

ILLNESS/NATURAL CAUSE DEATHS

ALL ILLNESS/NATURAL CAUSE DEATHS OTHER THAN SIDS

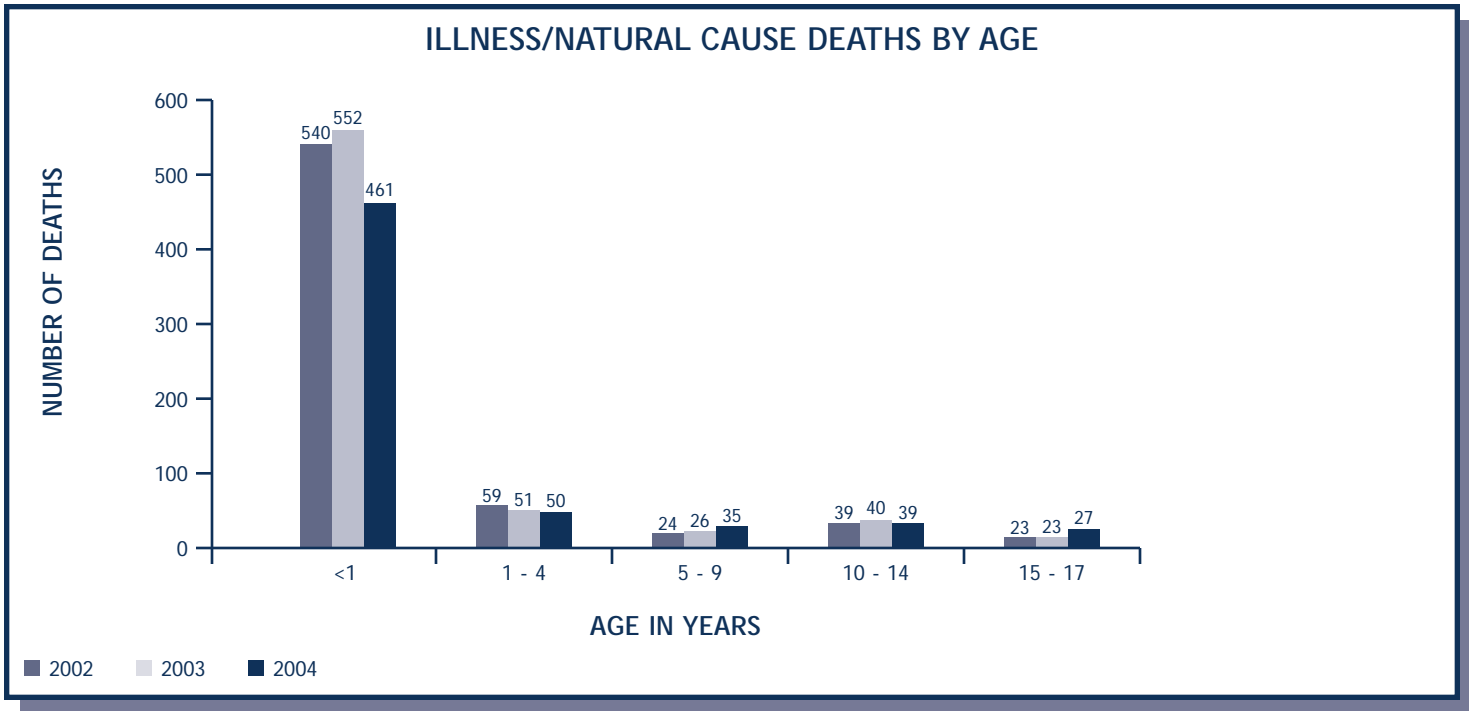
“The infant mortality rate has declined steadily during the last decade, due in part, to improved medical technology and public health outreach...Infants are more likely to die before their first birthday if they live in unsafe homes and neighborhoods or have inadequate nutrition, health care or supervision.”

-Kids Count Missouri, Citizens for Missouri's Children and Children's Trust Fund

Illness/natural causes, other than SIDS, were responsible for the death of 612 Missouri children in 2004, representing 62% of all Missouri incident fatalities.

Most child deaths are related to illness or other natural cause. Illness/natural cause deaths include prematurity, congenital anomalies, infection and other conditions. The vast majority of natural cause deaths occur before the first year of life and are often related to prematurity or birth defects.

In 2004, prematurity was the cause of **269** infant deaths (44% of all illness/natural cause deaths other than SIDS). Of those, **192** (72%) were born at 25 weeks or less gestation and **48** (25%) of those were born at less than 20 weeks gestation.

