Preventing Child Deaths in Missouri

The Missouri Child Fatality Review Program Annual Report for 2007

This Report is Proudly Presented by the State Technical Assistance Team

Gus H. Kolilis, STAT Chief
Maurine Hill, STAT Administrator

Cheryl Morgan, Secretary

Heather Clemens, Prevention Specialist
Theresa Murrell, Child Fatality Review Program Data Specialist
Brenda Record, Child Fatality Review Program Specialist
Laura Schnoebelen, Jackson County Metro Case Coordinator

Rodney Jones, Investigations Administrator
Brian Bailey, Lead Investigator
Larry Bowling, Investigator
Denise Brown, Investigator
Tommy Capps, Investigator
Michael Gray, Investigator
Emerson "Skip" McGuire, Investigator
Marion McMillan, Investigator
John Pehle, Investigator
Dan Stewart, Investigator
Susan Stoltz, Investigator
Kathy Wyrick, Investigator
Kathleen Hargrave, St. Charles, Jefferson, Franklin County Medical Examiner's Office, CFRP Coordinator
Sue Mrozowicz, St. Louis County Medical Examiner's Office, St. Louis County CFRP Coordinator
Rose Psara, St. Louis City Medical Examiner's Office, St. Louis City CFRP Coordinator

Douglas Beal, M.D., STAT Medical Consultant
Suzanne McCune, Child Fatality Review Program Consultant

Matt Blunt, Governor
State of Missouri

Deborah E. Scott, Director
Missouri Department of Social Services

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PO Box 1641
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The Missouri Child Fatality Review Program

Annual Report for 2007

Missouri Department of Social Services
State Technical Assistance Team
PO Box 208
Jefferson City, Missouri 65102-0208
(800) 487-1626
(573) 751-5980
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The Child Fatality Review Program State Panel

According to RSMo 210.195, "The Director of the Department of Social Services shall appoint a state child fatality review panel, which shall meet biannually to provide oversight and make recommendations to the Department of Social Services, State Technical Assistance Team." In this oversight role, the panel is encouraged to identify systemic problems and bring concerns to the attention of the State Technical Assistance Team. The composition of the State Panel mirrors that of the county panels; each multi-disciplinary profession is represented by a recognized leader in the respective discipline.

Chairperson
Wayne Munkel
Cardinal Glennon Hospital
St. Louis

Prosecuting Attorneys
Lori Fluegel
Jackson County Prosecutor's Office
Kansas City

Brian Keedy
Missouri Office of Prosecution Services
Jefferson City

Coroner
Dr. James Jungels
Camdenton

Medical Examiner
Mary Case, M.D.
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St. Louis County Police
St. Louis

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Columbia

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Optional Members
Kirk Schreiber
Children's Trust Fund
Jefferson City

Harry D. Williams
Division of Legal Services
Jefferson City

Steve Morrow
Office of Child Advocacy
Jefferson City

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Dedication

This report reflects the work of many dedicated professionals throughout the state of Missouri. Through better understanding of how and why children die, we strive to improve and protect the lives of Missouri's youngest citizens. We will always remember that each number represents a precious life lost. We dedicate this report to these children and their families.

Missouri Child Fatality Review Program

Child Fatality Review In Missouri

Death rates for infants, children, and teens are widely recognized as valuable measures of child wellbeing, particularly when viewed within the context of a decade of demographic changes in our state. However, it is the accuracy of key factors associated with child deaths that provides the basis for identifying vulnerable children, and responds in ways that will protect and improve their lives. In 1995, the U.S. Advisory Board on Child Abuse and Neglect concluded that child abuse and neglect fatalities, and other serious and fatal injuries to children could not be significantly reduced or prevented without more complete information about why these deaths occur and how such tragedies might be avoided. It was widely acknowledged that many child abuse and neglect deaths were under-reported and/or misclassified. Scholars, professionals, and officials around the nation had agreed that a system of comprehensive Child Death Review Teams could make a major difference. In 1991, Missouri had initiated the most comprehensive child fatality review system in the nation, designed to produce an accurate picture of each child death, as well as a database providing ongoing surveillance of all childhood fatalities. The Missouri Child Fatality Review Program (CFRP) was presented in the Advisory Board's report as a state of the art model. While the program has evolved and adapted to meet new challenges, the objectives have remained the same-identifying potentially fatal risks to infants and children, and responding with multi-level prevention strategies.

