

Research in subsequent years provided additional evidence of the dangers posed to infants by stomach sleeping. The data were so compelling that, in 1996, the AAP Task Force recommended that infants be placed to sleep *wholly on their backs*, the position associated with the lowest SIDS risk. The AAP concluded that stomach sleeping conferred the highest risk of SIDS, the side-lying position fell in between, and "back was best" for reducing a baby's risk of SIDS.[20]

The most current data from the National Center for Health Statistics show that 2,162 infants younger than age one year died from SIDS in the United States in 2003,[21] a decline of more than 50 percent since 1992. From 1992 to 2005, the frequency of stomach sleeping decreased from more than 70 percent to 13 percent of U.S. infants (see Figure 2).[22] Many researchers, policy makers, and health care providers agree that declines in both SIDS and stomach sleeping rates have been assisted by public awareness campaigns, such as *Back to Sleep*.[23]

Still, SIDS remains the leading cause of death among U.S. infants between one month and one year of age and is the third leading cause of death overall among U.S. infants younger than age one year.[24] Among certain minority groups, about one-third of infants are still placed to sleep on their stomachs,[25] a statistic that challenges the U.S. Healthy People 2010 goal of having fewer than 10 percent of all American families use the stomach sleep position for their infants.[26]

Figure 2. U.S. SIDS Rate and Sleep Position, 1988–2003 (Deaths per 1,000 Live Births)



Sources: SIDS rate source: National Center for Health Statistics, Centers for Disease Control and Prevention, Department of Health and Human Services.[27 29] Sleep position data: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, National Infant Sleep Position Study.[30 31]

SIDS Occurrence in Communities of Color

SIDS rates have declined in all populations throughout the United States, yet disparities in SIDS risk factors and SIDS rates remain (see Table 1). African American infants are more than two times as likely to die of SIDS as white infants, and American Indian/Alaska Native infants are nearly three times as likely to die of SIDS as white infants.[32, 33] Hispanic and Asian/Pacific Islander infants have among the lowest SIDS rates of any racial or ethnic group in the country.[34] Several agencies, including the NICHD, are intensifying efforts to reach high-risk populations with the latest risk-reduction information.

Table 1. SIDS Deaths by Race/Ethnic Origin of the Mother, 2003

Race	Number	Rate per 1,000 Live Births
All Races	**2,162**	**0.53**
American Indian/Alaska Native	54	1.25
African American	677	1.18
White	1,104	0.48
Hispanic	290	0.32
Asian/Pacific Islander	50	0.23

Source: Mathews, T.J., Menacker, F., & MacDorman, M.F. (2003). Infant mortality statistics from the 2001 period linked birth/infant death data set. *National Vital Statistics Reports, 52*(12).

To develop effective interventions for SIDS, it is important to understand how other factors, including distinct cultural issues, interact with basic biological factors.

The increased risk among some groups may be due to factors not yet understood as well as the result of practices that pre-date information about SIDS risk factors. For example, studies have shown that:

- Sleeping on soft bedding and bed sharing, two practices that increase SIDS risk, are more common among minority populations.[35]
- Infants born to African American families and to families living in some urban areas are more likely to be placed to sleep on their stomachs, the position that that confers the highest SIDS risk.[36]
- Dressing an infant in multiple layers of clothing can lead to overheating, which is a leading SIDS risk factor in American Indian communities.[37]

Lesson 2: Understanding SIDS Risk

Currently, there is no known way to completely prevent SIDS. There are several known risk factors for SIDS, although some infants who die of SIDS have no risk factors. Several risk factors present during the prenatal period, at birth, and throughout the infant's first year can be modified or controlled to reduce risk. The major modifiable factors that put infants at **higher risk of SIDS** are:[38]

- Stomach sleeping during naps and at night;
- Soft sleeping surfaces and loose, fluffy bedding;
- Overheating during sleep;
- Maternal smoking during pregnancy and smoke in the infant's environment; and
- Bed sharing with an adult (especially when the adult has used alcohol or drugs or is fatigued) or with other children, regardless of age.

A Closer Look at Sleep Environment Dangers

In addition to placing babies on their backs to sleep for naps and at night, as discussed earlier, parents and caregivers also can reduce the risk of SIDS by guarding against several other sleep environment dangers.

Soft Sleeping Surfaces and Loose Bedding

Studies have found that sleeping on soft surfaces, such as couches and soft mattresses, is a significant SIDS risk factor.[39] For instance, in 2003, a NICHD-supported study showed that placing an infant to sleep on soft bedding as opposed to on firm bedding appeared to pose five times the risk of SIDS. More striking, though, was the fact that infants who slept on their stomachs on soft bedding were at *19 times greater risk* of SIDS than were infants who slept on their backs on firm bedding. Researchers do not know why sleeping on such surfaces would increase the risk of SIDS, but they warn that the practice appears to be highly dangerous.[40] The U.S. Consumer Product Safety Commission, the AAP, and the NICHD jointly recommend that babies sleep on their backs on a safety-approved* mattress, free of loose materials, including pillow-like stuffed toys and bumper pads.[41]

Overheating During Sleep

Babies should be kept warm during sleep, but not too warm. Studies show that an overheated baby is more likely to go into a deep sleep from which it is difficult to arouse.[42–46] Some evidence indicates that increased SIDS risk is associated with excessive clothing or blankets and a higher temperature in the room. SIDS risk is higher for infants who sleep on a soft surface and/or with their heads covered than for infants who sleep on a firm surface and/or without their heads covered. The increased retention of body heat—through excessive insulation from bedding and clothing—can be dangerous for some infants and may contribute to

* U.S. Consumer Product Safety Commission *Crib Safety Tips:* http://www.cpsc.gov/cpscpub/pubs/cribsafe.html

SIDS.[47–51] Increased SIDS risk has also been associated with the season of the year. In the past, SIDS deaths have been more common during cold weather—possibly because infants are more likely to be overdressed or placed under heavier blankets, which may cause them to overheat—but statistics indicate that this association appears to be waning.[52] Studies have also found that overheating may increase the risk of SIDS for a baby who has a cold or infection. Parents and caregivers are advised not to overdress the baby and to keep the thermostat at a comfortable temperature. In general, if the room temperature is comfortable for an adult, then it is appropriate for a baby.[53]

Smoking During Pregnancy and Smoke in the Infant's Environment

Infants whose mothers smoke during or after pregnancy are at greater risk of SIDS.[54] Infants born to mothers who smoked during pregnancy are three times more likely to die of SIDS. Exposure to passive smoke in the household also doubles a baby's SIDS risk.[55, 56] Exactly how smoking during pregnancy affects the infant is not clear, but smoking may negatively affect development of the nervous system. Studies of the mechanisms underlying the association between smoking and SIDS have found that during the last half of pregnancy changes occur in nicotine-binding sites on the baby's brain stem, specifically in areas involved with arousal, heart and breathing functions, sleep, and body movement control.[57] Infants who die from SIDS have a higher nicotine concentration in their lung tissue compared with infants who did not die from SIDS.[58] This finding supports the statement that postnatal environmental tobacco smoke exposure is important in SIDS risk.[59, 60] However, the mechanism for the association between secondhand smoke and SIDS is unknown.

Bed Sharing

Bed sharing among infants and family members, particularly among adults and infants, is common in many cultures.[61] Many mothers share a bed with their infants because it makes breastfeeding easier and enhances bonding. Even though some believe that bed sharing may reduce the risk of SIDS because the parent is nearby to monitor the baby, studies do not support bed sharing as protective strategy for SIDS.[62]

On the contrary, evidence is growing that bed sharing is hazardous. In some situations, bed sharing can compound the risk posed by other factors. For example, bed sharing is shown to increase SIDS risk when:

- The mother smokes, has recently consumed alcohol, or is fatigued;
- The infant is covered by a blanket or quilt; or
- There are multiple bed-sharers.[63–70]

Research has shown that the presence of other children in the bed increases the risk of SIDS more than five-fold.[71] Bed sharing with young infants—even when mothers do not smoke—is also a risk factor for SIDS.[72–74]

The safest alternative to bed sharing may be *room sharing*, a situation in which the infant shares a room with the parents, but has his or her own crib or bassinet.[75–78] Keeping the baby's sleep area close to, but separate from, where the parents sleep is recommended. Parents who wish to room share should place the infant's crib near the mother for easy breastfeeding and should return the infant to his or her crib after breastfeeding. Families should also follow all other SIDS risk-reduction recommendations.