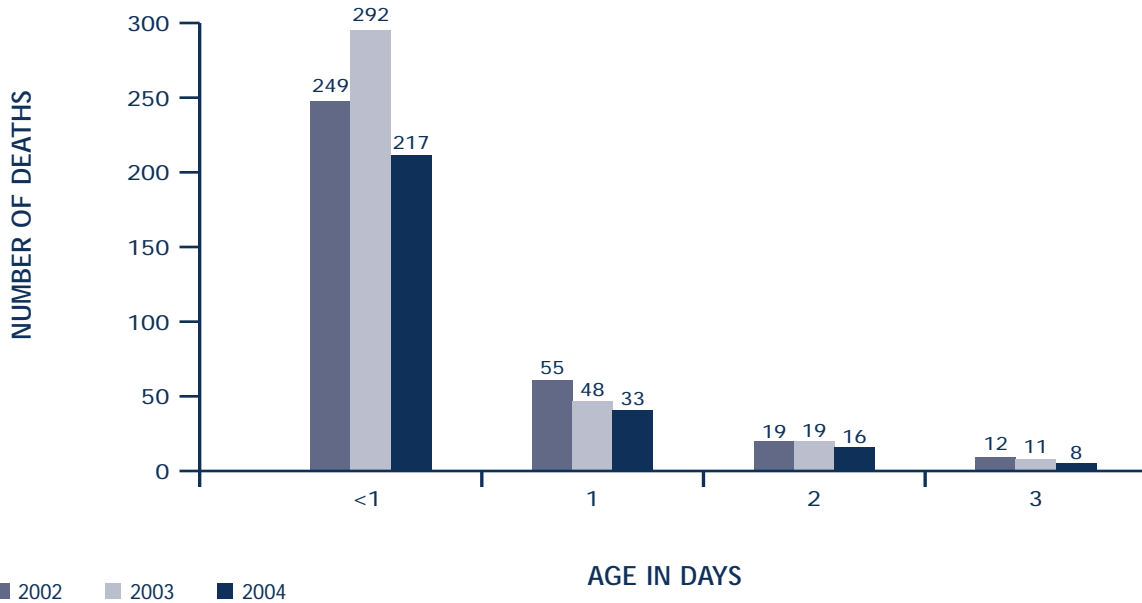


ILLNESS/NATURAL CAUSE DEATHS BY SEX AND RACE

SEX	2002	2003	2004	RACE	2002	2003	2004
FEMALE	316	323	268	WHITE	471	489	424
MALE	269	368	344	BLACK	202	187	174
OTHER		1		OTHER	12	16	14
	685	692	612		685	692	612

In 2004, congenital anomalies were the cause of **144** infant deaths, representing 24% of all illness/natural causes, other than SIDS. Infants less than one year of age comprised the majority (75%) of the illness/natural cause deaths in 2004 with **461**. Of those, **274** (60%) occurred within the first three days of life and **217** (47%) occurred within 24 hours of birth.

CHILDREN AGE THREE DAYS OR LESS THAT DIED OF ILLNESS/NATURAL CAUSES



CHILDREN LESS THAN ONE YEAR WHO DIED OF ILLNESS/NATURAL CAUSES BY SEX AND RACE

SEX	2002	2003	2004	RACE	2002	2003	2004
FEMALE	248	251	197	WHITE	371	387	313
MALE	292	300	264	BLACK	157	154	136
OTHER		1		OTHER	12	11	12
	540	552	461		540	552	461



NATURAL CAUSE DEATHS IN INFANTS LESS THAN ONE YEAR AS REPORTED ON CFRP DATA FORMS

AGE AT DEATH	
0 - 24 hours	233
24 - 28 hours	23
48 hours - 6 weeks	95
6 weeks - 6 months	52
6 months - 1 year	31
Not Answered	27

GESTATIONAL AGE AT BIRTH	
<20 weeks	48
20 - 25 weeks	144
26 - 30 weeks	52
31 - 37 weeks	63
>37 weeks	48
Unknown	68
Not Answered	38

BIRTH WEIGHT IN GRAMS	
<750 grams (<1lb 10oz)	171
750 - 1,499 grams (1lb 10oz - 3lbs 5oz)	57
1,500 grams - 2,499 grams (3lbs 5oz - 5lbs 5oz)	42
>2,500 grams (>5lbs 5oz)	62
Unknown	81
Not Answered	48

MULTIPLE BIRTHS	
Yes	69
No	360
Not Answered	32

MEDICAL COMPLICATIONS DURING PREGNANCY	
Yes	9
No	6
Unknown	19

SMOKING DURING PREGNANCY	
Yes	6
No	7
Unknown	21

DRUG USE DURING PREGNANCY	
Yes	6
No	14
Unknown	13

ALCOHOL USE DURING PREGNANCY	
Yes	2
No	8
Unknown	23

SUDDEN UNEXPECTED INFANT DEATHS

In 2004, there were 122 sudden, unexpected deaths of infants less than one year of age in Missouri.

Representative Cases:

- **Infants should be placed on their backs to sleep.**

A five-month-old child was taken to the home of a babysitter, who immediately put him down for a nap. She placed the baby on his stomach with his head to the side and covered him with a baby blanket. When the babysitter checked on him later, he was not breathing.

A four-month-old, one of twins, typically slept alone in her own crib. However, the infant was ill and fussy, so the mother put the baby in her own bed. The adult bed was very soft and was covered with several blankets. The mother slept on the sofa. In the morning, she found the baby face down in the blankets, unresponsive.

A two-month old infant was placed in his crib on his stomach. He was found face down and cold to the touch. Living conditions were found to be unsanitary and there was evidence of marijuana use.

- **The safest place for infants to sleep is in a standard crib with a firm mattress and no soft bedding.**

An 11-day-old infant was put to bed in his crib, in the evening. Later that night, the mother took him into her bed to breastfeed, at which time she apparently fell asleep. The mother awoke very early in the morning and found the baby on his back, unresponsive and blue.