In Missouri, all fatality data is collected by means of standardized forms and entered into a database. What is learned can be used immediately by the community where the death occurred. The sum of statewide data is used to identify trends and patterns requiring systemic solutions. The Missouri Child Fatality Review Program has succeeded in remaining effective, relevant and sustainable over ten years. The success of the program is due in large part to the support of panel members, administrators and other professionals who do this difficult work voluntarily, because they understand its importance. This work is a true expression of advocacy for children and families in our state.

Missouri legislation requires that every county in our state (including the City of St. Louis) establish a multidisciplinary panel to examine the deaths of all children under the age of 18. If the death meets specific criteria, or if requested by the coroner/medical examiner, it is referred to the county's multidisciplinary CFRP panel. The minimum core panel for each county includes: Coroner/Medical Examiner, Law Enforcement, Juvenile/Family Court, Emergency Medical Services, Prosecutor, Public Health and Children's Division. Optional members may be added at the discretion of the panel. The panels do **not** act as investigative bodies. Their purpose is to enhance the knowledge base of the mandated investigators and to evaluate the potential service and prevention interventions for the family and community.

Of all child deaths in Missouri, about 1100-1200 deaths annually, approximately one-third merit review. To come under review, the cause of the child's death must be unclear, unexplained, or of a suspicious circumstance. All sudden, unexplained deaths of infants one week to one year of age, are required to be reviewed by the CFRP panel. (This is the only age group for which an autopsy is mandatory.)

State Technical Assistance Team and Child Fatality Review Program

Missouri State Statutes

- Section 210.150 and 210.152 (Confidentiality and Reporting of Child Fatalities)
- Section 210.192 and 210.194 (Child Fatality Review Panels)
- Section 210.195 (State Technical Assistance Team - duties)
- Section 210.196 (Child Death Pathologists)
- Section 211.321; 219.061 (Accessibility of juvenile records for child fatality review)
- Section 194.117 (Sudden Infant Death; infant autopsies)
- Section 58.452 and 58.722 (Coroner/Medical Examiners responsibilities regarding child fatality review)

Confidentiality Issues (RSMo 210.192 to 210.196)

A proper Child Fatality Review Program (CFRP) review of a child death requires a thorough examination of all relevant data, including historical information concerning the deceased child and his/her family. Much of this information is protected from disclosure by law, especially medical and child abuse/neglect information. Therefore, CFRP panel meetings are always closed to the public and cannot be lawfully conducted unless the public is excluded. Each CFRP panel member should confine his or her public statements only to the fact that the panel met and that each panel member was charged to implement their own statutory mandates.

In no case, should any other information about the case or CFRP panel discussions be disclosed. All CFRP panel members who are asked to make a public statement should refer such inquiries to the panel spokesperson. Failure to observe this procedure may violate Children's Division regulations, as well as state and federal confidentiality statutes that contain penalties.

Individual disciplines (coroner/medical examiners, sheriff departments, prosecuting attorneys, etc.) can still make public statements consistent with their individual agency's participation in the investigation, as long as they do not refer to the specific details discussed at the CFRP panel meeting.

No CFRP panel member is prohibited from making public statements about the general purpose, nature or effects of the CFRP process. Panel members should also be aware that the legislation which established the CFRP panels provides official immunity to all panel participants.

When a Child Dies

The loss of a loved one...particularly a child...is perhaps the greatest loss an individual or family can experience. Many overwhelming feelings follow the death of a child. This grief and sadness is a natural and normal reaction to an irreplaceable loss.