STOMACH SLEEPING

A Note on the Danger of Unaccustomed Stomach Sleeping

NICHD-supported research found that infants who are accustomed to sleeping on their backs but who are then placed to sleep on their stomachs or sides are at an increased risk of SIDS—greater than the increased SIDS risk experienced by infants who are always placed on their stomachs or sides.[79] In addition, a 1999 study found that if an infant who was usually placed to sleep on his or her back was then placed to sleep on his or her stomach or side, his or her SIDS risk was seven to eight times greater than that of an infant always placed to sleep on his or her stomach or side.[80]

Unaccustomed Stomach Sleeping in Child Care Settings

The danger of the unaccustomed stomach sleep position is particularly evident in child care settings. In the United States, approximately 20 percent of SIDS deaths occur while the infant is in the care of a child care provider.[81] This finding is significant, given that two-thirds of infants younger than 12 months of age are in non-parental child care at least some of the time.[82] Despite the 50 percent decline in SIDS since 1992, the proportion of SIDS deaths that occurred in child care settings has remained constant.[83] Many of these child care deaths are associated with the stomach sleep position, especially when the infant is unaccustomed to being placed in that position.

Despite *Back to Sleep* and other awareness campaigns, many child care providers continue to place infants to sleep on their stomachs. A 1997 study revealed that 43 percent of licensed child care center workers were unaware of the association between SIDS and infant sleep position.[84] Subsequent surveys documented that despite increased awareness approximately 25 percent of workers at child care centers still placed infants to sleep on their stomachs.[85] The primary reason for placing infants to sleep on their stomachs was that child care workers were either unaware of the dangers and/or were misinformed.[86] Although providers are more likely to use the back sleep position when centers have written sleep policies, licensed child care centers seldom have such policies.[87] Studies have found that educational programs for child care providers are effective in increasing knowledge of safe sleep positions and in promoting the development of written sleep position policies.[88]

Based on the evidence, then, consistency in sleeping position is extremely important: Parents, grandparents, babysitters, child care providers, and everyone else in charge of putting a baby to sleep should place the baby on his or her back to sleep every time, for naps and at night.

Lesson 3: Reducing SIDS Risk

Why *Back to Sleep?*

The single most effective action that parents and caregivers can take to lower their baby's risk of SIDS is to place their baby to sleep on his or her back for naps and at night. Stomach sleeping carries between 1.7 and 12.9 times the risk of SIDS as back sleeping.[89] The mechanisms by which stomach sleeping might lead to SIDS are not entirely known. Studies suggest that stomach sleeping may increase SIDS risk through a variety of mechanisms, including:

- Increasing the probability that the baby re-breathes his or her own expired breath, leading to carbon dioxide build-up and low oxygen levels;
- Causing upper-airway obstruction; and
- Interfering with body heat dissipation, leading to overheating.[90]

Whatever the mechanism, evidence from numerous countries, including New Zealand, Sweden, and the United States, suggests that placing babies on their backs to sleep results in a substantial decline in the SIDS rate, compared to placing babies on their stomachs to sleep. Researchers have established the link between stomach sleeping and SIDS by observing dramatic decreases in SIDS rates in countries where public health campaigns to reduce the prevalence of stomach sleeping have been successful. In areas where stomach sleeping is rare (including Hong Kong), SIDS rates historically have been very low, which further strengthens the association.[91, 92]

Furthermore, compared with infants who sleep on their backs, infants who sleep on their stomachs:

- Are less reactive to noise;
- Experience sudden decreases in blood pressure and heart rate control; and
- Experience less movement, higher arousal thresholds, and longer periods of deep sleep.[93, 94]

All of these characteristics put an infant at higher risk of SIDS. The simple act of placing infants on their backs to sleep significantly lowers SIDS risk.

In addition, placing babies on their backs to sleep is not associated with risks for other problems. For instance, there is no increase in aspiration or complaints of vomiting when babies are placed on their backs to sleep.[95] And, although researchers have found that back sleepers are somewhat slower to learn to roll from their stomachs to their backs, sit up, creep, crawl, and pull to the standing position than stomach sleepers, there is no significant difference in the age when infants learn to walk.[96]

Moreover, babies may benefit in other ways from sleeping on their backs. A 2003 study found that infants who slept on their backs were less likely than infants who slept on their stomachs to develop ear infections, stuffy noses, or fevers.[97] Research on this association is ongoing.

Back to Sleep: Advice for Health Care Providers

The AAP Task Force recommends that personnel who work in hospital nurseries place babies on their backs to sleep.[98, 99] If there are concerns about possible choking during the immediate neonatal period (defined as the first few hours following birth), hospital personnel may place the babies on their sides, propped up against the side of the bassinet for stability. But within several hours of birth, babies should be placed wholly on their backs to sleep. The back sleeping position is recommended for preterm[163, 164] and term infants.

As stomach sleeping has declined in response to back sleeping campaigns worldwide, statistics show that the contribution of side sleeping to SIDS risk has increased. Research shows that side sleeping is not as safe as back sleeping and therefore is not advised.[100]

The Importance of Tummy Time for Healthy Infant Development

The NICHD and other organizations remind parents not to go overboard with placing their baby on his or her back. It is important to allow babies, when awake and playing, ample Tummy Time as a necessary part of their development.[101, 102] Parents and caregivers should place infants on their stomachs for a certain amount of time each day, when they are awake and when they are supervised, to promote motor development. Lying on the stomach during playtime strengthens muscles in the shoulders and neck that are used to acquire many infant motor milestones.

Tummy Time can also help to prevent the development of flat spots on babies' heads. There is no evidence to suggest that this flattening is harmful to infants or that it is associated with any permanent effects on head shape.[103] However, parents and caregivers may wish to alternate the baby's head position when he or she is placed to sleep so that the baby is not always sleeping on the same side of the head. Parents and caregivers can also periodically move the crib around the room so the baby has to turn his or her head in different directions to see what's going on. Another important part of preventing the development of flat spots on babies' heads is holding the baby upright when he or she is not sleeping and limiting the amount of time the baby spends in car seats, swings, carriers, or bouncy seats.[104, 105]

Factors Thought To Protect Against SIDS

Several studies have examined environmental influences and child-rearing practices that may help to protect an infant from SIDS. One such practice is **breastfeeding**. Physiologic studies show that breastfed infants are more easily aroused than their formula-fed counterparts during sleep,[106, 107] which might explain the protective effect of breastfeeding against SIDS. However, epidemiologic studies are inconsistent, with some finding a protective effect and others failing to find such an effect.[108–113] It may be that not smoking and other factors associated with breastfeeding, rather than breastfeeding itself, are protective. Current evidence is insufficient to recommend breastfeeding as a strategy to reduce the risk of SIDS.[114]

Several studies have found that infants who used **pacifiers** during their last sleep were at significantly lower risk of SIDS compared with infants who did not use pacifiers,[115] and a recent meta-analysis reinforced findings of the protective effect of pacifiers against SIDS.[116] As with breastfeeding, the mechanism for this association is unclear, but lowered sleep arousal thresholds are one possibility.[117]

It is important to point out to caregivers that environmental influences such as these, in and of themselves, are not reliable in predicting how, when, why, or if SIDS will occur.