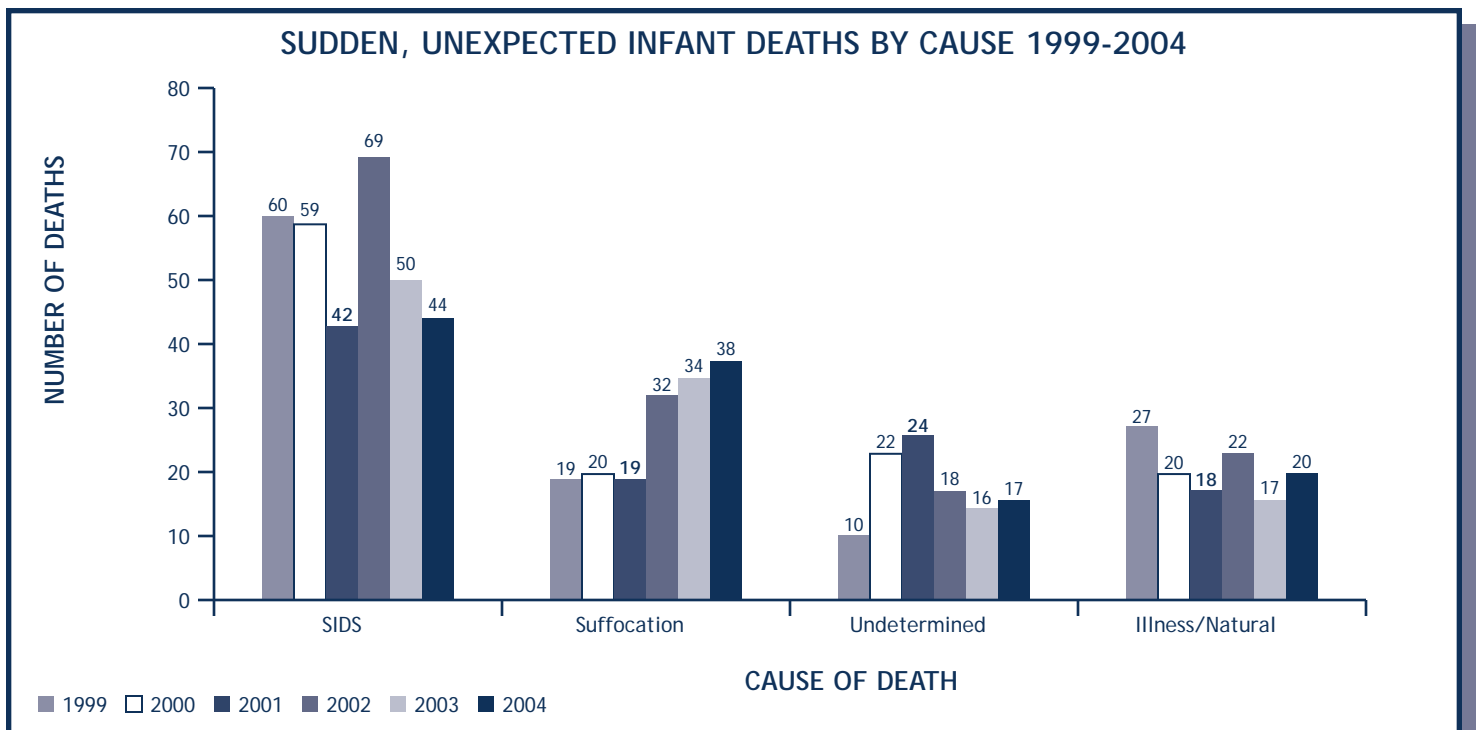
A two-month-old infant was sleeping in a king size bed with her mother, father and brother. The mother breastfed the baby at 3:00 a.m. When the parent awoke in the morning the baby was not breathing.

A two-month-old infant was given a bottle by his father, who was sitting in an overstuffed recliner. The father apparently fell asleep. The baby slid between the arm of the recliner and the father's leg and suffocated.

In 2004, there were **122** sudden, unexpected deaths of infants under the age of one year reported to the Child Fatality Review Program in 2004. Based on autopsy, investigation and CFRP panel review, **44** were diagnosed as Sudden Infant Death Syndrome, **38** unintentional suffocation, **20** illness/natural cause, and **17** could not be determined. **Three** infants were found to be homicide victims; those deaths are discussed under "Fatal Child Abuse and Neglect."

Since its inception in 1992, tracking changes in the occurrence and cause of sudden, unexpected infant deaths in Missouri, has been a key objective of the Child Fatality Review Program. Coincidentally, back-to-sleep recommendations were issued in 1992 and since that time, there has been a substantial reduction in SIDS deaths. This decline has generally been attributed to the efforts of the national

Back-To-Sleep campaign, which experienced great success in persuading parents and caretakers to change their behavior with regard to sleep position for infants. Since 1999, however, the rate of SIDS deaths has continued to decline, while non-SIDS diagnoses, including unintentional suffocation and undetermined, have increased. Unfortunately, the rate of infant deaths in the United States has not changed significantly during this time period, suggesting that changes in the classification of SIDS deaths is occurring. Researchers continue promising efforts to identify the common vulnerability of certain infants to sudden death, while the medical community struggles to define universally acceptable guidelines for certification of sudden, unexpected infant death. Nevertheless, unsafe sleep arrangements have been identified as a risk factor in the vast majority of sudden, unexpected infant deaths and the implications for risk reduction are extraordinary. For this reason, all sleep-related deaths in infants less than one year of age are now examined as a group in the section titled "Sudden, Unexpected Infant Deaths."



SUDDEN UNEXPECTED INFANT DEATHS BY SEX AND RACE

SEX	2002	2003	2004	RACE	2002	2003	2004
FEMALE	49	42	50	WHITE	96	82	85
MALE	92	75	69	BLACK	44	33	31
				OTHER	1	2	3
	141	117	119		141	117	119

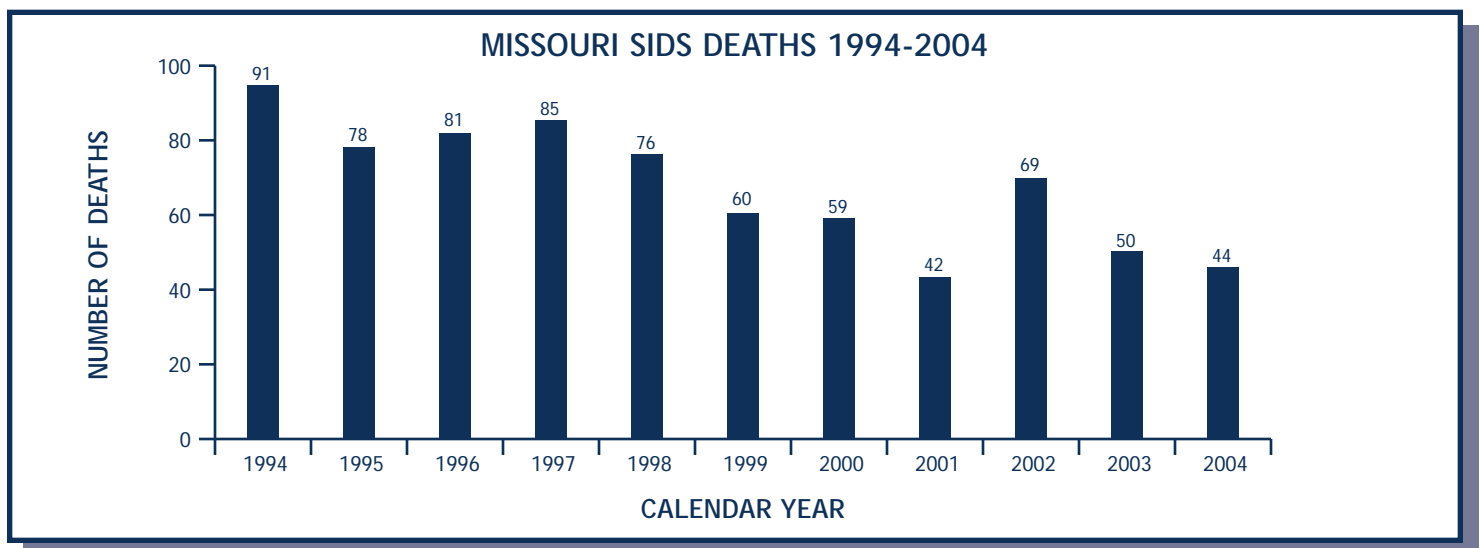
SUDDEN INFANT DEATH SYNDROME

In 2004, Sudden Infant Death Syndrome (SIDS) was the cause of death of 44 Missouri Infants.