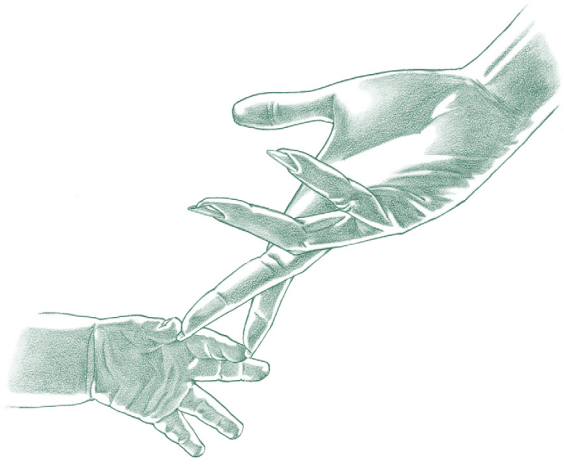
To better understand why and how our children die, the State of Missouri has implemented the Child Fatality Review Program. By reviewing child fatalities, we hope to identify causes and strategies that will ultimately lead to a reduction, in certain cases, of child fatalities. Missouri state law (RSMo 210.192) now requires that any child, birth through age 17, who dies from any cause, be reported to the coroner/medical examiner. The coroner/medical examiner is mandated to follow specific procedures concerning these fatalities. These include:

- All **sudden, unexplained** deaths of infants, from one week to one year, are required to be autopsied by a certified child-death pathologist. The most common questions for parents, "Why did our baby die?" can really only be answered by having an autopsy performed. During an autopsy, the internal organs are examined. This is done in a professional manner, so that the dignity of the child is maintained. The procedure will not prevent having an open casket at the funeral. Preliminary results may be available in a few days; however, the final report may take several weeks.

- In all other child deaths, the coroner/medical examiner may consult with a certified child-death pathologist regarding the circumstances of death. In some cases, an autopsy will be ordered.

- If the fatality meets certain criteria, the circumstances surrounding the death will be reviewed by the county Child Fatality Review Program panel. Facts regarding the death are discussed by the professionals who serve on the panel. The represented agencies on the panel have the responsibility to contribute information that will lead to a more accurate determination of the cause of death; they also try to identify ways to prevent further deaths from occurring. **All information is kept confidential.**

The Child Fatality Review Program is a true expression of child advocacy. Like you, we want to know why the death occurred. We will do everything we can to explain and help you understand why.



Missouri Incident Fatalities

"A simple child,
That lightly draws its breath,
And feels its life in every limb,
What should it know of death?"
-William Wordsworth

In reviewing this report, the reader should be aware of some important definitions and details about how child deaths are reported and certified in Missouri, summarized here: (Please refer to Appendix 6, Definitions of Important Terms and Variables, for additional information.)

- **"Missouri Child Fatalities"** refers to all children age 17 and under, who died in Missouri, without regard to the state of residence or the state in which the illness, injury or event occurred. (For example, a child who is a resident of Kentucky, injured in a motor vehicle crash in Illinois and brought to a Missouri hospital, where he or she subsequently dies, would be counted as a "Missouri Child Fatality." This death would be reported to the Child Fatality Review Program on a Data Form 1, Section A only, as an out-of-state event and reported to Illinois.)

- **"Missouri Incident Fatality"** refers to a *fatal illness, injury or event*, which occurs *within the state of Missouri*. (This is not necessarily the county or state in which the child resided.) If the death meets the criteria for panel review, it is reviewed in the county in which the *fatal injury, illness or event* occurred.

- *Every* Missouri incident child fatality is required to be reviewed by the coroner or medical examiner and the chairperson for the county CFRP panel. The findings of the review are reported on the Data Form 1.

- Any child death that is *unclear, unexplained, or of a suspicious circumstance, and all sudden unexplained deaths of infants one week to one year of age* are required to be reviewed by a county-based CFRP panel. Panel findings are reported on the Data Form 2. Panel members receive annual training on the investigation of child fatalities.

