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INFANT SAFETY

*A Self-Instruction Care Course®
for Early Childhood Professionals*



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Infant Safety

– Online Course –

**a Self-Instruction CARE COURSE
for Early Childhood Professionals**

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Credit Available for This Course

Infant Safety offers 2 clock hours (0.2 CEUs) of training credit. Credit for this course is available only through CARE COURSES.

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This course incorporates selected material from the Wisconsin curriculum "Shaken Baby Syndrome Prevention Training for Child Care Providers," which is used by permission.

Welcome to *Infant Safety*. This self-instruction course is designed for independent study. Everything you need to complete the course is in this CourseBook.

Advantages of a self-instruction course

- You don't have to leave your home to attend classes.
- You can work on the course whenever *you* choose, not just when a class happens to meet.
- You can work as fast or as slowly as *you* want to.

How to Do This Course

This course has several features to help you be your own teacher.

Learning Objectives

Read the **Learning Objectives** first. They will help you focus on the important points of the course.

Self Checks

Each section ends in a True/False **Self Check** with answers provided. Answer these questions, and check your answers. Re-read any material that gave you trouble.

Quiz

This course ends with a **Quiz**. Please read the entire course *two times* before attempting the **Quiz**. Once you have finished reading the course material, return to **My Courses** within your Account at www.CareCourses.com and open your course to access the Online Quiz.

You must make a score of at least 70% on the Quiz to receive credit for this course. If your score is less than 70%, you will be given a second chance re-read the material and redo the quiz. Failing the second time will result in no certificate. Please read the course content carefully before attempting the quiz. We want you to get the best possible grade you can!

This course is not designed to be hard. The questions are not designed to be tricky. Read all of the course material and think about what it says. If you have trouble, please contact us. We're always happy to help!

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Happy Studying!

Infant Safety

Learning Objectives

As a result of completing this course, you will be able to

- explain how infants' brains grow and change during the first two years of life
- explain the importance of experience in infants' brain development
- coordinate brain-enhancing experiences and activities for infants
- list the causes of Shaken Baby Syndrome (SBS)
- describe the symptoms of Shaken Baby Syndrome (SBS)
- list steps to prevent Shaken Baby Syndrome (SBS)
- list steps to prevent Sudden Infant Death Syndrome (SIDS)

* * *

Brain Development During Infancy

At birth, the infant's brain is not completely developed. During the first two years of life, however, brain development proceeds very rapidly. There are approximately 100 billion brain cells present at birth. During the first year, the number of cells in the infant's brain increases by cell division. During this same period, the weight of brain cells also increases as the components of brain cells grow in size.

The increase in the number of brain cells stops by the end of the first year. During the second year, growth of the toddler's brain comes from enlargement of the components of the existing brain cells. Under normal circumstances, the brain almost reaches adult size by the end of the second year of life.

From birth the infant's brain cells also begin rapidly making connections and forming networks. By the end of the second year of life, the young child's brain will have formed approximately 1,000 trillion connections.

In recent years, new technologies have allowed scientists to learn more about the inner workings of the human brain and to develop new insights into early brain development.

Scientific discoveries have proven that experiences make a physical difference in the way an infant's brain develops. That is, each infant's experiences shape the way the circuits are formed in that infant's brain. Of course, heredity also plays an important role in brain development, but science now confirms what people who have experience teaching or caring for children have long believed: an infant's brain development is shaped by a complicated mix of heredity and experience.

Infants' experiences influence the "wiring" of the child's brain in ways that are critical for the development of

- vision,
- math skills,
- logic,
- emotional stability,
- language, and
- speech.

Connections between the infant's brain cells, known as *synapses*, grow out of the infant's sensory experiences—that is, what the infant sees, hears, touches, smells, and tastes. These connections form the basis of both short-term and long-term memory.

Experiences involving the various senses create synapses in different parts of the brain.

- Experiences involving the sense of **sight** create synapses in the *occipital cortex* of the brain.
- Experiences involving the sense of **hearing** create synapses in the *temporal lobe* of the brain.
- Experiences involving the sense of **touch** create synapses in the *parietal cortex* of the brain.
- Experiences involving the sense of **smell** create synapses in the *frontal lobe* of the brain.

Experiences that involve several senses involve more parts of the brain and thus build stronger synapses and memories than experiences that involve only one sense. For example, infants might learn what a ball is by looking at a picture of a ball in a book and hearing you say the word *ball*. But they will develop more brain network connections involving more different parts of the brain, and thus have a much more complete and accurate concept of what a ball is, when they see, touch, roll, and drop the ball as they hear you label it. Similarly, young children can learn what a dog is by looking at a picture in a book, but the more complex, multi-sensory experience of seeing a real dog, watching it move, touching its fur, and hearing it bark will involve more parts of their brain, causing their brain cells to form more synapses and providing the child with a much more complete and accurate concept of what a dog is.

There are two additional aspects of children's experiences that are important for maximum positive brain development.

First, experiences that are **fun** cause synapses to form in the *limbic system* of the brain, creating a foundation for memory and continued learning.

Second, experiences that occur **often** enough create permanent connections. While every new experience the child

has creates a connection, not all of these connections will be permanent. Beginning at about age eleven, the super-dense brain of childhood begins to sort out the thick tangle of wiring, get rid of seldom-used connections, and organize a more efficient and powerful brain circuitry. Connections formed by isolated experiences are not likely to survive.

To remain a part of the child's permanent brain circuitry, connections must be strong. This strength is built by repeated activation of networks of connections. Each time an experience is repeated the infant's brain activates a network of neurons. With repeated activation, networks of connections are strengthened. Strong connections are lasting connections. Strong connections create strong and lasting memories.

Children's early experiences have a major influence on every facet of their later development.

Infants who are spoken to and read to a lot will build strong brain-cell networks that make it easy for them to develop language skills later on. On the other hand, children who are rarely spoken to or read to will have trouble mastering language skills.

Infants who are held, cuddled, and played with a lot will build strong brain-cell networks that will facilitate their social and emotional development later on. Infants who are carried are also more involved in what is going on around them and thus are exposed to more opportunities for learning.

Touch stimulates infants' brains to release important hormones that allow them to grow. Infants who are not held and cuddled and touched do not grow and thrive. Infants who are rarely played with will have trouble with social adjustments later on. Infants who do not receive loving attention will have trouble learning to handle their own emotions.

Synapse-building experiences help construct brains that facilitate healthy emotional and social development and prepare children to interact in a positive way with their world.

Self Check 1. True/False

- ___ 1. The brain of a normal, healthy infant is fully developed at birth.
- ___ 2. The formation of connections or networks of brain cells begins at about two years of age.
- ___ 3. Infants' experiences make a physical difference in the way their brain develops.
- ___ 4. Connections between brain cells are called synapses.
- ___ 5. Experiences that involve several senses create stronger and more complex brain network connections than experiences that involve only one sense.
- ___ 6. Experiences that are fun create a foundation for continued learning.
- ___ 7. Most of an infant's experiences, even one-time experiences, create permanent memories.
- ___ 8. Touch stimulates infants' brains to release important hormones that allow infants to grow.

(1. F, 2. F, 3. T, 4. T, 5. T, 6. T, 7. F, 8. T)

Correct Statements for False Self-Check Items

Items 1, 2, and 7 of Self Check 1 are false. Please read the discussion below relating to these items.

1. Brain development, which is not complete at birth, proceeds rapidly during the first two years of life. During the first year of life, the number of brain cells increases by cell division. During the second year, growth of the brain comes from enlargement of the components of the existing brain cells. By the end of the second year of life, the brain has almost reached adult size.

2. Connections and networks of brain cells begin to develop at birth. By the end of the second year of life, the brain will have formed approximately 1,000 trillion connections.