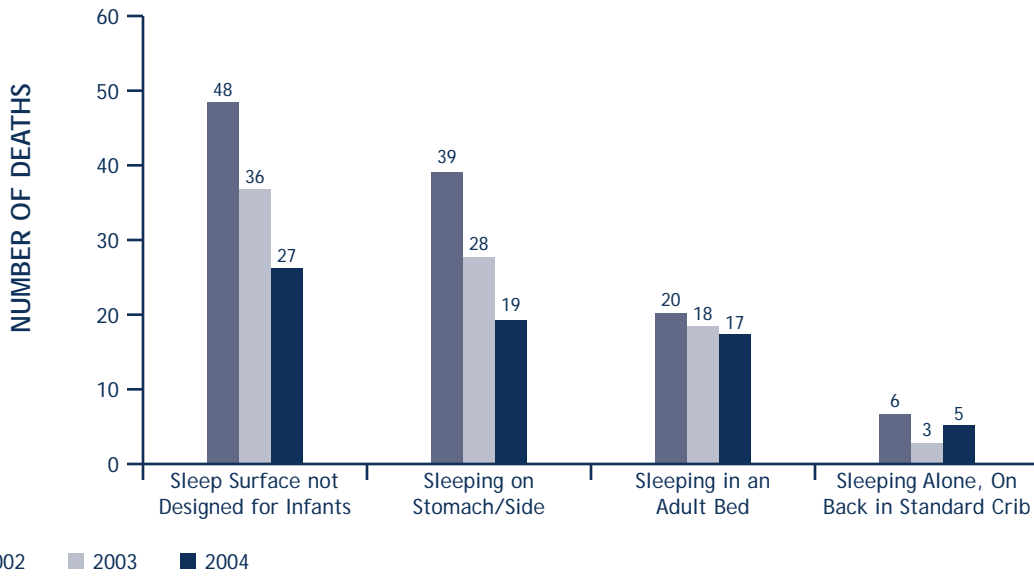
SIDS is a diagnosis of exclusion; there are no pathological markers that distinguish SIDS from other causes of sudden infant death. There are no known warning signs or symptoms. Ninety percent of SIDS deaths occur in the first six months of life, with a peak at 2-4 months. While there are several known risk factors, the cause or causes of SIDS are unknown at this time.

The Triple Risk Model for SIDS is often used to describe the confluence of events that may lead to the sudden death of an infant. This model involves a vulnerable infant (one with a subtle defect involving brainstem arousal responses), at a critical development period (less than six months of age), exposed to environmental challenges to which he/she does not respond (such as overheating, tobacco smoke, or prone sleeping).

SIDS is generally considered a natural manner of death. SIDS is not caused by spitting up, choking or minor illnesses, such as a cold. SIDS is not caused by immunizations; it is not contagious; SIDS is not child abuse. SIDS is not the cause of every sudden or unexpected infant death.



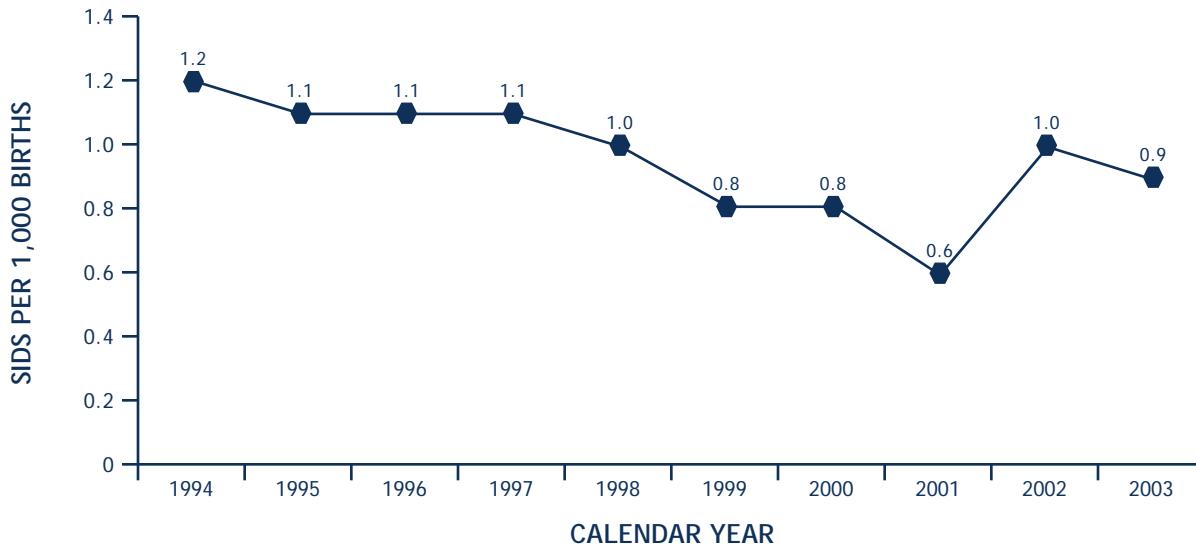
MISSOURI SIDS DEATHS, 2002-2004: SLEEP ENVIRONMENT



Recent research findings have resulted in accelerated progress in the understanding of sudden unexpected infant death. Unsafe sleep arrangements are now known to be a highly significant risk factor occurring in the large majority of cases of sudden infant death diagnosed as SIDS, unintentional suffocation and cause undetermined. Unsafe sleep arrangements include any sleep surface not designed for infants, sleeping with head or face covered, and sharing a sleep surface.