Session 1: Take-Away Messages

- Despite significant declines in SIDS rates, SIDS still remains the leading cause of postneonatal death among U.S. infants. Greater efforts must be made to communicate and encourage safe sleep practices among all parents and caregivers.

- Research indicates that some infants may be predisposed to SIDS because of a brain abnormality or genetic defect and because they are in a critical developmental period; however, it likely takes exposure to an outside stressor, such as stomach sleeping, loose bedding, or tobacco smoke, to trigger sudden death.

- American Indian/Alaska Native infants have the highest SIDS rate of any racial or ethnic group in the United States.

- The single most effective action that parents and caregivers can take to reduce the risk of SIDS is to place infants on their backs to sleep for naps and at night.

- The AAP Task Force and partners in the *Back to Sleep* campaign encourage parents and caregivers to follow a list of safe sleep recommendations to reduce the risk of SIDS. A complete list of these recommendations can be found on page 18.

SIDS Risk-Reduction Recommendations

- **Always place the baby on his or her back to sleep for naps and at night.** The back sleep position is the safest, and every sleep time counts.

- **Place the baby to sleep on a firm sleep surface, such as on a safety-approved* crib mattress, covered by a fitted sheet.** Never place the baby to sleep on pillows, quilts, sheepskins, or other soft surfaces.

- **Keep soft objects, toys, and loose bedding out of the baby's sleep area.** Don't use pillows, blankets, quilts, sheepskins, or pillow-like crib bumpers in the baby's sleep area, and keep all items away from the baby's face. If you choose to use a blanket, place the baby with his or her feet at the end of the crib. The blanket should reach no higher than the baby's chest. Tuck the ends of the blanket under the crib mattress to ensure safety.

- **Do not allow smoking around the baby.** Don't smoke before or after the birth of the baby, and don't let others smoke around the baby.

- **Keep the baby's sleep area close to but separate from where you and others sleep.** The baby should not sleep in a bed or on a couch or armchair with adults or other children, but he or she can sleep in the same room as you. If you bring the baby into bed with you to breastfeed, put him or her back in a separate sleep area, such as a bassinet, crib, cradle, or a bedside co-sleeper (an infant bed that attaches to an adult bed) when finished.

- **Think about using a clean, dry pacifier when placing the baby down to sleep,** but don't force the baby to take it. If breastfeeding, wait until the baby is one month of age or is used to breastfeeding before using a pacifier.

- **Do not let the baby overheat during sleep.** Dress the baby in light sleep clothing and keep the room at a temperature that is comfortable for an adult.

- **Avoid products that claim to reduce the risk of SIDS** because most have not been tested for effectiveness or safety.

- **Do not use home monitors to reduce the risk of SIDS.** If you have questions about using monitors for other conditions, talk to your health care provider.

- **Reduce the chance that flat spots will develop on the baby's head.** Provide Tummy Time when the baby is awake and someone is watching; hold the baby upright when he or she is not sleeping; change the direction that the baby lies in the crib from one week to the next; and avoid too much time in car seats, carriers, and bouncy seats.

Talk about SIDS risk to child care providers, grandparents, babysitters, and everyone who cares for the baby.

As more research is conducted on infant sleep position and SIDS, the partners in the *Back to Sleep* campaign will continue to modify their recommendations so that the most scientifically sound information is communicated to families and caregivers.

* U.S. Consumer Product Safety Commission *Crib Safety Tips*: http://www.cpsc.gov/cpscpub/pubs/cribsafe.html

Sources: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development. (2005). *Safe Sleep for Your Baby: Reduce the Risk of Sudden Infant Death Syndrome (SIDS).* NIH Pub No. 05-7040; and Task Force on Sudden Infant Death Syndrome. (2005). The changing concept of sudden infant death syndrome: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing risk. *Pediatrics, 116*, 1245–1255.

Session 2

SESSION 2

How To Communicate SIDS Risk-Reduction Techniques to Parents and Caregivers

Nurses are in a unique position to educate parents and caregivers about SIDS and to help them learn and follow SIDS risk-reduction measures. Because nurses counsel parents during the prenatal period, during labor and delivery, in the immediate postpartum period, and after the baby goes home, they are often among a family's most trusted advisors on how to properly care for newborns.

Nurses have the power to influence parents' behavior by modeling safe sleep practices while the infant is in the hospital, and by following up with parents and caregivers to encourage compliance after the family goes home. By demonstrating safe sleep practices themselves, nurses can help families learn how to reduce the risk of SIDS.

As described in Session 1, the SIDS rate and the prevalence of stomach sleeping have declined dramatically in the United States over the last two decades. However, 13 percent of parents and caregivers still place their babies to sleep on their stomachs,[118] despite the higher SIDS risk. Health care providers, child care providers, and others need to make a greater effort to encourage back sleeping in all communities and to eliminate the use of soft bedding, pre- and postnatal exposure to cigarette smoke, and other factors that put a baby at risk of SIDS.

Now that you know more about SIDS, its possible mechanisms, and its risk factors, consider the impact that nurses like you can have on parental behavior in reducing SIDS risk. This session explains some of the ways that you can teach parents and caregivers how to reduce a baby's risk of SIDS, and how to best communicate safe sleep messages.

Lesson 1: Nurses as Role Models for Parents

Nurses are in a powerful position to help correct misconceptions and to counter myths about SIDS. Nurses are also in a unique position because, more than other health care providers, they can model SIDS risk-reduction techniques to ensure that families know how to reduce the risk. The most critical period for nurses to influence parents' behaviors is the 24 to 48 hours following delivery.[119]

People learn best through observation,[120] and research shows that parents are more likely to follow safe sleep practices—particularly placing infants in the back sleep position—when they see nursery staff consistently model this behavior in the hospital.[121] A 2002 study in New Haven, Connecticut, found that nurses who placed infants in the back sleep position during the postpartum hospital stay changed parents' behaviors significantly.[122] Modeling safe sleep position behavior can also be applied during postpartum care in out-of-hospital birth settings, such as a birthing center.

So, as a first step toward reducing the risk of SIDS, nurses and other staff can set a strong example by ensuring that infants in their care are always placed on the back to sleep. In doing so, they set an example for parents to follow throughout the baby's first year.

Knowing the Safe Sleep Message

Many surveys and studies show that the vast majority of nurses are knowledgeable about safe sleep recommendations. In a 1999 study, 97 percent of nurses surveyed reported awareness of the AAP recommendation that infants should be placed on their backs to sleep. Awareness did not always indicate compliance, however; only 67 percent of the nurses followed the recommendation. The majority of the nurses who did not comply cited "experience" or "the potential adverse consequences of the back position" as their reason for disregarding the recommendation.[123]

Similarly, in a 2004 survey conducted in Missouri, 96 percent of nurses said they were aware of the AAP recommendation, but only 75 percent reported using either the side position or a mixture of side and back positioning. Most of those who said they were familiar with the AAP recommendation referred to the Academy's initial 1992 recommendation, so they thought that the side position was also acceptable.[124] These nurses were not aware of the 1996 recommendation that babies be placed *wholly on their backs*.

Spreading and Practicing the Safe Sleep Message

Studies have found that nursery staff do not uniformly recommend the back sleep position to families.[125, 126] In a study conducted in California, only 34 percent of nursery staff surveyed stated that they consistently encouraged mothers to use the back sleep position.[127] Another study found that nurses with fewer years of experience were more likely to encourage parents to use the back-only position, while nurses with more years of experience did not recommend or use the back-only position. Primarily, these nurses indicated that they believed an infant does not sleep well on his or her back, but, as you learned in Session 1, *deep sleep and the inability to rouse from such sleep are possible contributors to SIDS.*[128]

Even though the vast majority of nurses know the importance of back-only sleeping and many embrace it as positive advice for parents, not all nurses practice it.