7. To create permanent memories, experiences must occur often. While every new experience a baby has creates a brain connection, not all of these connections will be permanent. Beginning at about 11 years of age, the child's brain begins to sort out the thick tangle of wiring, get rid of seldom-used connections, and organize a more efficient and powerful brain circuitry. Connections formed by isolated experiences are not likely to survive. Only strong connections become part of the child's permanent brain circuitry. This strength is built by repeated activation of networks of connections. Thus, each time an experience is repeated, the infant's brain activates a network of neurons. It is these repeated activations that strengthen networks of connections to create lasting memories.

* * *

In addition to experiences that stimulate the senses and the mind, two other factors are essential to infants' normal brain growth and development:

- a nutritious diet and
- freedom from serious injuries to the head.

In the following section you will learn about Shaken Baby Syndrome (SBS), which is a medical term used to describe the injuries that can result if a baby or young child is violently shaken, thrown, or slammed, causing the child's head to whip back and forth rapidly.

Every adult who cares for young children should understand how dangerous shaking is to infants' well-being and why shaking a baby or young child is never OK.

Shaken Baby Syndrome

Shaking a baby or young child is NEVER OK.

Shaking infants or young children is extremely dangerous. Shaking can cause severe injuries, even death. Injuries to babies and young children caused by shaking are called Shaken Baby Syndrome (SBS). When a baby or young child is violently shaken, thrown, or slammed, the child's head whips back and forth rapidly. This movement causes the brain to hit the sides of the skull forcefully and can cause blood vessels in the brain and eyes to tear and bleed. Brain injury and bleeding can cause increased pressure in the brain. Increased pressure in the brain can lead to serious, permanent brain damage. Additional brain damage may occur when babies have trouble breathing or stop breathing during an episode of being shaken, slammed, or thrown.

The exact number of SBS incidents that occur each year is unknown. The diagnosis of SBS can be difficult to determine, and many cases are not reported. One study of North Carolina SBS cases, reported by the Centers for Disease Control and Prevention, suggests that nationwide as many as three to four children a day experience severe or fatal head injury from child abuse.

Children under the age of two are at the greatest risk of injuries from shaking. Young children's neck muscles are weak and their heads are heavy relative to the strength of their necks. Young children also have thin skulls. A young child's muscles and bone structure have not developed enough to keep internal organs, especially the brain, from moving around when the child is suddenly moved, hit, or shaken.

Even if children who are shaken do not die, they may not grow and thrive like healthy children. Shaking can cause

- bleeding or bruising of the brain
- neck and back damage
- broken or injured bones
- dislocated bones
- paralysis
- internal bleeding
- blindness and other eye problems

- seizures
- intellectual disability
- delay in muscle development
- loss of hearing
- lasting brain damage
- death

The following true story is reported by The Shaken Baby Alliance, an organization developed by three mothers whose children were victims of SBS.

When 4-month-old Devin began vomiting after meals, was unusually tired, and lacked motivation, doctors initially diagnosed a viral infection. Eleven days later, Devin became dehydrated and was hospitalized. A CT scan revealed hemorrhaging in his brain, and X-rays showed broken ribs and a broken shin bone. An investigation found that Devin had been violently shaken by a caregiver at his day care center. He has permanent brain damage. His abuser received a 9-year prison sentence.

Health professionals warn that roughly bouncing, tossing, or jerking babies or swinging them by the arms or legs can also lead to serious and permanent injuries. To protect young children from harm, never play roughly with babies.

A caring adult's first response to Shaken Baby Syndrome may be, "*Why would anyone want to harm a baby or young child in this way?*" The answer is that Shaken Baby Syndrome is often not intentional.

The most frequent cause of Shaken Baby Syndrome is an adult's attempt to quiet a crying baby by shaking the baby. Sometimes adults who feel tense, worried, sad, angry, or frustrated by children's behavior react by shaking the child.

Shaking is sometimes used as a means to awaken a sleeping infant if the adult fears that the child may have stopped breathing. In such a circumstance, never shake the infant. Instead, run a finger along the sole of the child's foot. Or gently pick the infant up.

Injuries can also occur when an adult is playfully throwing a baby in the air.

Because sudden and rough movement can lead to brain damage, broken

bones, brain hemorrhage, or death, shaking, hitting, jerking, tossing, or any rough play with infants and young children must be strictly avoided.

Crying Babies

All babies cry. Indeed, crying is the major way a baby communicates. After all, babies can't talk. They can't write you a note. Babies can wave their arms and kick their legs. They may use these movements to exercise and strengthen their muscles, to entertain themselves, to express excitement or joy or even displeasure.

Babies may wave their arms and kick their legs to attract the adult's attention. But babies can't rely on these gestures alone to convey to the adult that the baby has needs and desires that aren't being met. So, as the section "Crying Is How Babies Communicate" in the box on the following page illustrates, if a baby has needs or desires that aren't being met, the baby *cries*.

Infants and young children cry for many reasons. They may be tired. They may be afraid or lonely. They may be hungry. They may be too hot or too cold. They may be hurting, perhaps because of indigestion caused by an allergy to something in their diet. Or they may feel bad because they are sick.

Whatever the cause of children's crying, shaking is never the answer.

The most common reason given for shaking a baby or young child is that the baby wouldn't stop crying. However, there are other reasons, including

- toileting mistakes,
- sleeping problems, and
- disobedience.

Adults sometimes fail to understand that children are not miniature adults. Young children are not capable of thinking and acting like adults. Children go through many phases as they grow and develop. Some of these phases are more challenging than others, both for the child and the adult. Children's behavior during certain developmental phases can provoke anger and frustration in even the most well-meaning and conscientious adults.

Crying Is How Babies Communicate*

From the moment that they are born, babies communicate as a means of getting their basic needs met by their caregivers. Because they haven't developed language skills, babies use the tool that they have – **they cry**.

Let's compare the way children of various ages might communicate their feelings, desires, and needs.

Babies, just like older children, feel hunger. When a 12-year-old is hungry, he might say, "When's dinner? I'm starved."

*How will a 2-month-old communicate hunger to his caregiver? **Cry!***

Babies, just like older children, feel discomfort. When a 12-year old is uncomfortable, he might say, "I'm not wearing these dress pants. They're too tight."

*How will a 2-month-old express discomfort? **Cry!***

Babies, just like older children, can become over-stimulated. When a 12-year-old is over-stimulated, he might say, "Leave me alone!"

*How will a 2-month-old communicate over-stimulation? **Cry!***

Babies, just like older children, experience under-stimulation. A 12-year-old might say, "I'm bored. There's nothing to do."

*How will a 2-month-old tell the caregiver he is bored? **Cry!***

Babies, just like older children, feel fatigue. When a 12-year-old is fatigued, he might say, "I've had a long day."

*How will a 2-month-old let the caregiver know he is tired? **Cry!***

*This chart is from the Wisconsin curriculum "Shaken Baby Syndrome Prevention Training for Child Care Providers."

As an early childhood professional, you have a responsibility to the children in your care to know and understand children's developmental phases and what behaviors are possible for young children at their various stages of development. This knowledge will allow you to have reasonable expectations for young children's behaviors.

You can also talk with parents about children's difficult developmental phases and help them understand children's changing behaviors and needs and what expectations are reasonable for children at each point in their development.

It is our belief that when adults understand the *reason* for doing something, they will do the right thing.

By anticipating difficult phases and the challenges associated with them and being prepared with appropriate positive ways to manage these challenges, both you and infants' parents can avoid potential incidents of child maltreatment.

CARE COURSES' self-instruction course *Safe Baby, Safe Child* is an in-depth study of SBS, its causes, and strategies to prevent this devastating problem.