In Missouri, of the 44 sudden, unexpected infant deaths reviewed by county CFRP panels and diagnosed as SIDS in 2004, 19 (43%) were known to be sleeping on their stomach or side. Twenty-seven (61%) of those infants were not sleeping in a standard crib on a firm mattress and 17 were known to be sleeping in an adult bed. Only five (11%) sudden, unexpected infant deaths diagnosed as SIDS, were known to be sleeping alone on their backs, in a standard crib with head and face uncovered.

SIDS RATE 1994-2003

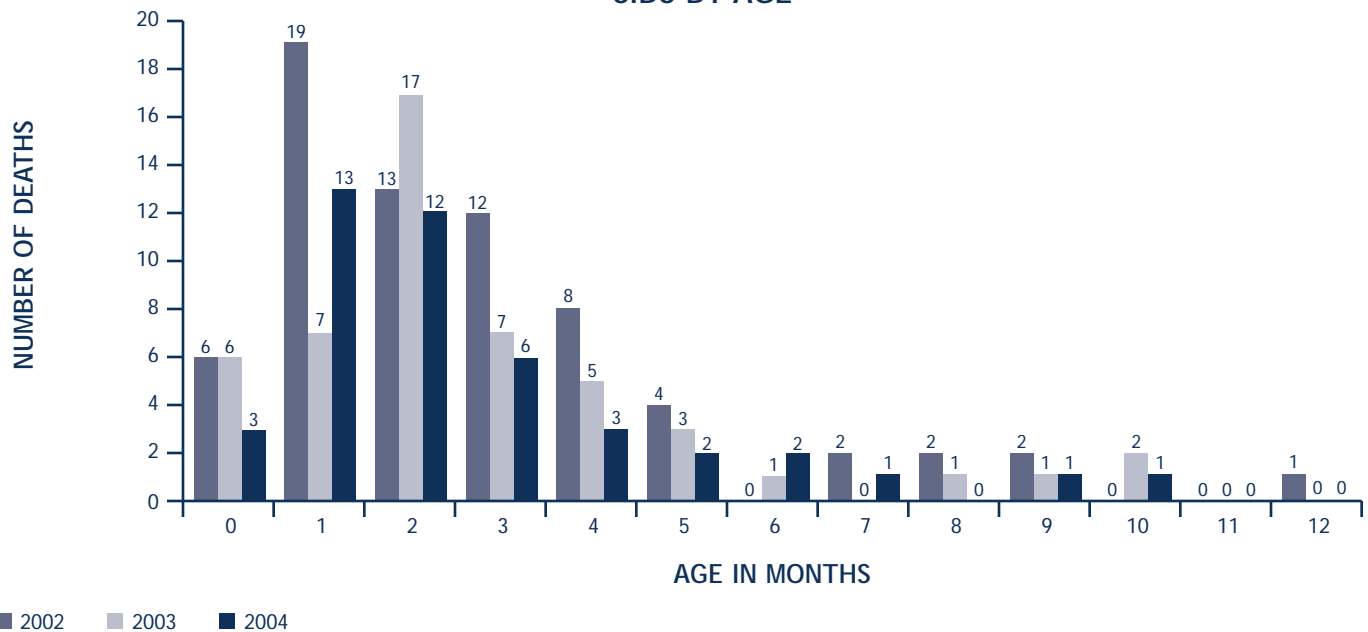


*2004 data not available at time of report

SIDS FATALITIES BY SEX AND RACE

SEX	2002	2003	2004	RACE	2002	2003	2004
FEMALE	24	14	19	WHITE	45	38	28
MALE	45	36	25	BLACK	24	11	15
				OTHER	0	1	1
	69	50	44		69	50	44