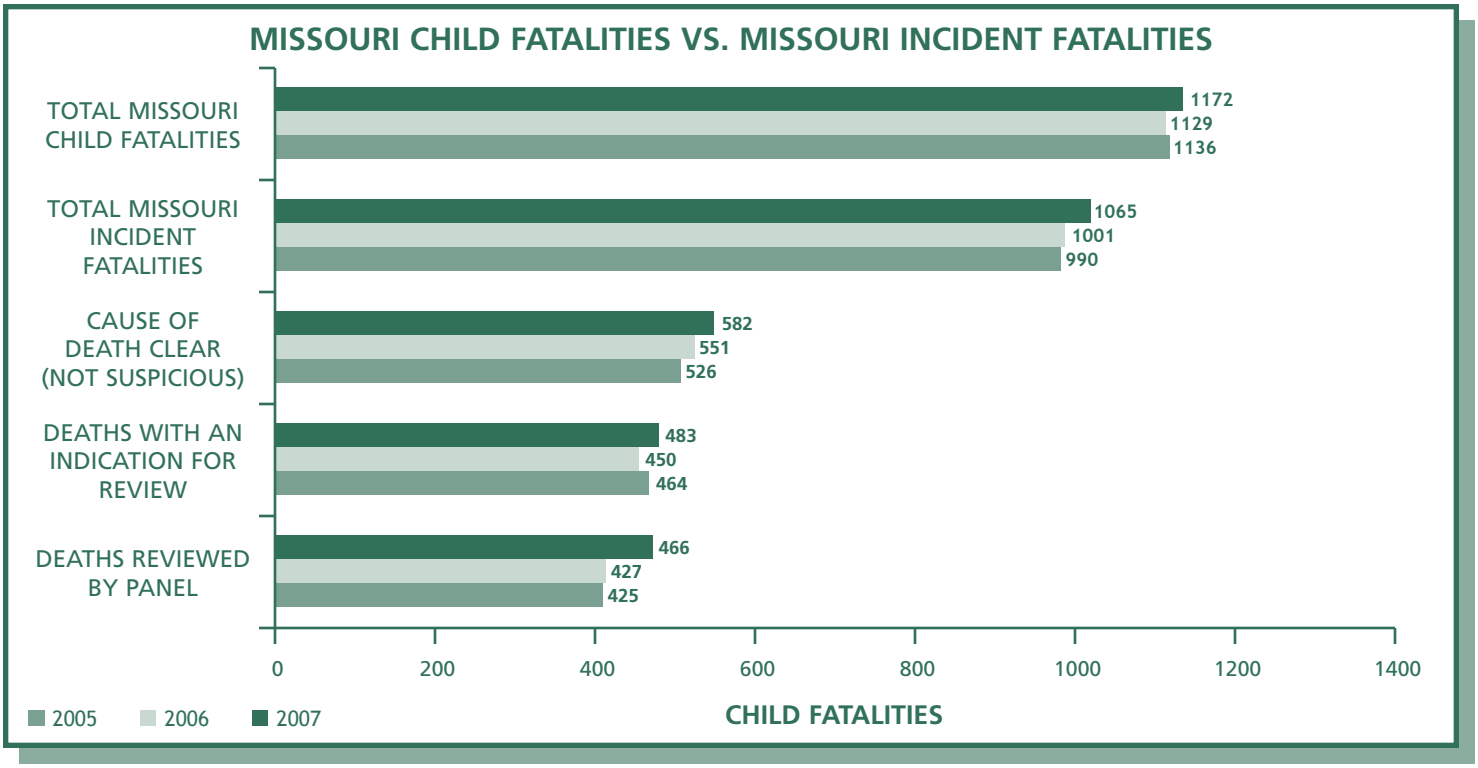
- **Multiple-Cause Deaths:** *Cause of death* is a disease, abnormality, injury or poisoning that contributed directly or indirectly to death. However, a death often results from the combined effect of two or more conditions. Because the Child Fatality Review Program is focused on the prevention of child fatalities, the precipitating events are of particular concern. Therefore, deaths are categorized according to the *circumstances of death*, which may not be the immediate cause of death listed on the death certificate. (An example would be a child passenger in a car that runs off the road and lands in a ditch full of water; the "immediate cause of death" is listed on the death certificate as "drowning," but the precipitating event was a motor vehicle accident. This death would be reported in the Motor Vehicle Fatalities section, with a footnote indicating that the death certificate lists "drowning" as the immediate cause of death.)