Early Symptoms of Shaking

If you know or suspect that an infant or young child has been shaken, it is critical that you seek medical help immediately. Some of the early symptoms of shaking are:

- Irritability
- Lethargy or sleepiness
- Feeding problems
- Vomiting
- Dilated pupils
- Poor muscle tone
- Pale or bluish skin
- Seizures
- Not breathing, or
- Loss of consciousness

Other Physical Signs

When an infant is shaken, the most serious effect is on the brain, but there are other physical signs that might accompany shaking. The most common ones are:

- Rib fractures
- Fractures to the long bones of the arms or legs, and
- External wounds or bruises to the head

External head wounds will not be evident with most incidences of shaking. It is critical that you watch for and act on the less obvious signs of internal trauma to the brain.

Emergency Response

Responding to shaking is no different than dealing with other illnesses or accidents. It is important to have a clear plan in place before the emergency occurs and take action as soon as you notice that something is wrong. It is much better to seek treatment too early than to wait too long.

If you know or suspect that an infant or young child has been shaken, it is critical that you seek medical help immediately. As with any emergency, contact the parents as soon as you can, but the first call must be to 911.

If the child stops breathing before emergency help arrives, begin CPR.

If the child is vomiting and you don't suspect a spinal injury, turn the child's head to the side to prevent choking and aspiration.

If you suspect a spinal injury, **carefully** roll the whole body to the side as one unit (logrolling) while protecting the neck to prevent choking and aspiration.

DO NOT pick up or shake the child!

Results of shaking a baby

Shaking a baby can have extremely serious results. Depending on the study, research has found that one-fifth to one-third of the known victims of Shaken Baby Syndrome die. Many

SBS survivors have **life-long** disabilities such as:

- Blindness
- Paralysis
- Deafness
- Complications from broken bones
- Learning disabilities
- Coordination problems
- Developmental challenges, or
- Seizures

Even babies who seem okay when they are released from the hospital may have problems later on, such as learning and attention difficulty in school.

Risk Factors for Becoming a Victim of SBS

Some babies are at greater risk for shaking than others. The primary risk factors are:

- Age

More than half of SBS victims are under 6 months of age. The younger the baby the more likely he or she would be seriously injured if shaken. This is because younger babies are smaller. The size difference between the victim and the perpetrator can influence how much damage is done. Younger babies have proportionately larger heads and less developed neck muscles and brains than older babies.

- Gender

Sixty percent of victims are boys. It is unknown why this is the case.

- Greater demands for care, for example illness, pre-maturity, or other special needs of some kind

Anything that makes an infant more difficult to care for, either temporarily or permanently, could make the infant more vulnerable to abuse. For example, pre-term infants are generally more sensitive, harder to console, and may be less responsive to your actions. Illness, short-term or chronic, can also make an infant more irritable and difficult to care for. Children with special needs present an extra challenge for both you and their parents.

Who Would Shake a Baby?

Anyone who looks after an infant is at risk of shaking, but research suggests that most perpetrators are:

- Parents and other caregivers

An SBS perpetrator is almost always the person who has been trusted with the baby's care.

- Late teens and early 20s

Research suggests that most perpetrators are under 25 years of age.

- Males

The father or a "father figure" to the infant account for 60 percent or more of SBS cases.

Female perpetrators tend to be babysitters, but some mothers have shaken their babies.

- People with other risk factors – drug and alcohol use, mental illness, lack of self-control, inexperience with babies, high stress

People who have trouble controlling their anger and drug and alcohol abusers are more likely to abuse a child.

Mental illness can affect how well a person can manage the many demands of caring for a baby.

People who don't understand normal infant behavior, such as normal crying, might think that the baby is purposely trying to annoy them.

If a caretaker is highly stressed and can't cope, he or she may temporarily lose self-control and take out anger or frustration on the baby.

Your Stress as a Caregiver

The stresses of caring for young children can cause both you (as well as the child's parents) to become upset, angry, or frustrated. Caring for young children is hard, tiring work. Sometimes, especially when you are overly tired or frustrated, caring for young children may feel like very unrewarding work. "No matter what I do, no matter how hard I try, I can't calm this child," you may think.

It is essential that all adults who care for infants or young children be aware that a frustrated, angry caregiver and a crying baby are a formula for disaster. Anger is a normal human emotion. But when you accept the responsibility of caring for an infant or young child, you must also accept the responsibility of controlling the way in which you express your anger so that this emotion never causes you to harm the child or children in your care.

Some people believe that it is helpful for an angry person to "get their anger out" by actively expressing their anger on inanimate objects rather than on people. "Get the anger out" behaviors might take the form of yelling in a room away from others, yelling into a pillow, beating on pillows, cushions, or a mattress, hitting a punching bag or weight bag, or ripping a telephone book or newspaper. However, researchers have found that this practice may actually *increase* violent behavior.

Research conducted by Dr. Brad Bushman, a member of the Psychology department faculty at Iowa State University, has found that "venting to reduce anger is like using gasoline to put out a fire—it only feeds the flame. By fueling aggressive thoughts and feelings, venting also increases aggressive responding."^{*}

When caring for an unhappy or difficult child, the first thing you must remember is that *the fussy baby or young child is not deliberately trying to cause pain for you*. Don't take the baby's crying personally. The child is a person who has a problem but no solution. If you feel frustrated, just think how much more frustration the child must be feeling! Crying is the only thing the child can do. (Sometimes a good cry can also help adults through their own difficult times!)

You must *always* control your temper when caring for children. Losing your temper for an instant is all it takes to do lasting damage.

^{*}Brad Bushman, "Does Venting Anger Feed or Extinguish the Flame?" *Personality and Social Psychology Bulletin*, Vol 28, No. 6, June 2002, p. 729.

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We do not require that you read both this document and the online course.

Here are some suggestions to help you take charge of your feelings. Share these ideas with the parents of infants and young children in your care. If you start to feel angry because of a child's crying or difficult behavior:

- Take some slow, deep breaths and count to 10 (or higher if necessary).
- Place the child in a crib on his back for a few minutes while you calm down and regain your self-control.
- Understand that the child is not trying to ruin your day. You are not a target.
- Understand that your job is to keep your cool and provide comfort and support for the child.
- Understand that you are not a failure if you are unable to immediately fix the child's problem. There may be nothing that anyone can do to stop a child's crying. In some cases, the best that anyone can do is to provide comfort and understanding.
- Talk with another adult about how you feel.
- Ask for help. Call another adult to assist you. Or call the national **Parent Helpline: 1-855-427-2736** or your own state's **Parents Anonymous** number.

When an infant or young child is crying or unhappy, first check to be sure that the child is not lonely, hungry, wet, too hot, or too cold. Burp infants often. Offer a safe pacifier for the baby to suck on.

Following are more suggestions for calming an unhappy baby. These actions can also lessen the adult's stress level. Share these ideas with the parents of infants and young children in your care.

- Play soothing music.
- Stay close to the child. Infants and young children need a lot of holding and cuddling. Being held close to a caring adult can be very calming and reassuring to a troubled infant. Extra attention will not spoil a baby.

- Walk around slowly while holding the child close to you. The gentle, slow movement may help calm the child.
- Sit down in a rocking chair. Relax yourself while you gently rock the child.
- Hum a tune or sing softly. Make up your own words such as the following:

Dear little one, I'm sorry you're hurting.

I'm sorry you're hurting, dear little one.

We'll stay calm, you and I, and soon we'll both feel better.

Soon we'll both feel better, dear little one.

- Take the baby outdoors. Walking outdoors can be very calming for children as well as for the adult.
- Lower the noise level. Excessive noise can cause stress for children and adults.
- Lower the lights.
- Watching fish swim about in an aquarium is very calming for many infants and young children.