SIDS BY AGE



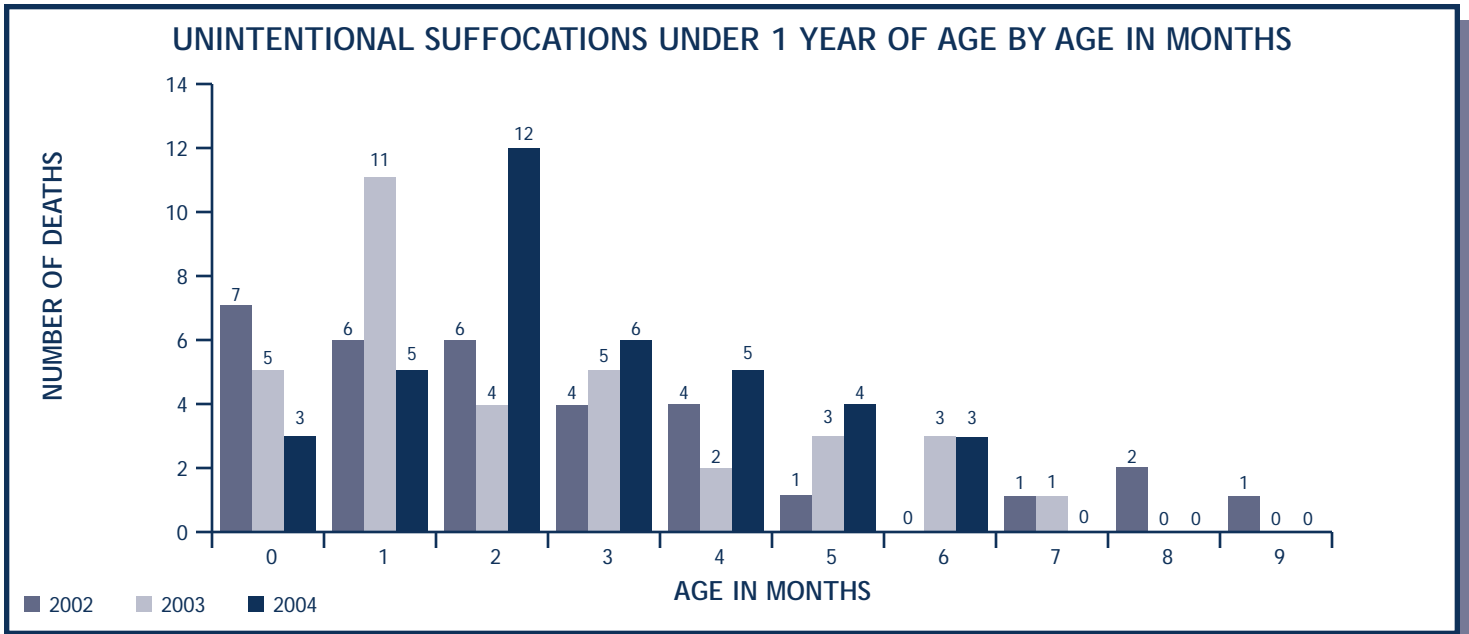
SUFFOCATION IN INFANTS

Unintentional Suffocation was the cause of death of 38 (4%) Missouri infants in 2004.

Most infant deaths due to **suffocation** are directly related to an unsafe sleep environment. Many parents and caregivers do not understand the risks associated with unsafe sleeping arrangements. Infants can suffocate when their faces become positioned against or buried in a mattress, cushion, pillow, comforter or bumper pad, or when their faces, noses and mouths are covered by soft bedding, such as pillows, quilts, comforters and sheepskins. In most cases of unintentional suffocation, the sleeping environment is such that most normal infants would not have been able to move themselves out of the unsafe circumstances.

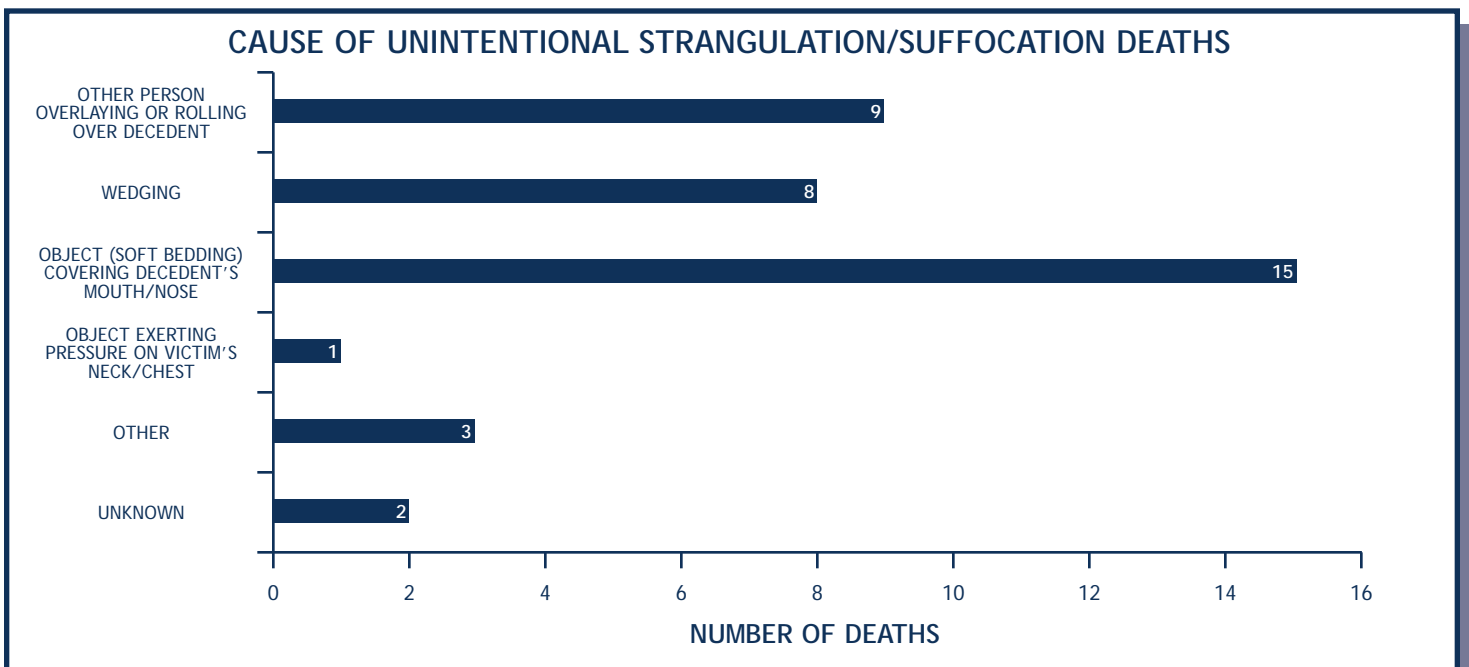
An **overlay** is a type of unintentional suffocation that occurs when an infant is sleeping with one or more persons (bed sharing with adults or other children) and someone rolls over on them. A suffocation due to overlay can be verified by one of the following means: (1) the admission of someone who was sharing the bed that they were overlying the infant when they awoke or (2) the observations of another person. Most infant deaths involving possible or suspected overlay are classified as **undetermined**

cause, because the actual position of the infant and other person at the time of death were not witnessed.