In 2002, researchers in New Haven, Connecticut, hypothesized that training nurses about the safe sleep recommendations could change nursery practice and, ultimately, encourage more parents to place infants on their backs to sleep. In the study, nursery staff went through a 30-minute training session that emphasized the importance of educating parents about back sleeping and of modeling this behavior in the nursery. After the training, 81 percent of parents reported that a nurse told them to place their baby to sleep on his or her back, compared with 41 percent before the training. And 88 percent of parents reported *seeing* nurses place babies on their backs in the nursery, compared with only 37 percent of parents who witnessed this behavior prior to the training.[129]

The study also found that after nursery practice was changed by the training, 75 percent of parents usually placed their infants on their backs to sleep at home, compared with 42 percent before the training.[130] This study demonstrates the impact nurses can have on the parents they encounter and the power of educating a clinic's or hospital's nursing staff about these topics.

The National Infant Sleep Position Study, supported by the NICHD from 1993 to 2000, found that recommendations from health care providers can greatly influence parents' choice of infant sleep position. The importance of all health care providers both spreading and practicing the safe sleep recommendations cannot be overstated. Nurses should be aware of the strong influence nurses have on parents and how parents care for their infants, and nurses should use this influence to help reduce the risk of SIDS.

Lesson 2: Challenges to SIDS Risk Reduction

Despite the best efforts of nurses and other health care providers, cultural practices and other issues can affect compliance with SIDS risk-reduction recommendations.

Cultural Challenges

SIDS rates vary across racial and ethnic groups in the United States, and infant care often has its roots in tradition and experience, more so than in science. Despite the dramatic decrease in SIDS rates in the general U.S. population, not all infants have benefited equally from this progress. In fact, high SIDS rates persist in many communities of color.

It is important that advice on SIDS risk reduction be as clear and as culturally appropriate as possible. When educating parents about SIDS risk reduction, consider cultural practices that may exist in the parents' community—for instance, the prevalence of stomach sleeping is much greater among some minority populations. One recent study in California found that African American mothers were twice as likely to put infants to sleep on their stomachs or sides as were white mothers.[131] In fact, more than 15 percent of African American infants are placed on their stomachs to sleep;[132] therefore, when discussing SIDS with African American families, stressing back sleeping may be the most important and culturally appropriate message.

Among American Indians and Alaska Natives, overheating and bed sharing are bigger issues in the context of SIDS risk than is back sleeping. For example, these infants are more likely to be dressed in two or more layers of clothing. Therefore, discussions of SIDS risk reduction with this audience should focus on not letting the child get too warm during sleep. Infants in an NICHD-funded study, the Aberdeen Area Infant Mortality Study, were more likely to die of SIDS if they wore two or more layers of clothing while they slept.[133]

Many major risk factors for SIDS are also more common among minority and underserved populations. Nurses and other health care providers may need to address these issues directly or indirectly when discussing SIDS risk reduction with families.

- In American Indian communities, the Aberdeen Area Infant Mortality Study (2002) found that infants were less likely to die of SIDS if their mothers received visits from public health nurses before and after giving birth. The study also found that a mother's binge drinking (defined as five or more drinks at a time) during the first trimester of pregnancy made it eight times more likely that her infant would die of SIDS.

- Bed sharing between infants and family members is growing across all populations in the United States.[134] The National Infant Sleep Position Study found strong cultural influences on this practice. African American infants were five times more likely to share a bed with an adult or another child than were white infants.[135]

Other Challenges

Safe sleep recommendations seem straightforward, and most—such as placing infants on their backs to sleep and clearing the crib of fluffy or loose bedding and stuffed animals—require little effort. Even so, nurses may encounter resistance from parents and families when discussing even the most straightforward SIDS risk-reduction actions. Some parents may hesitate to comply for other reasons, including:

- **The possibility of aspiration or choking.** A major reason parents avoid the back sleep position is that they fear their infant will regurgitate and aspirate if the infant sleeps on his or her back.

- **The infant's comfort.** Some parents report that their infants seem to sleep more deeply and appear more comfortable while sleeping on his or her stomach. In one study, the mothers' perception that their babies slept better on their sides or stomachs was 11 times more influential than were reading materials that recommended back sleeping.[136]

- **Concern about a flattened skull.** Some infants develop a flattened appearance at the back of their skulls as a result of repeated back sleeping.

- **Recommendations by others.** Many parents say they use the stomach sleep position because a relative, caregiver, or health care provider recommended it, or because they saw one of these people placing an infant to sleep on his or her stomach in the hospital, at home, or during a medical visit. In one study, advice from the mother's own mother, sister, aunt, or grandmother was seven times more influential than were reading materials that recommended back sleeping.[137]

  The Chicago Infant Mortality Study (2002) reported that more than 94 percent of the mothers in the study stated that they had followed the medical advice they received regarding infant sleep position. Yet, for those mothers who did not receive medical advice or who did not follow it, past experience was the most important factor in determining sleep position.[138]

You'll learn more about these concerns and ways to counter them later in this session.

Lesson 3: Communicating About SIDS Risk Reduction

Health literature is filled with studies that demonstrate the need for effective communications between health care providers and their patients.[139] As nurses know, providing information to patients often requires translating medical terminology into lay language so that patients can understand it. As mentioned earlier, the most effective way for nurses and health care providers to communicate risk-reduction messages is to practice them so that parents and families can see the messages in action. For a discussion of SIDS risk-reduction messages to be effective, nurses should try to assess the needs and abilities of the families they are working with and modify their communications accordingly.

In this lesson, you will learn how to assess the needs and abilities of families, so that you can adjust your messages appropriately without placing an unnecessary burden on your current workload.

Keep in mind that, in some cases, health education materials, such as brochures, pamphlets, and guidebooks, are written at a level far above the average adult's reading ability and may not be appropriate for many adults.[140] Messages about SIDS risk reduction, even those delivered orally, must be as clear and simple as possible.

Remember, too, that the simplest delivery technique is often the most effective. In a study involving mostly African American parents, those who were told to place their infants on their backs to sleep were most likely to place babies in the back sleep position. For the same study population, receiving written information did not affect sleep position at all.[141]

The following sections provide sample talking points to use with parents and caregivers to encourage safe infant sleeping practices.

Countering Common Arguments Against Back Sleeping

You can counter common arguments against back sleeping with accurate, science-based statements. Because parents may have concerns about back sleeping, it is important to address these issues directly. Opportunities to counter back sleeping challenges occur before and after delivery—during well-baby visits, postpartum home visits, and follow-up telephone calls. The following findings from SIDS risk-reduction research should help to allay some of the most commonly voiced concerns.

Fear of Aspiration

Aspiration is defined as the entry of secretions or foreign material into the trachea and lungs. Many parents and some nurses may fear that infants placed to sleep on their backs (supine) are more likely to experience complications from gastroesophageal reflux, including aspiration, than infants placed to sleep on their stomachs (prone). There is no evidence, however, that aspiration is more common among healthy babies sleeping on their backs than among healthy babies sleeping on their stomachs.[142, 143]

Cases of fatal aspiration are very rare, except when associated with an underlying or associated medical condition. In most of the few reported cases of death due to aspiration, the infant's position at death, when known, was prone.

Indirect reassurance of the safety of the back sleeping position for infants comes from the knowledge that this position has been standard in China, India, and other Asian countries for many years. In England, Australia, and New Zealand, where there has been a major change in infant sleeping position from predominantly stomach sleeping to predominantly back sleeping, there is no evidence of any increased number of serious or fatal episodes of aspiration of gastric contents.

In fact, babies may actually clear secretions better when placed on their backs. Figures 3 and 4 show the orientation of the trachea to the esophagus in the back sleeping (Figure 3) and stomach sleeping (Figure 4) positions. When a baby is in the back sleeping position, the trachea lies on top of the esophagus. Anything regurgitated or refluxed from the esophagus must work against gravity to be aspirated into the trachea. Conversely, when a baby is in the stomach sleeping position, anything regurgitated or refluxed will pool at the opening of the trachea, making it easier for the baby to aspirate.