- The Child Fatality Review Program data management unit links data collected on the Data Forms 1 and 2 with the Department of Health and Senior Services birth and death data. Every attempt is made to reconcile the two systems; however, in some cases, crucial data components are incomplete and are noted, as appropriate.

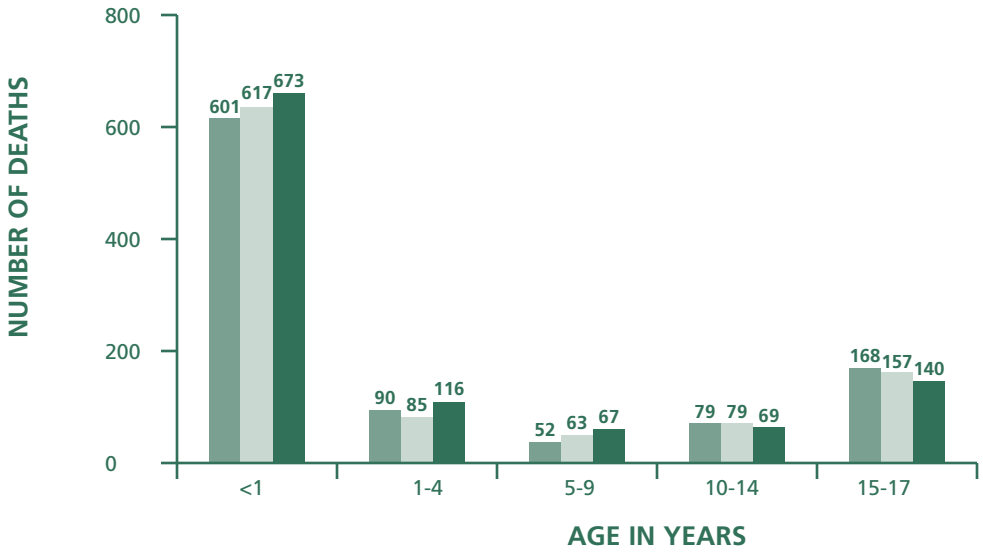
- All deaths included in this CFRP Annual Report occurred in calendar year 2007. Some of the cases reviewed may not have been brought before a county panel until the year 2008.
- In some cases, panels did not complete all of the information requested on the data form.
- Of the **483** Missouri Incident Fatalities reported on Data Form 1 in 2007, with indication for review, **17** did not receive required CFRP panel review, or panel findings were not submitted on Data Form 2. These **17** fatalities are included in this 2007 CFRP Annual Report because the data, though incomplete, is useful and accurate within the limitations on the Data Form 1 information.
- In 2007, **32** Missouri Incident Fatalities were not reported on either a Data Form 1 or Data Form 2, but were reported to CFRP by death certificates from the Department of Health and Senior Services. From information provided by the death certificates, **five** of those **32** fatalities (17%) had at least one indication for review, including **4** motor vehicle fatalities and **one** suffocation. These fatalities are not included in the data for this annual report.

Summary of Findings
Missouri Incident Fatalities, 2007

In 2007, **1172** children age 17 and under died in Missouri. Of those deaths, **1065** were determined to be "Missouri incident fatalities" and, therefore, subject to review by the coroner or medical examiner and county CFRP chairperson. Of the 1065 deaths, **483** had indications for review by a county CFRP panel, and of those, **466** (96%) were reviewed and a Data Form 2 completed.