Possible Causes of Babies' Intense Crying

High-Need Babies

All babies need to be held and cuddled. Those who aren't held and cuddled fail to thrive. However, some babies have less tolerance for physical separation from their parent/caregiver than do other babies. Sometimes called "high-need" babies, these babies will generally make their need for human contact, that is, their need to be held, known loudly and insistently. It is usually difficult for high-need babies to learn to soothe themselves.

Each baby has her or his own unique temperament and personality (just as each child, adolescent, and adult has a unique temperament and personality). Recognizing that a baby is a personality to be nurtured rather than a problem or irritation to be "fixed" will help you concentrate on nurturing each infant rather than being constantly frustrated

because one baby's needs are greater than those of another baby—or even those of *most* other babies.

A baby's high need for human contact is not a "bad" trait. It is simply part of the individual child's temperament and personality. A persistent temperament helps ensure that a high-need baby's needs will be met. A high-need baby with a non-assertive personality will not be able to make his needs known to you. This will likely cause the baby to give up, concluding that his cry is not worthwhile and that he is not worthwhile.

High-need babies can generally be comforted, even though comforting them requires extra time, energy, and perhaps creativity from you. Providing this extra attention and care can be a source of frustration and anxiety for you. If faced with a high-need baby who cries when not being held, think "*I'm so glad you know how to tell me what you need, little dear*" rather than, "*Why can't you be content on your own at least part of the time like all the other babies?*" As William and Martha Sears point out in their excellent book *Parenting the Fussy Baby and High-Need Child*, "tiny babies don't manipulate, they communicate." The high-need baby is not "out to get you." Your role is not to try to control high-need babies but to manage their needs. Your attention to the needs of high-need babies teaches them to trust that

- their needs are important,
- their communication is important and will be heard, and
- their needs will be met.

When a baby (or young child) knows that he/she can trust that you are available to try to meet the child's needs when he/she truly needs comfort and support, it will be easier for the child to handle other stressful times alone. By helping babies learn to trust, you will be able to help them gradually learn self-control.

High-need babies are often quite content being carried in a sling. Consult the baby's parents to learn what sort of sling or carrier they have found most effective.

Colic

What about babies who are *not* soothed by increased human contact? The term "colic" has long been used to describe long periods of profound, inconsolable irritability and crying in early infancy. It should be remembered, however, that colic is a description, not a disease. The hard, distended abdomen and drawn-up legs that often accompany the baby's intense crying have led many to conclude that the baby is experiencing stomach or abdominal cramping or excessive intestinal gas. Symptoms called colic occur in breast-fed babies as well as bottle-fed babies.

Crying causes infants to swallow air, which they burp up or pass as wind. Because they strain and tighten their stomach muscles, this also forces air out of the rectum. In other words, it may be that crying causes gas, rather than the other way around.

Hundreds of studies of colicky babies over more than 50 years have sought to identify a cause for colic. Yet research results have often been confusing and contradictory.

In *The Baby Book*, a superb source of in-depth information on infant care, Dr. William Sears tells of a mother who once challenged his diagnosis of colic for her inconsolably crying baby. "Do you call it colic when you don't know why a baby is hurting?" the mother asked. "This mother was right," Dr. Sears writes. Dr. Bryan Vartabedian, pediatric gastroenterologist and author of *Colic Solved*, has referred to colic as "a mythical explanation meant to explain the seemingly unexplainable."

Dr. Barry Lester, professor of psychiatry and pediatrics at Brown University in Providence, Rhode Island, and co-author of *Why Is My Baby Crying?* reports that colicky babies seen in his clinic have physical signs of pain and that acoustical analysis clearly shows that the cry of colicky babies is a cry of pain. "The pain cry is an emergency cry. It is the early warning system, and it means something is really wrong," Dr. Lester writes. Based on his experience and research, Dr. Lester believes that colic symptoms reflect an immature nervous system.

Dr. Lester counsels that letting colic "run its course" can be harmful to the baby's development. Such a response can interfere with the baby's ability to bond with the mother and lead to emotional and behavioral problems later on.

When faced with an inconsolably crying infant, Dr. Sears recommends first consulting a doctor to rule out any physical or medical problem. Dr. Sears notes that some babies "have a supersensitive, intense, disorganized, slow-to-adapt temperament." These babies "enter the world with disorganized biorhythms. ... Failure to become organized or stay organized results in a behavioral change we call colic."

Dr. Sears also suggests investigating the connection between what the baby eats (including what a nursing mother eats) and the child's colicky behavior. Certain food intolerances, often milk protein allergy, can cause babies to experience intense distress. In *Comforting Your Crying Baby*, Sandy Jones adds that sensitivity to something in the baby's environment can also cause a severe reaction, including irritability and crying. Infants can react to airborne toxins (including second-hand smoke, hair spray, chemical cleaning products, and volatile organic compounds that gas out from carpeting, paint, vinyl flooring, particle board) as well as chemicals that touch the baby's skin (such as residue from laundry products used on baby's clothing and bedding).

It is important for you as a caregiver to trust your instincts if you think a baby is crying because of illness. In some cases, crying is a symptom of a health problem such as a short-term illness, with or without a fever, or a chronic problem such as an allergy or a medical condition. If you suspect a baby is unwell, you need to talk to the parents or to a healthcare professional, depending on the situation.

Acid Reflux

Recent advances in diagnostic technology have allowed doctors and researchers to learn more about various digestive problems that can cause babies pain and trigger bouts of irritability and intense crying. One such problem

is acid reflux, a problem that Dr. Lester reports seeing among infants in his clinic. At birth, a baby's digestive system is not mature, so food digestion isn't as smooth and painless a process as for an older child. Indeed, for some babies, digestion can be quite an uncomfortable process, especially during the first few months of life.

Dr. Bryan Vartabedian, pediatric gastroenterologist, assistant professor of pediatrics at the Baylor College of Medicine in Houston, Texas, an attending physician at Texas Children's Hospital, and father of multiple children who suffered from acid reflux during infancy writes, "If your baby screams, she's not alone. It's estimated that about 1 of 5 babies have unexplained irritability. ... But your baby is screaming for a reason. It's a cry for help." Dr. Vartabedian notes that symptoms that have long been called colic fit perfectly with typical infant reflux.

In *Colic Solved*, Dr. Vartabedian explains that "reflux disease in infants occurs on a spectrum ranging from minimal to severe." The presence of one or more of the following seven signs may suggest that the baby is suffering from gastroesophageal reflux (that is, material from the baby's stomach passes up and out of the stomach where it doesn't belong):

1. Spitting and vomiting
2. Constant hiccups
3. Feeding disturbances
4. Chronic irritability
5. Sleep disturbance
6. Discomfort when lying on the back
7. Chronic cough and/or congestion

Dr. Vartabedian states that all babies have reflux to some degree. For most, symptoms are limited to spitting up a little bit. Babies on the opposite end of the spectrum are also easy to identify, he explains. Stomach acid that comes back up can irritate and inflame the esophagus and upper airway, causing severe pain. These are the babies who scream, arch, have difficulty feeding, and may even have growth and breath-

ing problems. "It's the babies whose symptoms lie between the two extremes who can be challenging," Dr. Vartabedian writes. In *Colic Solved*, Dr. Vartabedian discusses various medical treatments that are available to ease the baby's distress.

For most babies, acid reflux does not permanently damage their esophagus. However, in more severe cases, exposure of the esophagus to stomach acid over a period of time can cause serious inflammation to the esophagus—damage that is sometimes irreversible. Most babies outgrow their acid reflux as their organs mature and their muscles strengthen. For a small percentage, the problem of acid reflux persists into childhood.

We recommend that you read Dr. Vartabedian's book, *Colic Solved*, and share the book with the babies' parents. This comprehensive and very readable book discusses caring for a baby with acid reflux and offers information about treatments that are available, as well as help in knowing what type of specialist is best able to treat babies with acid reflux.