ORIENTATION OF THE TRACHEA TO THE ESOPHAGUS

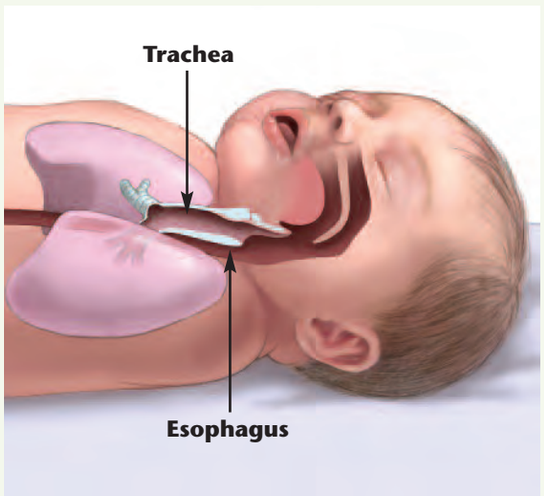


Figure 3.
Upper-Respiratory Anatomy: Baby in the Back Sleeping Position

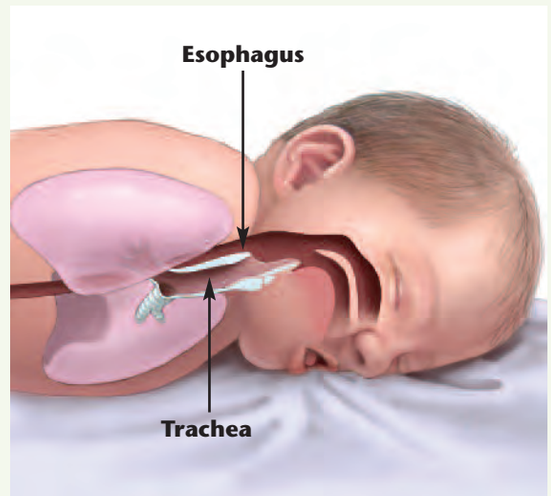


Figure 4.
Upper-Respiratory Anatomy: Baby in the Stomach Sleeping Position

Comfort of the Infant

It is true that some infants who lie on their backs do not sleep as deeply as those who lie on their stomachs. Similarly, infants who are placed on their backs may be fussy or cry. However, the absence of very deep sleep is believed to help protect infants against SIDS.[144, 145] As described in Session 1, babies who are placed on their stomachs sleep more deeply, are less reactive to noise, experience less movement, and are less able to be aroused than back sleeping infants.[146] *All of these characteristics put an infant at higher risk of SIDS.* So, even though comfort is important, the infant's safety is more important; the back sleep position should be used even if the infant seems to sleep less comfortably.

Some products (e.g., wedge) claim to be designed to keep a baby in one position and to reduce the risk of SIDS. These products and others have not been tested for safety or effectiveness. These items are not recommended unless prescribed by a physician.

Flattened Skull

As you know, an infant's skull comprises free-floating bones that grow apart and together over the course of infancy to accommodate the growth and development of the brain. The appearance of persistent flat spots on an infant's head is known as *plagiocephaly*. In some cases, repeated external pressure on one area of the

head, such as that resulting from spending all of the time in one position, can lead to flattening of the back of the head; this situation is called *positional plagiocephaly,* and it is a real condition. Some data suggest that the number of babies with positional plagiocephaly has risen with the increased use of back sleeping.[147, 148]

In most cases, though, the flat spots usually disappear in the months after the baby learns to sit up.[149] Once repeated pressure to the back of the head is eliminated, so too are the flat spots.

The most effective way to combat flat spots is to allow daily Tummy Time, placing the infant on his or her stomach while he or she is awake and supervised. Tummy Time helps to remove pressure on the back of the head and strengthens neck and shoulder muscle development, which helps the child prepare to sit up on his or her own.

In addition to Tummy Time, caregivers should also change the infant's head position in the crib—placing the head to one side for a week or so, and then placing it to the other side—while the infant sleeps on his or her back.[150] Changing an infant's head position helps to alleviate the pressure on the back of the skull. Caregivers also may wish to periodically move the crib around the room so the baby has to turn his or her head in different directions to see what's going on. Parents and caregivers should also hold the baby upright when he or she is not sleeping and limit the amount of time the baby spends in car seats, swings, carriers, or bouncy seats.[151] All of these actions help to reduce the chances that flat spots will occur.

Some products (e.g., helmets or bands) claim to be designed to eliminate flat spots. These products have not been tested for safety or effectiveness. They are not recommended unless prescribed by a physician.

Plagiocephaly that is not related to head position can also occur. Such occurrences require intervention from a health care provider.

Advice From Others

One of the strongest reasons caregivers reported for choosing the stomach sleep position is that someone recommended it or said it was the way their family had always done it. A recent study of African American families determined that the likelihood of an infant being placed on his or her stomach to sleep nearly doubled if a grandmother lived in the home,[152] suggesting that her practice and/or advice is a strong motivator to parents. As mentioned, however, sleep position advice from health care providers also carries a great deal of weight with families.

Parents need to be prepared to give solid reasons for their choice of the back sleep position in order to counter the contrary advice they may receive from others. They should also be prepared to insist on consistent use of the back sleep position even when others care for the infant.

MAKE TIME FOR TUMMY TIME

Nurses should encourage parents and caregivers to place babies on their stomachs while they are awake and are being supervised. Developmental experts advise that placing an infant on his or her stomach while awake and supervised is important for shoulder, arm, and neck development. A certain amount of Tummy Time is good for an infant when he or she is playing. In fact, Tummy Time is a very important and necessary part of an infant's healthy physical and brain development.

Source: Task Force on Sudden Infant Death Syndrome. (2005). The changing concept of sudden infant death syndrome: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing risk. *Pediatrics, 116,* 1245–1255.

Responding to Questions About SIDS and Sleep Position

Below are questions you may hear from parents and caregivers about back sleeping, along with ways in which you might respond.

Q. Why should I place my baby on his or her back to sleep?

A. Because it is the safest sleep position for babies. Babies are much less likely to die from SIDS if they sleep on their backs for naps and at night. Infants who are placed to sleep on their backs are also less likely to develop fevers, get stuffy noses, or develop otitis media (ear infection). Moreover, babies can benefit from sleeping on their backs because they can move their arms and legs and look around more easily.

Q. What's wrong with my baby sleeping on his or her stomach? I was placed to sleep on my stomach. Was that wrong?

A. Most of us were placed to sleep on our stomachs—and we survived. But many infants didn't. We have no way of knowing which babies will die of SIDS, but we do know how to reduce the risk. One of the most effective and easiest ways to reduce SIDS risk is to place infants on their backs to sleep. In the 1990s, more than 5,000 babies in the United States died of SIDS every year. Today, as stomach sleeping has decreased and back sleeping has increased, fewer than half that many babies—less than 2,500—die of SIDS each year. These statistics reinforce the evidence that it is safer to place babies on their backs to sleep.

Q. Won't my baby choke if he or she throws up while sleeping on his or her back?

A. Babies automatically swallow or cough up such fluid if they throw up. It's a reflex to make sure the airway is always open. Research has found no increase in choking or other problems in babies who sleep on their backs. *In fact, babies may actually clear secretions better when placed on their backs.* When a baby is in the back sleeping position, the trachea lies on top of the esophagus. Anything regurgitated or refluxed from the esophagus must work against gravity to be aspirated into the trachea. Conversely, when a baby is in the stomach sleeping position, anything regurgitated or refluxed will pool at the opening of the trachea, making it easier for the baby to aspirate.