UNINTENTIONAL SUFFOCATION BY SEX AND RACE

SEX	2002	2003	2004	RACE	2002	2003	2004
FEMALE	14	15	16	WHITE	18	18	23
MALE	18	19	22	BLACK	14	16	14
				OTHER			1
	32	34	38		32	34	38



UNDETERMINED

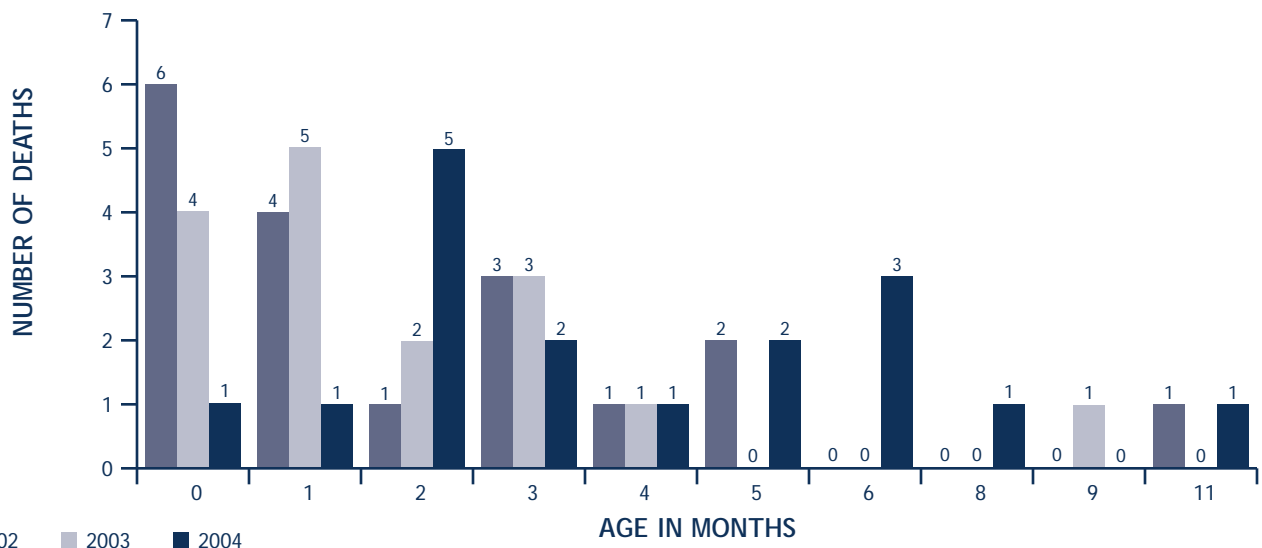
In 2004, the cause of death of 17 (2%) Missouri infants could not be determined.

In some cases, even the most thorough and careful scene investigation and autopsy do not produce a definitive cause of death, because risk factors are present that are significant enough to have possibly contributed to the death. One such risk factor is an unsafe or challenged sleep environment. Recent studies of epidemiological factors associated with sudden unexpected infant deaths demonstrate that prone sleeping and the presence of soft bedding near the infant's head and face pose very strong environmental challenges by limiting dispersal of heat or exhaled air in the vast majority of cases. However, the extent to which such environmental challenges play a role in a particular sudden infant death often cannot be determined. Sudden unexpected infant deaths involving an unsafe sleep environment are classified as **undetermined** when unintentional suffocation is not conclusively demonstrated by the scene investigation.

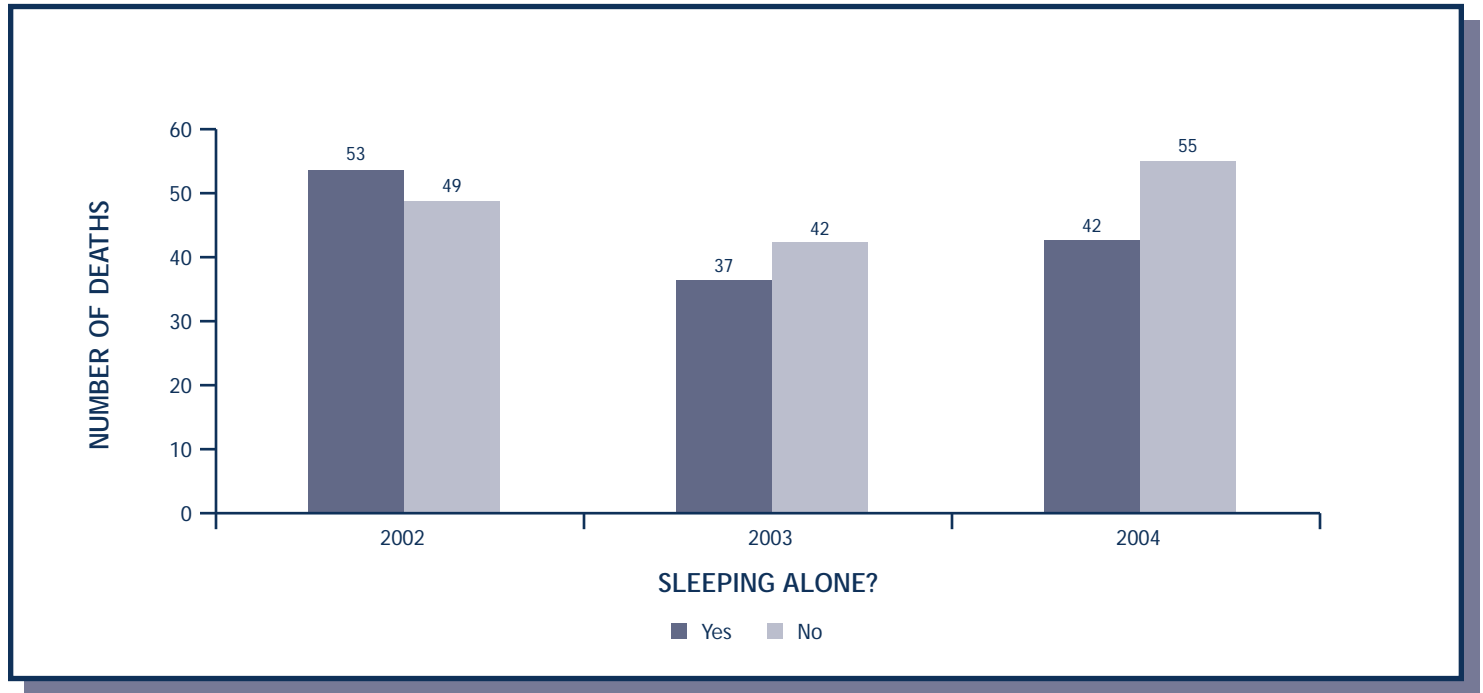
UNDETERMINED BY SEX AND RACE

SEX	2002	2003	2004	RACE	2002	2003	2004
FEMALE	6	8	6	WHITE	15	13	16
MALE	12	8	11	BLACK	2	2	1
				OTHER	1	1	
	18	16	17		18	16	17

UNDETERMINED - UNDER 1 YEAR OF AGE BY AGE IN MONTHS



There is a growing body of evidence that bed-sharing poses a strong risk for sudden, unexpected death in infants, because of the danger of suffocation in soft bedding and overlay. CFRP Data Form 2 contains specific questions about the sleep arrangements of infants diagnosed as SIDS, but few details are available at this time concerning unintentional suffocation in infants and cause undetermined. The exception to this, is a question concerning whether the infant was sleeping alone. The following table appears to reflect a national trend in bed-sharing that coincides with an increase in unintentional suffocation in infants placed in their parents' bed to sleep. In 2004, **nine** of the Missouri infants whose cause of death could not be determined were known to be bed-sharing at the time they were discovered.