Dr. Sears has recommended feeding babies who may be experiencing acid reflux twice as often, half as much, and keeping them upright after the feeding. Holding the baby may help keep the baby calm and reduce crying; crying makes reflux worse.

Slow, gentle, rhythmic bouncing with the baby sitting on the adult's lap making eye-to-eye contact with the adult can also often calm the baby.

The Missing Fourth Trimester

In *The Happiest Baby on the Block*, a book and DVD that have been praised by numerous physicians and countless parents, Dr. Harvey Karp presents a technique to calm inconsolable crying in young babies. Dr. Karp's interest in finding a way to soothe these infants grew out of his experience as a Fellow in Child Development at the UCLA School of Medicine. As a member of the UCLA Child Abuse Team, he

treated several babies who had been severely injured by parents who were overcome by frustration because they were unable to calm their baby's persistent screaming.

Dr. Karp reports that two facts discovered early in his investigations gave him hope. First, he learned about the profound differences between the brain of a three-month-old baby and the brain of a newborn. Second, he learned that inconsolable screaming among young infants was absent in several cultures around the world. Dr. Karp presents his conclusions in *The Happiest Baby on the Block*.

Basically, Dr. Karp concluded that human infants are born three months too soon (from the point of view of the baby's development, not from the pregnant mother's point of view). "For the first three months, our babies are so immature they would really benefit if they could hop back inside whenever they get overwhelmed," Dr. Karp writes.

To soothe overwhelmed infants, Dr. Karp recommends "surrounding them with the comforting sensations they enjoyed twenty-four hours a day in the womb." The 5-step technique recommended by Dr. Karp triggers a profound neurological response that Dr. Karp calls *the calming reflex*. "As helpful as this fourth-trimester experience is for calm babies, it is *essential* for fussy ones," Dr. Karp writes.

Dr. Karp's technique is called the 5 *S*'s.

- 1st S – Swaddle
- 2nd S – Side/Stomach Position
- 3rd S – Shushing
- 4th S – Swinging
- 5th S – Sucking

Dr. Karp provides the following explanations for these 5 steps.

1. Swaddling provides the continuous touching and support that babies experienced in the womb and is often helpful for newborns. One caregiver reported, "We started swaddling after I saw Dr. Karp present at a conference, and it made such a huge difference. The babies fell asleep so quickly. It changed how much they slept and how much better they slept."

Not everyone supports swaddling, however. The National Resource Center on Child Health and Safety (NRC) does not recommend swaddling in any child care setting because of the potential risks involved. Commenting on the NRC position, a spokesperson for the American Academy of Pediatrics stated that, while "[when done correctly] swaddling is an effective way to calm infants, especially in the newborn period," the presence of multiple caregivers, not all of whom may be sufficiently trained in proper swaddling techniques, poses a risk of serious harm to babies.

Considering using swaddling? Check your own state's child care regulations. For example, Rule 746.2628 of the Texas Minimum Standards for Child Care Centers states that a caregiver "may not lay a swaddled infant down to sleep or rest on any surface at any time."

If swaddling is permitted by your state's regulations, you should be very well trained in proper swaddling techniques by a qualified person, such as a pediatric nurse, and should always coordinate any use of swaddling with the parents' own practices.

For swaddling, use a large, thin blanket (42"-44" square) to swaddle the baby snugly. Dr. Karp cautions that loose swaddling can make the baby more irritable. Loose bedding may also cause suffocation. Take care that the baby does not become overheated. Remove some clothing, cool the room, or unswaddle if the baby gets hot and sweaty.

Dr. Karp also cautions that swaddling can make some babies so comfortable that they may sleep through feedings. If this happens, the baby should be unswaddled, awakened, and fed. Be sure that the swaddling blanket is not too tight around the baby's hips and legs.

Swaddling that forcibly extends the baby's legs or presses them together and does not allow the baby's legs to bend up and out can lead to dysplasia of the hip, a condition that can result in long-term disability.

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We do not require that you read both this document and the online course.

Discontinue swaddling after babies are two months old or when they begin to try to turn or roll over on their own. If your state permits laying swaddled babies down, they must be placed on their back and be very closely watched by an adult at all times. All babies should sleep **ONLY** on their backs.

2. Dr. Karp cautions that even though side and stomach positions are best for calming the baby (the side position assists in digestion and the stomach position provides reassuring support), the baby should **never be left alone in these positions**, not even for a moment. Babies should only sleep on their back.

3. Shushing sounds should be as loud as the baby's cry. This sound imitates the continual whooshing sound made by blood flowing through arteries near the womb. *The Happiest Baby on the Block* DVD includes 60 minutes of calming sounds. *The Happiest Baby on the Block New "Super Soothing" Calming Sounds* CD is also available from www.amazon.com.

4. Babies enjoy being rocked in a cradle, rocking chair, or infant swing (recline the seat all the way down for young babies). Dr. Karp also recommends using quick, tiny movements—an inch back and forth. Always support the baby's neck and head with your hand when holding the baby. **Never shake or jiggle a baby roughly.**

5. Sucking, whether at feeding time or non-nutritive sucking, triggers the calming reflex and stimulates the release of natural pain-relieving chemicals in the baby's brain. If it is not feeding time, let the baby suck on your finger or a pacifier.

Dr. Karp explains that these five steps are extremely effective "but only when performed *exactly* right. When done without the right technique and vigor, they do nothing." We strongly recommend that you watch the demonstration of the 5 S's technique on the DVD *The Happiest Baby on the Block* before using Dr. Karp's techniques. A detailed description of how to perform each step is also presented in the book *The Happiest Baby on the Block*. We strongly recommend that you read this book, even if you also watch the DVD.

The 5 S's method has been heartily endorsed by Dr. Lewis Leavitt, Professor of Pediatrics, University of Wisconsin-Madison; Dr. Julius Richmond, Professor of Health Policy, Harvard Medical School and former Surgeon General of the United States; Elisabeth Bing, co-founder of Lamaze International, and many more doctors and other health professionals. Countless parents have also endorsed the technique. One mother writes, "If I were the Queen of Everything, I would make sure all new parents and hospital nurses learned this method. It could save so many, so much."

Share what you learn about infant crying with babies' parents. Your efforts can make a major difference in the baby's level of comfort as well as the parent's level of anxiety and frustration. In this way, you can help protect babies from abuse such as shaking that can result from an adult's loss of control.

* * *

Self Check 2. True/False

- ___ 1. Shaken Baby Syndrome is almost always the result of an intentional action to harm an infant.
- ___ 2. Shaking an infant is usually not harmful unless it is done over a long period of time.
- ___ 3. Shaking an infant can cause lasting brain damage.
- ___ 4. Tossing infants in the air or swinging them by the arms or legs are harmless ways to play with infants.
- ___ 5. Shaking is the best way to try to waken a sleeping infant if you fear the child has stopped breathing.
- ___ 6. You must always control your temper when caring for children.
- ___ 7. Taking a fussy baby outdoors can often calm both the child and the adult.
- ___ 8. Very often, a fussy infant is simply trying to ruin the adult's day.
- ___ 9. Dr. Harvey Karp's interest in finding a way to soothe colicky ba-

bies grew out of his experience treating babies who were severely injured by parents who were frustrated by their baby's persistent screaming.

- ___ 10. Swaddling works best when babies are wrapped very loosely.
- ___ 11. Babies are often calmed by shushing sounds that imitate the whooshing sound of blood flowing through arteries near the womb.
- ___ 12. Sucking triggers babies' calming reflex and stimulates the release of pain-relieving chemicals in the baby's brain.

(1. F, 2. F, 3. T, 4. F, 5. F, 6. T, 7. T, 8. F, 9. T, 10. F, 11. T, 12. T)

Correct Statements for False Self-Check Items

Items 1, 2, 4, 5, 8, and 10 of Self Check 2 are false. Please read the discussion below relating to these items.