Q. What if my baby's grandparents or caregivers want to place my baby to sleep on his or her stomach at naptime?

A. Make sure everyone knows to place your baby on his or her back to sleep for naps and at night. It is important that everyone use the same position because babies who are used to sleeping on their backs are at seven to eight times greater risk for SIDS if they are then placed on their stomachs to sleep.

Q. What if my baby can't adjust to sleeping on his or her back?

A. Deep sleep and the inability to rouse from such sleep are believed to contribute to SIDS. Even though comfort is important, the infant's safety is more important; the back sleep position should be used even if the infant seems to sleep less comfortably. It may seem that some babies don't like sleeping on their backs at first, but most adapt to it quickly. The earlier you start placing your baby on his or her back to sleep, the more quickly he or she will get used to that position.

Q. Is it okay if my baby sleeps on his or her side?

A. The side sleeping position is not as safe as the back sleeping position. For this reason, side sleeping is not advised.

Q. What about products designed to keep my baby in a certain position during sleep?

A. These products have not been tested for safety and are therefore not recommended. There is no proof that these products help lower a baby's risk of SIDS. Besides, during the time of greatest risk, two to four months of age, most babies are not able to turn over from their backs to their stomachs. So, a product claiming to prevent turning over would not be useful.

Q. Are there times when my baby should be on his or her stomach?

A. Yes, your baby should have plenty of Tummy Time—being on his or her stomach while he or she is awake and being supervised. Tummy Time will help make your baby's neck and shoulder muscles stronger and will help prevent flat spots on the head.

Q. Will my baby get flat spots on the back of his or her head from back sleeping?

A. Usually, flat spots on the back of a baby's head are temporary. They should go away in a few months once the baby begins to sit up. Tummy Time, when your baby is awake, is a good way to reduce flat spots. Parents and caregivers may also wish to alternate the baby's head position when he or she is placed to sleep so that the baby is not always sleeping on the same side of the head, and they can periodically move the crib around the room so the baby has to turn his or her head in different directions to see what's going on. They should also hold the baby upright when he or she is awake and should limit the amount of time the baby spends in car seats, swings, carriers, and bouncy seats.[153] All of these actions can help to prevent flat spots on the back of the head.

Q. What should I do when my baby starts to roll over on his or her own?

A. Babies should be placed on their backs to sleep, but when they are able to roll over on their own, they should be allowed to adopt whatever sleep position they prefer after they are asleep.* If the baby has rolled over from his or her back to the side or stomach on his or her own during sleep, it is not necessary to reposition the infant to the back position.

*American Academy of Pediatrics. Healthy Child Care America *Back to Sleep* Campaign (2003). Available online at http://www.healthychildcare.org/pdf/bts_factsheet.pdf

Sources: Adapted from *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, *Back to Sleep Campaign. (2005). Safe Sleep for Your Baby: Reduce the Risk of Sudden Infant Death Syndrome (SIDS).* NIH Pub No. 05-7040; and Task Force on Sudden Infant Death Syndrome. (2005). The changing concept of sudden infant death syndrome: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing risk. *Pedia rics, 116*, 1245–1255.

CAN A BABY EVER BE PLACED TO SLEEP ON HIS OR HER STOMACH OR SIDE?

Occasionally, there are circumstances in which a baby should be placed to sleep on his or her stomach or side. Studies of babies with certain medical disorders, such as upper-airway malformations (e.g., Robin Syndrome) or severe gastroesophageal reflux, show that these infants experience fewer problems when lying on their stomachs. These babies may also benefit from sleeping in the stomach position with the head elevated. However, no recent literature supports or refutes the benefits of this therapy.

If you have concerns about possible choking for the first few hours following birth, you can place the baby on his or her side, propped up against the side of the bassinet for stability. But the AAP Task Force on SIDS recommends that after several hours the baby be placed wholly on his or her back to sleep.

Nurses and other health care providers should consider the potential benefit to the baby when recommending infant sleep position. If a health care provider decides that a baby should sleep on his or her stomach or side because of a medical condition or other concern, be sure to advise parents and caregivers to reduce SIDS risk in other ways, such as avoiding soft bedding and ensuring that the baby does not overheat. For most babies, however, side sleeping is not advised.

Source: Task Force on Sudden Infant Death Syndrome. (2005). The changing concept of sudden infant death syndrome: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing risk. *Pediatrics, 116*, 1245–1255.

Encouraging Parents To Take Action

Studies show that patients are more likely to recall and comply with instructions when a health care provider uses a positive tone, provides adequate information, and allows the patient to ask most of the questions.[154] These findings suggest that the way in which nurses deliver SIDS risk-reduction messages has a significant impact on whether parents follow the advice they receive.

You may want to seek guidance from various theories of health behavior when talking to parents about safe infant-sleeping practices. According to one well-accepted theory,* watching the positive actions of others serves as a powerful motivator and predictor of parent compliance. The heart of this theory is that people tend to imitate behavior that they have recently seen. To encourage this kind of learning through observation, you need to ensure that the following four conditions are met:[155]

1. **Attention**. Finding an optimal time for education when the parents are alert will increase attention to the message. Anything that diverts attention decreases learning. In terms of SIDS risk reduction, for example, a parent who is fatigued, distracted, or overwhelmed following childbirth is less likely to learn well. Therefore, you may want to start educating parents about SIDS before the baby is born, again when the baby comes home, and once more during the immediate postpartum period.
2. **Retention**. For SIDS risk-reduction recommendations to be retained, it is vital that you consistently model the behavior of placing infants on their backs to sleep. To retain (or remember) what is observed, imagery and language are important: People store what they have seen in the form of mental images or verbal descriptions. When stored, parents can later "bring up" the image or description so that they can reproduce it with their own behavior.
3. **Reproduction**. You need to provide opportunities for parents to practice placing their baby in the back sleep position and then provide feedback and encouragement. Parents must model the behavior that nurses have demonstrated: putting their baby to sleep on his or her back, in a crib free of loose bedding, and wearing only sleep clothing and no blanket. Role-playing with parents can also help them practice communicating to grandparents and others about why back sleeping is safest.
4. **Motivation**. Convincing parents of the benefits of the practice is critical to their motivation to implement the recommendations. To do so, nurses should:
   - Provide convincing arguments for placing infants to sleep on their backs (called past reinforcement or traditional behaviorism);
   - Demonstrate how easy it is to do (called promised reinforcement); and
   - Reinforce that parents are doing what is best for their baby and that they should continue to do so until the child's first birthday (called vicarious reinforcement).

Nurses can reinforce parents' confidence and interest in performing new skills by providing ongoing encouragement and praise.

*Social Cognitive Theory or Social Learning Theory

Delivering Messages

Research conducted over the past 30 years has revealed that SIDS is an extraordinarily complex problem. Eliminating SIDS will require a multidisciplinary approach involving nurses, pediatricians, epidemiologists, pathologists, neuroscientists, geneticists, infectious disease experts, and other health care providers as well as parents and caregivers. Research has also shown that prenatal and daily infant care practices play a critical role in SIDS risk reduction.[156]

The most critical period during which nurses can influence parents' behaviors is the first 24 to 48 hours following delivery.[157] In addition, building a foundation for back sleeping during pregnancy is one way to ensure that parents hear and heed SIDS risk-reduction messages.

Nurses can influence parents on a wide variety of health care practices. With respect to helping a family reduce its newborn's risk of SIDS, a nurse can:

- Ask about how and where the baby will be sleeping when he or she sees the parents during prenatal care visits;
- Provide education during pregnancy about SIDS risk-reduction;
- Model behavior by placing the infant on his or her back to sleep in the nursery;
- Reinforce the SIDS risk-reduction message following the infant's birth;
- Monitor the infant's sleep position by asking the parents about it during every office visit and through periodic phone calls; and
- Help parents modify the crib and home environment according to SIDS risk-reduction recommendations, if needed.[158]

Research shows that about one-third of parents who place infants on their backs at one month switch to the stomach sleeping position by the time the infant is three months old.[159, 160] This choice is a dangerous one because infants who get used to the back sleeping position and who are then placed on their stomachs are *at higher risk of SIDS* than if they had always been placed on their stomachs.[161] This finding highlights the necessity for nurses to discuss infant sleep position well after an infant's birth. It is critical that nurses continue to provide support, when possible, up to a full year after the infant's birth to ensure that families are using the back sleeping position at home.[162]

If possible, follow-up education and activities should be offered to parents and caregivers where their daily activities take place, such as at women's wellness clinics, well-child clinics, and community health centers.