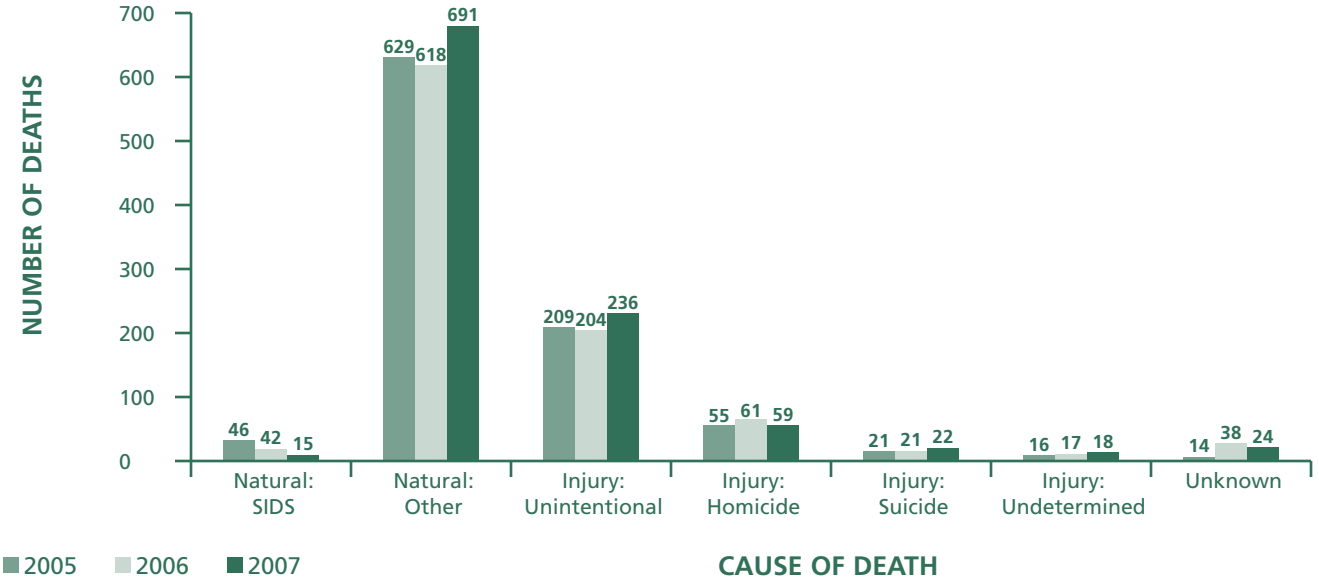
MISSOURI INCIDENT FATALITIES BY AGE



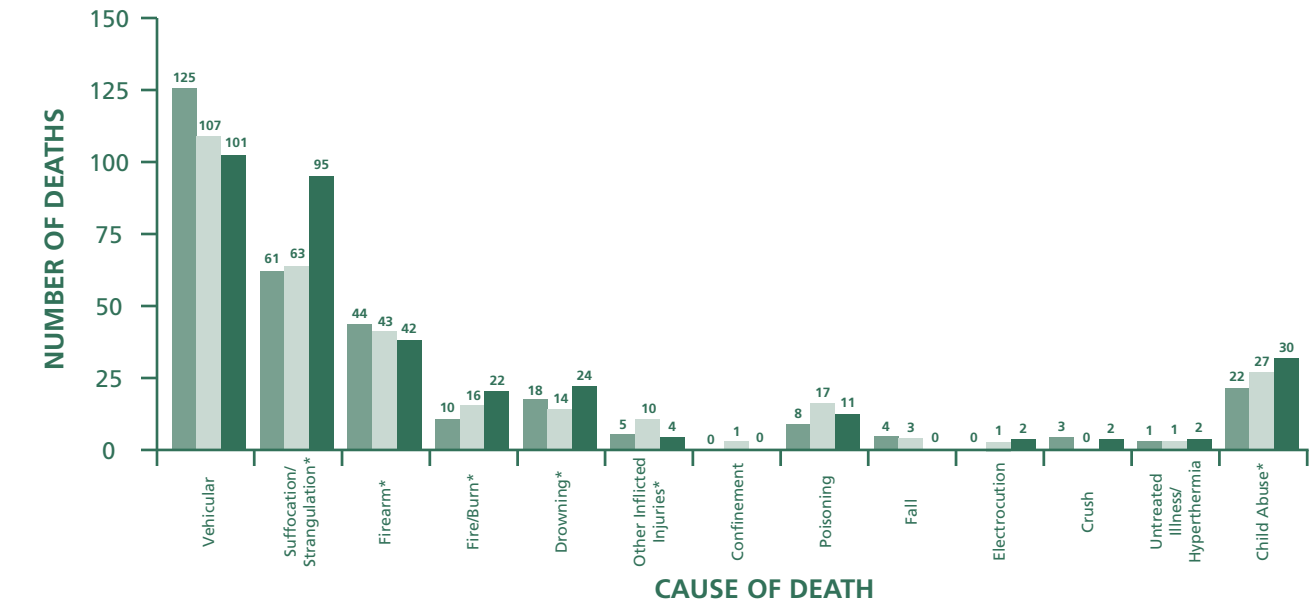
MISSOURI INCIDENT FATALITIES BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	590	419	446	WHITE	699	666	701
MALE	400	582	619	BLACK	275	310	323
UNKNOWN	0	0	0	OTHER	16	25	41
	990	1001	1065		990	1001	1065