- 1. Shaken Baby Syndrome is usually the result of an *unintentional* action by an adult who is frustrated by a baby's (or young child's) behavior that the adult finds frustrating.
- 2. *Any* shaking of an infant or young child can be extremely harmful. *Any* sudden and rough movement can lead to brain damage, broken bones, brain hemorrhage, or death.
- 4. Tossing infants in the air or swinging them by the arms or legs can cause injuries, including brain damage and should be strictly avoided.
- 5. To waken a sleeping infant if you fear the child has stopped breathing, run a finger along the sole of the child's foot or gently pick the child up. **Never** shake a baby for *any* reason. Never.
- 8. Infants do not fuss to irritate the adult. Crying is a major way that infants communicate their needs.
- 10. Loose swaddling can make the baby more irritable. Dr. Karp recommends tight swaddling that provides continuous touching and support similar to the support the baby experienced in the womb.

Shaken Baby Syndrome Summary

The following information is provided by the Epilepsy Association of Central Florida and used here by permission.

Visit <http://www.aboutshakenbaby.com> for additional information.

Shaken Baby Syndrome, first described as a syndrome in 1974, can be lethal: approximately one shaken baby in four dies from the injuries. Those who survive may suffer blindness caused by bleeding around the brain and eyes; disabling brain damage, including intellectual disability (mild to severe); paralysis; seizure disorder; speech and learning disabilities; neck and back damage; and/or dislocated bones.

Most of the time, Shaken Baby Syndrome occurs when adults, frustrated and angry with children, shake them violently. If you are a parent, or ever care for a baby, it is important to know the dangers of shaking. You also need to tell everyone who cares for your baby, that it is NEVER okay to shake the baby.

Shaking a baby is a danger because

- A baby's neck is too weak to support his/her heavy head. Consequently, when shaken, the baby's head flops back and forth, causing serious brain injury.
- A baby's brain and the blood vessels connecting the skull to the brain are fragile and immature.

Shaken Baby Syndrome

- Is a serious brain injury.
- Occurs when a baby is violently shaken.
- Occurs when a baby is slammed against a hard object.

Shaken Baby Syndrome mostly occurs when a child receives numerous rapid shakes; head impact is not necessary, but does frequently occur. Shaking must be of such force that an independent observer would recognize the act as dangerous.

Shaken Baby Syndrome Statistics

- **One shaken baby in four dies.** Some studies estimate that 15% of children's deaths are due to battering or shaking, and an additional 15% are possible cases of shaking.
- **Of the thousands that survive death, serious injury usually occurs.** "SBS" victims range in age from a few days to a few months old; the average is six months.
- **More than 60% of the victims of Shaken Baby Syndrome are male.**
- **Almost 80% of the perpetrators of Shaken Baby Syndrome are male.**

Coping with a Crying Baby / Preventing Shaken Baby Syndrome

- **An infant may spend 2 to 3 hours a day crying** 20%-30% of infants exceed that amount of time.
- **A caregiver momentarily succumbs to the frustration** of responding to a crying baby by shaking. Caregivers may be inadequately prepared for children. They may be under stress and cannot deal with the frustrations of parenting.
- **The caregiver personalizes the infant's crying** as inadequate caregiving.
- Shaken Baby Syndrome usually happens when a **caregiver is angry and loses control.**

Here are a few symptoms of Shaken Baby Syndrome that have already been discovered:

- Head turned to one side.
- Unable to lift or turn head.
- Pinpointed, dilated, or unequal size pupils.
- Blood pooling in the eyes.
- Pupils unresponsive to light.
- Bulging or spongy forehead.
- No smiling or vocalization.
- Poor sucking or swallowing.
- Rigidity.
- Semi-consciousness, lethargy, or decreased muscle tone.
- Difficulty breathing.
- Seizures or spasms.
- Swollen head, which may appear later.

Many incidents of Shaken Baby Syndrome are not reported out of fear. It is important to seek immediate and early medical attention. Serious complications and even DEATH can be avoided.

Warning Signs of Injury of Shaken Baby Syndrome

- Poor Feeding / Eating
- Cardiopulmonary arrest
- Vomiting
- Failure to thrive
- Pale or bluish skin
- Irritability
- Seizures
- Lethargic
- Coma

SIDS

Sudden Infant Death Syndrome (SIDS) is the diagnosis given for the sudden death of an infant under one year of age that remains unexplained after a complete investigation, which includes an autopsy, examination of the death scene using the Center for Disease Control and Prevention guidelines, and a review of the symptoms or illnesses the infant had prior to dying and other pertinent medical and family history. Because most babies sleep in cribs, and therefore, most cases of SIDS occur when a baby is in a crib sleeping, SIDS is sometimes called “crib death.” Cribs do not cause SIDS. However, other aspects of an infant’s sleep environment have been associated with increasing the risks for SIDS.

Infant mortality figures show that the deaths of 2,063 infants were diagnosed as SIDS in the year 2010. This figure marks a dramatic decrease in the incidence of SIDS compared with earlier decades. In the early 1990s, approximately 6,000 infants died of SIDS in the United States each year.

The decline in the SIDS rate since the early 1990s is largely the result of changes in the position in which infants are placed when sleeping. In 1992 the American Academy of Pediatrics recommended that infants be put down to sleep on their backs instead of their stomachs, and a nationwide “Back to Sleep” campaign was launched in 1994.* Still, SIDS remains the major cause of death among infants between the ages of two weeks and one year in the United States. In recent years, fully 25 percent of all infant deaths that occurred between one month and 11 months after birth were diagnosed as SIDS.

More than 90 percent of SIDS deaths occur before the age of 6 months. Most occur between two and four months of

*The Back to Sleep initiative is a program to promote back sleeping as safest for healthy infants and to provide information on how families and those who care for children can reduce the risk of SIDS. We will discuss the issue of infants’ sleep position on the following pages.

age, while infants are sleeping, and between the hours of midnight and 8:00 A.M.

Myths About SIDS

Years of evaluation have revealed what SIDS is NOT:

- SIDS is not hereditary.
- SIDS is not contagious.
- SIDS is not caused by immunizations.
- SIDS is not caused by vomiting or choking.
- SIDS is not apnea.
- SIDS is not suffocation.
- SIDS is not child abuse.

Are Any Ethnic Groups More Prone to SIDS?

Recent infant mortality statistics show that African American infants are more than twice as likely to die of SIDS than are white infants. The SIDS rate among Native American infants is two-and-one-half times that of white infants. The SIDS rate among Latino infants is approximately half that of white infants.

A recent National Infant Sleep Position study found that African American infants are twice as likely to be placed on their stomachs to sleep as are white infants. A far greater percentage of black parents (25 percent) than white parents (7 percent) reported that they had received no advice from health care professionals on how to place their infants for sleep.

Following the release of these research data, the Back to Sleep campaign was stepped up, with a special effort to get the message out to African American and Native American parents with the help of community, civic, and religious groups.

Is SIDS Inherited?

Information from the SIDS Alliance states that there may be something that genetically predisposes an infant to higher SIDS risk. Metabolic disorders, which can be inherited, have, at times, been mistaken for SIDS. One such disorder, medium chain acylCoA dehydrogenase deficiency, prevents the

infant from properly processing fatty acids. A build up of these acid metabolites could eventually lead to a rapid and fatal disruption in breathing and heart functioning. If there is a family history of this disorder or childhood death of unknown cause (especially more than one case within a family), genetic screening of parents by a blood test can determine if they are carriers of this disorder. If one or both parents are found to be carriers, the baby can be tested soon after birth at little cost. When an autopsy is performed, tests can be done on the tissues of an infant to identify known metabolic disorders.