Session 2: Take-Away Messages

- Nurses are in a powerful position to influence parents' behavior by modeling safe sleep practices, especially during the 24 to 48 hours following delivery, and by following up with families throughout the baby's first year to ensure that they are using the back sleeping position at home.

- Evidence shows that parents and caregivers use the same sleep position for their babies at home that they see used at the hospital. Because nurses play a key role in caring for the infant immediately after birth, nurses provide the perfect channel for reaching parents and families with safe sleep messages by putting words into action.

- SIDS rates vary across racial and ethnic groups in the United States, and infant care often has its roots in tradition and experience. It is important that advice on SIDS risk reduction be as clear and as culturally appropriate as possible.

- Parents may have concerns about back sleeping, such as fear of aspiration, concern for the infant's comfort, worries about a flattened skull, and contrary advice from others. It is important to counter these arguments with accurate, science-based statements.

- For a complete list of safe sleep recommendations, please see page 18. There is also a sheet with the risk-reduction strategies in the pocket on the inside back cover of this booklet for you to copy and share with parents and families.

Additional Resources

Listed below are selected resources that provide public and professional education materials about SIDS.

***Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD)**
Back to Sleep Campaign
Phone: 1-800-505-CRIB (2742)
TTY: 1-888-320-6942
Fax: 1-866-760-5947
Mail: 31 Center Drive, Building 31, Room 2A32, Bethesda, MD 20892
Internet: *http://www.nichd.nih.gov/SIDS*

American Academy of Pediatrics (AAP)
Phone: (847) 434-4000
Fax: (847) 434-8000
Mail: 141 Northwest Point Boulevard, Elk Grove Village, IL 60007-1098
Internet: *http://www.aap.org/healthtopics/Sleep.cfm*

Association of SIDS and Infant Mortality Programs
Phone: (631) 444-3690
Fax: (631) 444-6475
Mail: School of Social Welfare, Stony Brook University, Stony Brook, NY 11794-8232
Internet: *http://www.asip1.org*

C.J. Foundation for SIDS
Phone: 1-888-8CJ-SIDS or (201) 996-5111
Fax: (201) 996-5326
Mail: The Don Imus-WFAN Pediatric Center, Hackensack University Medical Center, 30 Prospect Avenue, Hackensack, NJ 07601
Internet: *http://www cjsids.com*

First Candle/SIDS Alliance
National SIDS and Infant Death Program Support Center
Phone: 1-800-221-7437 or (410) 653-8226
Fax: (410) 653-8709
Mail: 1314 Bedford Avenue, Suite 210, Baltimore, MD 21208
Internet: *http://www sidsalliance.org*

Health Resources and Services Administration (HRSA)
Maternal and Child Health Bureau
Phone: (301) 443-2170
Fax: (301) 443-1797
Mail: Parklawn Building, Room 18-05, 5600 Fishers Lane, Rockville, MD 20857
Internet: *http://mchb.hrsa.gov/programs/default.htm*

National SIDS & Infant Death Project IMPACT
Phone: 1-800-930-SIDS (7437) or (703) 902-1260
Fax: (703) 902-1320
Mail: 8280 Greensboro Drive, Suite 300, McLean, VA 22102
Internet: *http://www.sidsprojectimpact.com*

National SIDS/Infant Death Resource Center
Phone: 1-866-866-7437 or (703) 821-8955
Fax: (703) 821-2098
Mail: 8280 Greensboro Drive, Suite 300, McLean, VA 22102
Internet: *http://www.sidscenter.org/*

U.S. Consumer Product Safety Commission
Phone: (301) 504-7923
Fax: (301) 504-0124
Mail: 4330 East West Highway, Bethesda, MD 20814-4408
Internet: *http://www.cpsc.gov*
Cr b Safety and SIDS Reduction:
http://www.cpsc.gov/CPSCPUB/PUBS/cribsafe.html

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Academy of Neonatal Nursing
http://www.academyonline.org

American College of Nurse-Midwives
http://www.acnm.org

Association of SIDS and Infant Mortality Programs
http://www.asip1.org

Association of Women's Health, Obstetric and Neonatal Nurses
http://www.awhonn.org

March of Dimes
http://www.marchofdimes.com

First Candle/SIDS Alliance
http://www.sidsalliance.org

National Alaska Native/American Indian Nurses Association
http://www.nanainanurses.org

National Association of Neonatal Nurses
http://www.nann.org

National Association of Pediatric Nurse Practitioners
http://www.napnap.org

National Institute of Nursing Research, National Institutes of Health
http://ninr.nih.gov/ninr

Society of Pediatric Nursing
http://www.pedsnurses.org/all.php

Washington State Department of Health
http://www.doh.wa.gov

PRE-TEST ANSWER KEY

1. A 2. D 3. D 4. C 5. B 6. D 7. D 8. D 9. C 10. D

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For more information on SIDS and SIDS risk reduction, contact the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD). The mission of the NICHD is to ensure that every person is born healthy and wanted, that women suffer no harmful effects from the reproductive process, and that all children have the chance to fulfill their potential for a healthy and productive life, free of disease or disability, and to ensure the health, well-being, independence, and productivity of all people through optimal rehabilitation. The NICHD supports and conducts research on topics related to SIDS and infant mortality, including maintaining the national *Back to Sleep* campaign to raise awareness about ways to reduce the risk of SIDS.

***Back to Sleep* Campaign**
Phone: 1-800-505-CRIB (2742)
Fax: 1-866-760-5947
Mail: 31 Center Drive, Building 31, Room 2A32, Bethesda MD 20892
Internet: http://www.nichd.nih.gov/SIDS

Continuing Education Program on SIDS *Risk* Reduction

The following post-test is designed to measure your knowledge of SIDS, SIDS risk-reduction recommendations, and how to communicate the recommendations to parents and caregivers. The questions cover the major content areas of the CE program you just completed. Some questions may have more than one correct answer. To receive CE credit, you must score 70 percent or better; that is 7 out of 10 questions must be answered correctly to receive CE credit.

The NICHD will notify you of test results within 8 weeks of receiving your post-test and evaluation form. Nurses with scores of 70 percent or higher will receive a certificate of completion; nurses with scores lower than 70 percent will be offered a second attempt to pass the test. If you have questions about this CE program, contact the NICHD at 1-800-370-2943 or at NICHDInformationResourceCenter@mail.nih.gov.

Instructions:

1. Complete the registration information.
2. Complete the post-test by checking the appropriate answer box for each question.
3. Sign and date the post-test.
4. Complete the program evaluation.
5. Return the post-test and program evaluation to:
   Mail: P.O. Box 3006, Rockville, MD 20847
   Secure fax: 1-866-760-5947

Name: _____

Title: _____

Affiliation: _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

Optional Items:

License Number: _____

Credential: _____

State(s): _____

To complete the post-test, check the appropriate answer box for each question. Then sign and date the bottom of the post-test and submit it to the NICHD for scoring. For complete submission instructions, please see Post-Test Page 1.

Test questions here.