A SAFE SLEEPING ENVIRONMENT FOR YOUR BABY

The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep. Here are the revised recommendations to follow for infants under 12 months:

Safe Bedding Practices for Infants

- Place baby on his/her back on a firm tight-fitting mattress in a crib that meets current safety standards.
- Remove pillows, quilts, comforters, sheepskins, stuffed toys, bumper pads and other soft products from the crib.
- Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
- If using a blanket, put baby with feet at the foot of the crib. Tuck a thin blanket around the crib mattress, reaching on so far as the baby's chest.
- Make sure your baby's head remains uncovered during sleep.
- Do not place baby on a waterbed, sofa, adult mattress, pillow or other soft surface to sleep.



Placing babies to sleep on their backs instead of their stomachs, has been associated with a dramatic decrease in deaths from Sudden Infant Death Syndrome (SIDS). Babies have been found dead on their stomachs with their faces, noses and mouths covered by soft bedding, such as pillows, quilts, comforters and sheepskins. However, some babies have been found dead with their heads covered by soft bedding, even while sleeping on their backs.

RISK REDUCTION RECOMMENDATIONS:

The following risk reduction recommendations are from SIDS Resources, Inc., the SIDS Alliance and the American Academy of Pediatrics.

For parents:

- *Sleep position:* Infants should be placed on their backs to sleep throughout the first year of life.

- *Sleep environment:* Do not place infants on adult beds to sleep.
- *Bedding:* Avoid soft bedding. Place baby on a firm tight-fitting mattress in a crib that meets current safety standards. Avoid placing the baby on soft quilts or comforters, sofas, pillows, waterbeds or sheepskins. Stuffed animals should not be placed in the crib with the baby. Avoid using bumper pads.
- *Temperature:* To avoid overheating, do not overdress the baby or over-bundle the baby.
- *Smoking:* Avoid smoking during pregnancy. Create a smoke-free environment around the baby after birth.
- *Breastfeeding:* Mothers should be encouraged to breastfeed. However, infants placed in adult beds to sleep are at increased risk of suffocation and overlay.
- *Prenatal Care and well-baby care.*

For community leaders and policy makers:

- *Support Safe-Sleep campaigns.*

For professionals:

- Newborn nursery personnel, physicians, nurses and public health officials should instruct all new parents and child care personnel in safe sleeping practices and other strategies to reduce the risk of SIDS.

For Child Fatality Review Panels:

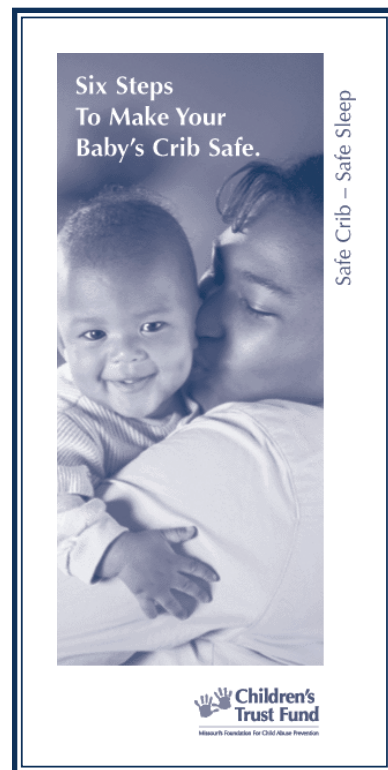
- All sudden, unexplained deaths of infants <1 year of age require autopsy by a child death pathologist and review by a county CFRP panel. The data pertaining to infant deaths is critical in identifying risk factors for SIDS and providing targeted prevention messages for parents.



SOMETHING WE CAN DO: THE SAFE CRIB-SAFE SLEEP CAMPAIGN

The safest place for an infant to sleep is in a standard crib, on his or her back without soft bedding or toys of any kind. The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep to incorporate this new information. Unfortunately, many parents have not received this information and, for a variety of reasons, are unable to provide a safe crib for their infant.

The Safe Crib Project provides a safe, new crib to families in need, along with critical parent education about safe sleep arrangements for infants. In communities throughout Missouri, social service agencies, community health agencies, hospitals and similar organizations have collaborated to implement the Safe Crib Project, using funding from Children’s Trust Fund. The goal of this innovative project is to save infant lives and support families. For additional information about Children’s Trust Fund, active Safe Crib Projects or funding opportunities, please contact Children’s Trust Fund at 573-751-5147 or visit www.ctf4kids.org.



RESOURCES AND LINKS:

American Academy of Pediatrics Policy Statement:

Changing Concepts of Sudden Infant Death Syndrome:

Implications for Infant Sleeping Environment

and Sleep Position . . . <http://aapolicy.aappublications.org/cgi/content/full/pediatrics%3b105/3/650>

Safe Bedding Practices for Infants:

Consumer Product Safety Commission www.cpsc.gov

American Academy of Pediatrics www.aap.org

SIDS Resources, Inc., 143 Grand, St. Louis, MO 63122 www.sidsresources.org

Counseling and support, research, training and education throughout Missouri. 800-421-3511

Children’s Trust Fund www.ctf4kids.org

“Safe Crib-Safe Sleep” Campaign 573-751-5147

Sudden Unexpected Infant Death: A Guide for Missouri Coroners

and Medical Examiners. www.dss.mo.gov/stat/suid.pdf