Risk Factors Associated with SIDS

Researchers have observed correlations between SIDS and certain facts about infants’ histories. Based on these observed correlations, researchers have identified a number of factors, called *risk factors*, that increase infants’ risk of dying of SIDS. These factors appear in higher numbers for SIDS babies than for the general population.

It is important to note that the risk factors associated with SIDS are not causes. Even though the risk factors are seen more in SIDS babies than in other babies, half of all SIDS cases do not have any of the identified risk factors.

Infants in the following categories have been observed to be at a higher risk for SIDS:

- Infants born to mothers who are less than 20 years of age at the time of their first pregnancy
- Infants whose mothers had no prenatal care, late prenatal care, or poor prenatal care
- Premature infants
- Low birth weight infants and multiples
- Infants born to mothers with too short an interval between pregnancies
- Infants whose mothers smoked during and after their pregnancy (The National Center for Health Statistics reports that mothers who smoke during and after pregnancy triple their infant’s risk of SIDS.)

- Infants who are exposed to second-hand smoke (Health statistics show that exposure to second-hand smoke doubles an infant's risk of SIDS. The risk of SIDS rises with each additional smoker in the infant's household, the number of cigarettes smoked a day, and the length of the infant's exposure to cigarette smoke.)
- Infants whose mothers used drugs and/or alcohol during pregnancy
- Infants who are placed to sleep on their stomach

What Is Known About SIDS?

Following is a summary of what is currently known about SIDS.

- SIDS is the number one cause of death in infants from age 1 month to 1 year. The risk of SIDS peaks between 2 and 4 months of age.
- SIDS is a silent death.
- SIDS occurs quickly and without warning.
- SIDS occurs in families of all economic and social levels.
- SIDS occurs more frequently in males than in females.
- Infants who are victims of SIDS appear to be healthy. No other health conditions are identified in these infants that would result in their death.
- SIDS is nobody's fault.

What Have Researchers Learned About SIDS?

Although in recent years a number of researchers have made important advances in understanding the causes of SIDS, research has not determined the exact cause or causes of this very troubling occurrence.

In the past, many people believed that SIDS was the result of an infant's breathing problem. The theory was that during sleep some infants suffered from a condition called *sleep apnea*, that is, stopping breathing while asleep. It was believed that some babies suffered episodes of apnea that were so long the child was unable to recover and thus died.

Doctors now have learned that short periods of sleep apnea are common in all infants. *They believe that SIDS is more likely the result of a problem with the infant's brain than the result of prolonged episodes of apnea.*

Researchers now believe that SIDS is caused by a functional birth defect that begins before the baby is born. Researchers have studied the part of the brain that controls breathing, waking, blood pressure, heart rate, and temperature control. These are functions that the body normally controls automatically. It is believed that this defect occurs as the baby's brain is maturing and the sensors that are responsible for giving information to the brain do not send the information. Because of these malfunctions, the basic system that maintains that automatic functioning does not work correctly when stressed. The stressor might be sleep position, a cold, or a soft sleep surface.

One researcher at Harvard Medical School, Dr. Hannah Kinney, has discovered an abnormality in the brain stem in some infants who have died of SIDS. The brain stem controls breathing, heart rate, blood pressure, sleep, and waking, among other things. Dr. Kinney has focused on a part of the brain stem that is important in sensing carbon dioxide. Dr. Kinney states, "In a significant number of SIDS deaths, this region of the brain stem has a defect that probably originates during pregnancy. As a result, we think that babies don't wake up when they're stimulated with rising amounts of carbon dioxide, which can occur when they are put to bed face down."

Another researcher, Dr. Ronald Harper, a neuroscientist at the UCLA School of Medicine, states, "It's not clear whether these babies die from breathing failure or from cardiac failure. We suspect that they have some problem in the area of the brain that controls blood pressure and cardiac functioning."

Dr. Bradley Thach of Washington University Medical School in St. Louis has explained why infants are more vulnerable during sleep: "During sleep we aren't sensing as much information from our environment, our airways don't work as well, we can stop breath-

ing for short periods, and our heart rate slows."

An individual's most important defense mechanism against breathing problems during sleep is the ability to wake up. In some infants, this ability, called the startle response, which is a primitive reflex, doesn't function as it should. Researchers believe that this malfunction is responsible for SIDS in some infants.

The Triple Risk Model

Research has led to the development of the following Triple Risk Model:

Functional birth defect that may cause death when you have the following three conditions:

- 1) Vulnerable infant.

There are different ways an infant can become vulnerable. For example, if the infant's mother smokes or uses drugs during pregnancy or if she gets little or late prenatal care, the infant's growth in the womb can be negatively affected.

- 2) Critical development period after birth—often in the period between 2 and 4 months after birth

- 3) A stressor is present

A stressor might be stomach sleeping, a soft sleep surface, a cold, or something that prevents the free movement of air around the baby's face.

When these three factors come together it provides a potential SIDS event.

Researchers now believe that they have identified three areas of the brain that may have defects. The more defects an infant has in the brainstem, the greater the infant's risk of SIDS. If the risk factors and the stressors are reduced for a particular infant, that infant's risk of a SIDS death are also reduced. This is why observers believe that the Back to Sleep program has been so successful. Back sleeping reduces the number of stressors and risk factors a baby must deal with.

There is currently no way to predict which infants will succumb to SIDS. However, there are measures you and the infant's parents can take to lower the risk of SIDS for every infant.

As a caregiver, you should know and understand the major risk factors and follow appropriate procedures relating to infants' sleep position and safe sleeping environment in order to reduce infants' risk of SIDS. 14 percent of SIDS deaths occur while the child is in child care centers or family day care.

Major Risk Factor #1: Sleeping Face Down

The recommendation that infants should sleep on their back is relatively new. Not long ago, doctors and nurses recommended that infants should sleep on their tummies. It was believed that it was safer for infants to sleep face down so that if they spit up they would not choke. However, research indicates that infants are extremely unlikely to choke on spit-up when sleeping on their back. In New Zealand, Australia, and the United Kingdom during the period following major publicity campaigns that urged that infants be put to sleep on their back or side instead of face down, these countries' SIDS rates dropped dramatically—in some areas by as much as 50 percent. A few years later another research study documented that infants sleeping face down were twice as likely to die of SIDS compared with infants sleeping on their back or side.

Most infants should sleep on their back. However, parents of newborns should check with their doctor or nurse to make certain that back sleeping is appropriate for their particular infant. A few babies have health conditions that might require them to sleep on their tummy. If a baby was born with a birth defect, often spits up after eating, or has a breathing, lung, or heart problem, be sure to talk to a doctor or nurse about which sleep position to use.

The precise relationship between SIDS deaths and sleeping face down is not known. Most medical authorities feel that SIDS is not likely to be due to smothering. One possible explanation is that infants are more likely to become overheated when on their tummy than when on their back. Another possible explanation is that infants may breathe in the carbon dioxide from their own exhaled air that has accumulated in pockets in the bedclothes when they are lying face down.

Some infants at first don't like sleeping on their back, but most get used to it. This is the best sleep position for most infants. Always put infants to sleep on their backs unless specifically directed otherwise by the child's physician.

The risk of SIDS is *4 times greater* for infants who are used to sleeping on their back and are then placed to sleep on their stomach. A well-intentioned but uninformed relative or caregiver can unknowingly place infants at this increased risk. *Be certain to communicate information regarding back sleeping to substitute caregivers or anyone else who might care for an infant.*

An infant can be placed on his or her stomach when awake. Some "tummy time" during awake hours when the infant is being observed is recommended for motor development of the shoulder. Talk to the infant's parents if you have questions about an infant's sleep position. Parents should talk to a doctor or nurse if they have questions about their baby's sleep position.