1. SIDS is:

- ❑ **A.** The sudden and unexplained death of an infant younger than one year of age
- ❑ **B.** Caused by vomiting and/or choking
- ❑ **C.** Determined only after an autopsy, an examination of the death scene, and a review of the infant's and family's clinical histories
- ❑ **D.** Both A and C

2. The triple-risk model describes:

- ❑ **A.** The most dangerous environmental stressors associated with SIDS
- ❑ **B.** The convergence of three conditions that may lead to the death of an infant from SIDS
- ❑ **C.** The genetic mutations linked to SIDS
- ❑ **D.** The three most critical developmental periods associated with SIDS

3. Each of the following is a major modifiable factor that puts infants at higher risk of SIDS, except:

- ❑ **A.** Stomach sleeping for naps and at night
- ❑ **B.** Soft sleep surfaces and loose bedding
- ❑ **C.** Tummy Time
- ❑ **D.** Maternal smoking during pregnancy

4. Since 1992, SIDS rates in the United States have:

- ❑ **A.** Increased in all populations
- ❑ **B.** Remained constant
- ❑ **C.** Increased among Hispanic infants, but declined in all other populations
- ❑ **D.** Declined in all populations

5. SIDS rates remain disproportionately high in which of the following ethnic groups:

- ❑ **A.** Hispanics
- ❑ **B.** African Americans
- ❑ **C.** American Indians/Alaska Natives
- ❑ **D.** Both B and C

6. Which of the following constitutes a safe sleeping environment for an infant:

- ❑ **A.** A firm mattress with stuffed toys surrounding the perimeter
- ❑ **B.** Soft sleep surfaces
- ❑ **C.** A firm mattress, free of loose bedding and stuffed toys
- ❑ **D.** Loose bedding, such as quilts and comforters

7. Tummy Time is appropriate when:

- ❑ **A.** An infant is awake but drowsy
- ❑ **B.** An infant is awake and supervised
- ❑ **C.** An infant is asleep
- ❑ **D.** An infant is unsupervised

8. When nurses speak to parents and caregivers about SIDS, it is important that their messages:

- ❑ **A.** Be detailed
- ❑ **B.** Include statistics
- ❑ **C.** Be clear and culturally appropriate
- ❑ **D.** Include medical terminology

9. Among parents and caregivers, common reasons for not complying with SIDS risk-reduction recommendations include:

- ❑ **A.** Relatives recommend the prone position
- ❑ **B.** Concern about flattened skull (positional plagiocephaly)
- ❑ **C.** Fear of aspiration or choking
- ❑ **D.** All of the above

10. The appropriate time to deliver SIDS risk-reduction recommendations to parents is:

- ❑ **A.** Within the first 24 hours following delivery
- ❑ **B.** During pregnancy
- ❑ **C.** At well-baby visits
- ❑ **D.** All of the above

I certify that these answers were arrived at by me only and in accordance with the instructions contained herein. I also understand that this post-test will form part of my application for CE credit through the Maryland Nurses Association.

Signature: _____ **Date:** _____

Continuing Education Program on SIDS *Risk* Reduction

The following program evaluation is designed to measure the effectiveness of this CE program in meeting the learning objectives outlined in the Introduction.

Please complete this evaluation after reading the CE program and completing the post-test. Inclusion of your contact information on this form is optional. However, this evaluation form is part of your application for CE credit through the Maryland Nurses Association. Submit the post-test and this evaluation to NICHD at:

Mail: P.O. Box 3006, Rockville, MD 20847

Fax (secure): 1-866-760-5947

If you have questions about this CE program, call NICHD at 1-800-370-2943, or e-mail NICHDInformationResourceCenter@mail.nih.gov.

Name: _____

Title: _____

Affiliation: _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

Instructions: On a scale of 1 to 5, with 5 being EXCELLENT and 1 being POOR, please rate the SIDS risk-reduction CE program.

	Poor	Weak	Good	Very Good	Excellent
1. Overall CE program	1	2	3	4	5
2. Clarity of the information	1	2	3	4	5
3. Logical organization of the CE program	1	2	3	4	5
4. Usefulness of the information	1	2	3	4	5

5. How much time did you require to complete this program, including the pre-test and post-test?
_____ hours

6. Which sections of the program were most beneficial? _____

_____

7. Which sections of the program were least beneficial? _____

_____

8. Is there additional information or another resource that would be helpful to you in communicating with parents and caregivers about SIDS risk reduction? _____

_____

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
Eunice Kennedy Shriver National Institute of Child Health and Human Development

Please complete this program evaluation after reading the CE program and completing the post-test. Submit both pages of the program evaluation with your post-test to the NICHD. For complete submission instructions, please see Program Evaluation page 1.

Name: _____

Title: _____

Instructions: On a scale of 1 to 5, with 5 being EXCELLENT and 1 being POOR, please rate the SIDS risk-reduction CE program.

	Poor	Weak	Good	Very Good	Excellent
9. Defining SIDS (including its etiology, risk factors, and epidemiology)	1	2	3	4	5
10. Listing the critical SIDS risk-reduction messages for parents/caregivers	1	2	3	4	5
11. Describing your key role as an educator about SIDS for parents/caregivers	1	2	3	4	5
12. Listing the four barriers to back sleeping	1	2	3	4	5

Continuing Education Program on SIDS *Risk* Reduction

Share the information below with parents and caregivers to educate them on ways to reduce the risk of SIDS.

- **Always place the baby on his or her back to sleep for naps and at night.** The back sleep position is the safest, and every sleep time counts.
- **Place the baby to sleep on a firm sleep surface, such as on a safety-approved* crib mattress, covered by a fitted sheet.** Never place the baby to sleep on pillows, quilts, sheepskins, or other soft surfaces.
- **Keep soft objects, toys, and loose bedding out of the baby's sleep area.** Don't use pillows, blankets, quilts, sheepskins, or pillow-like crib bumpers in the baby's sleep area, and keep all items away from the baby's face. If you choose to use a blanket, place the baby with his or her feet at the end of the crib. The blanket should reach no higher than the baby's chest. Tuck the ends of the blanket under the crib mattress to ensure safety.
- **Do not allow smoking around the baby.** Don't smoke before or after the birth of the baby, and don't let others smoke around the baby.
- **Keep the baby's sleep area close to but separate from where you and others sleep.** The baby should not sleep in a bed or on a couch or armchair with adults or other children, but he or she can sleep in the same room as you. If you bring the baby into bed with you to breastfeed, put him or her back in a separate sleep area, such as a bassinet, crib, cradle, or a bedside co-sleeper (an infant bed that attaches to an adult bed) when finished.
- **Think about using a clean, dry pacifier when placing the baby down to sleep,** but don't force the baby to take it. If breastfeeding, wait until the baby is one month of age or is used to breastfeeding before using a pacifier.
- **Do not let the baby overheat during sleep.** Dress the baby in light sleep clothing and keep the room at a temperature that is comfortable for an adult.
- **Avoid products that claim to reduce the risk of SIDS** because most have not been tested for effectiveness or safety.
- **Do not use home monitors to reduce the risk of SIDS.** If you have questions about using monitors for other conditions, talk to your health care provider.
- **Reduce the chance that flat spots will develop on the baby's head.** Provide Tummy Time when the baby is awake and someone is watching; hold the baby upright when he or she is not sleeping; change the direction that the baby lies in the crib from one week to the next; and avoid too much time in car seats, carriers, and bouncy seats.

Share these messages with parents, child care providers, grandparents, babysitters, and everyone who cares for the baby.

* U.S. Consumer Product Safety Commission *Crib Safety Tips*: http://www.cpsc.gov/cpscpub/pubs/cribsafe.html

Sources: *Eunice Kennedy Shriver* National Institute of Child Health and Human Development. (2005). *Safe Sleep for Your Baby: Reduce the Risk of Sudden Infant Dea h Syndrome (SIDS).* NIH Pub No. 05-7040; and Task Force on Sudden Infant Death Syndrome. (2005). The changing concept of sudden infant death syndrome: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing risk. *Pedia ris, 116,* 1245–1255.

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