Major Risk Factor #2: Soft Bedding

It is your responsibility as a caregiver to ensure that each infant has a safe sleep environment.

Make sure infants sleep on a firm mattress or other firm surface. Any sleeping surface that bunches up around the infant's face or head can interfere with air circulation and be hazardous.

Never use fluffy blankets or comforters under a sleeping infant. Don't let an infant sleep or rest on a waterbed, a sheepskin, a pillow, a beanbag chair, sofa cushions, or any other soft materials. Limit bedding to a fitted bottom sheet. Do not use bumper pads. These can restrict the flow of fresh air. In addition, mobile infants can climb on bumper pads and catapult themselves out of the crib.

Make sure the infant's head remains uncovered during sleep. Infants are at an increased risk for SIDS if their head becomes covered during sleep. Avoid using a blanket or other covering over an infant's face as a sun or weather screen or to block out distractions or

sounds while the infant is sleeping. Bedding that bunches up or contours around the infant's face can obstruct the mouth and nose, causing potentially dangerous re-breathing of stale air.

Never place soft or loose objects, including stuffed toys or pillows, in the crib. Some infants have been smothered by soft materials in the crib.

Avoid the use of wedges or other positioning devices.

Major Risk Factor #3: Overheating While Sleeping

Infants should be kept warm, but they should never be allowed to get too warm. An overheated infant is more likely to go into a deep sleep from which it is difficult to arouse.

Keep the temperature in the infant's room at a level that feels comfortable to you. Consider using a onesie sleeper instead of a blanket in cold weather.

SIDS rates are higher in countries that heavily bundle their infants. Overheating can interfere with an infant's ability to breathe normally. To avoid overheating sleeping infants, do not overbundle them. Watch for sweating, damp hair, heat rash, rapid breathing, or restlessness. These are all signs of overheating.

Major Risk Factor #4: Air Pollution

Infants' sleep environment should be free of smoke and other sources of air pollution. Of course, infants need and deserve a pollution-free environment all the time, not only when sleeping.

The Environmental Protection Agency has found that infants exposed to high levels of airborne pollution have a higher risk of SIDS death. In one particular study, infants who lived in cities with high levels of particulate matter, such as car exhaust, had a 26 percent higher risk of SIDS death.

Correlations have also been observed between an infant's exposure to tobacco smoke (both before birth and after birth) and SIDS. Dr. Thomas, formerly of the Kilduff of Stanford University Sleep Disorders Center, reports "mothers who smoke increase the risk of their infants' succumbing to SIDS 4- or 5-fold."

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A research study conducted by Dr. Harold Pollack, formerly of the University of Michigan School of Public Health, found that almost one-fourth of SIDS deaths appear to be attributable to prenatal maternal smoking. Dr. Pollack estimates that more than 700 SIDS deaths could be prevented annually if all pregnant smokers were to stop smoking. Components of smoke are believed not only to interfere with infants' developing lungs and nervous system but also to disrupt the infant's ability to wake from sleep.

What can you as a caregiver do to help prevent SIDS? Your best preventive measures are:

- Put infants to sleep on their back.
- Avoid overheating sleeping infants.
- Use a firm, flat crib mattress.
- Avoid loose bedding and soft toys or pillows where infants are sleeping.
- Make sure the infant's head remains uncovered during sleep.
- Use one-piece sleepers instead of blankets in cold weather.
- Supervise infants all times, even when they are sleeping.
- Learn infant CPR so you will be prepared to resuscitate infants if they do stop breathing.

Communicating with Parents

The parents of infants in your care will appreciate being informed of the procedures used in your facility for reducing the risk of SIDS. The regulations in some states require that you make this information available to parents.

Here are some ways that you can communicate this information to parents:

- Prepare a written statement outlining your procedures for reducing the risk of SIDS. A sample statement is printed in the box on this page.
- Give your SIDS Risk Reduction statement to parents when they inquire about your facility.

Sample SIDS Risk Reduction Statement to give to parents **Procedures Used by (Name of Your Facility)** **to Reduce the Risk of SIDS**

- We always put infants to sleep on their back unless we have written instructions from the infant's doctor directing us to do otherwise.
- We closely monitor sleeping infants to make certain that they are not overheated.
- We use only firm, flat crib mattresses for infants.
- We make certain there is no loose bedding or soft toys or pillows where the infants are sleeping.
- We make certain that the infant's head remains uncovered during sleep.
- Infants in our facility are supervised by a staff member at all times, even when the infants are sleeping.
- All staff members who care for infants in our facility are trained in infant CPR and know to resuscitate infants if they do stop breathing for any reason.

Please sign two copies of this statement in the space provided below. Return one copy to our facility and keep one copy for your own records.

We look forward to working with you to keep your infant safe, healthy, and happy.

Sincerely,

(Your name)

(Name of your facility)

We, the parents of (name of infant), have read this SIDS Risk Reduction statement and understand that our baby will be placed to sleep on his/her back while in care at (name of your facility).

(Print parents' names below their signatures.)

- Verbally call attention to your procedures for reducing the risk of SIDS when speaking to infants' parents when they first inquire about your facility. Explain that these are good procedures for parents to follow at home also.
- Assure parents that all staff members who care for infants at your facility have completed SIDS risk reduction training and that they follow the procedures outlined in your printed SIDS Risk Reduction statement.
- When giving new or prospective clients a tour of your facility, point out how you place infants in the crib for naps when you show them the sleeping area.
- Include two copies of your SIDS Risk Reduction statement with the materials you give to parents when they enroll their infant in

your care. Unless the infant has a medical condition that requires a different sleeping position, have parents sign both copies, one copy for you and one for them to keep.

- If an infant requires a different sleeping position, have parents give you written, signed instructions from their infant's doctor explaining the recommended sleeping position.

Self Check 3. True/False

- ___ 1. Most SIDS deaths occur between two and four months of age while the infant is sleeping.
- ___ 2. Overheating while sleeping is thought to be a factor in some SIDS deaths.
- ___ 3. As a precaution against SIDS, infants should be put to sleep face down.

- ___ 4. Most researchers now believe that SIDS is caused by a problem with infants' breathing.
- ___ 5. Infants who live in areas of high air pollution have a higher risk of SIDS.
- ___ 6. Exposure to tobacco smoke, both before and after birth, increases an infant's risk of SIDS.
- ___ 7. Soft mattresses are safest for infants.
- ___ 8. Since the inauguration of campaigns to put infants to sleep on their backs, the incidence of SIDS cases has dropped dramatically.
- ___ 9. Infants who usually sleep on their back can safely be put to sleep on their stomach once in a while.
- ___ 10. SIDS is usually the result of child abuse.

(1. T, 2. T, 3. F, 4. F, 5. T, 6. T,
7. F, 8. T, 9. F, 10. F)

QUIZ

Please read the course material two times before attempting the quiz. When you have finished reading the course material, return to **My Courses** within your Account at

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Correct Statements for False Self-Check Items

Items 3, 4, 7, 9, and 10 of Self Check 3 are false. Please read the discussion below relating to these items.

- 3.** As a precaution against SIDS, infants should be put to sleep on their back.
- 4.** In the past, many people believed that SIDS was the result of an infant's breathing problem—that during sleep some infants suffered from sleep apnea episodes that were so long the child was unable to recover and thus died. Doctors now have learned that short periods of sleep apnea are common in all infants. They believe that SIDS is more likely the result of a problem with the infant's brain.
- 7.** Infants' mattresses should be firm. Any sleeping surface that can bunch up around the infant's face or head can interfere with air circulation and be hazardous.
- 9.** Infants should *always* be put to sleep on their back unless specifically instructed otherwise by the infant's doctor.
- 10.** SIDS is *not* the result of child abuse. SIDS is no one's fault.