MISSOURI INCIDENT FATALITIES BY MANNER



LEADING CAUSE OF INJURY DEATHS



*NOTE: All Abusive Head Trauma deaths are included in the category of Child Abuse. This category can also include deaths from inflicted Suffocation/Strangulation, Firearm, Fire/Burn, Drowning, Other Inflicted Injuries and Other Cause

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."

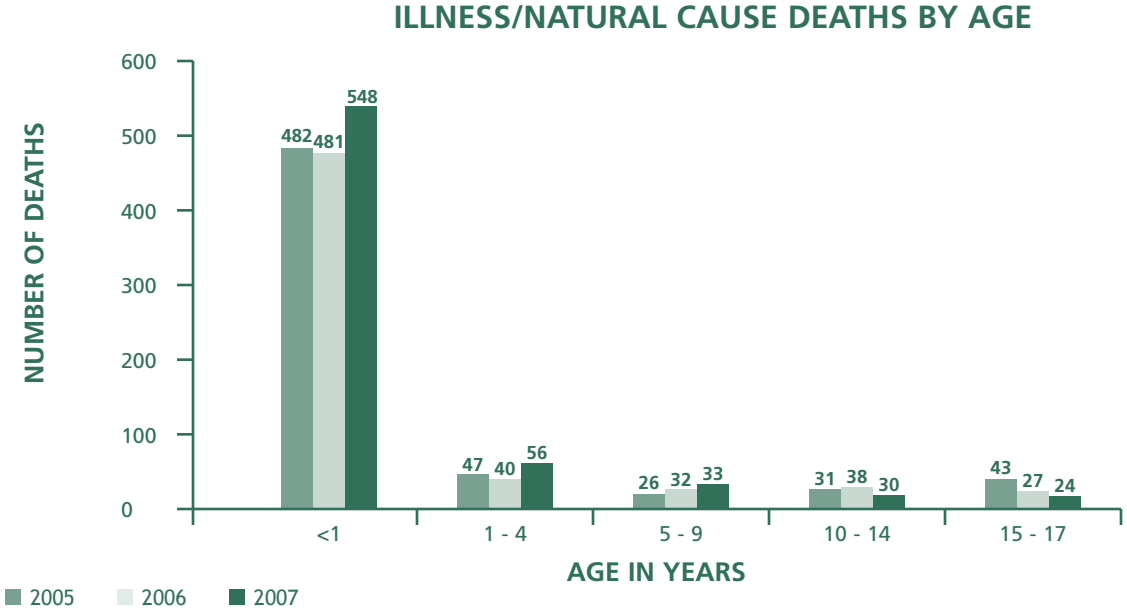
-Kids Count Missouri, Citizens for Missouri's Children and Children's Trust Fund

Illness/natural causes, other than SIDS, were responsible for the death of 691 Missouri children in 2007, representing 65% of all Missouri incident child 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.

ILLNESS/NATURAL CAUSE DEATHS BY SEX AND RACE

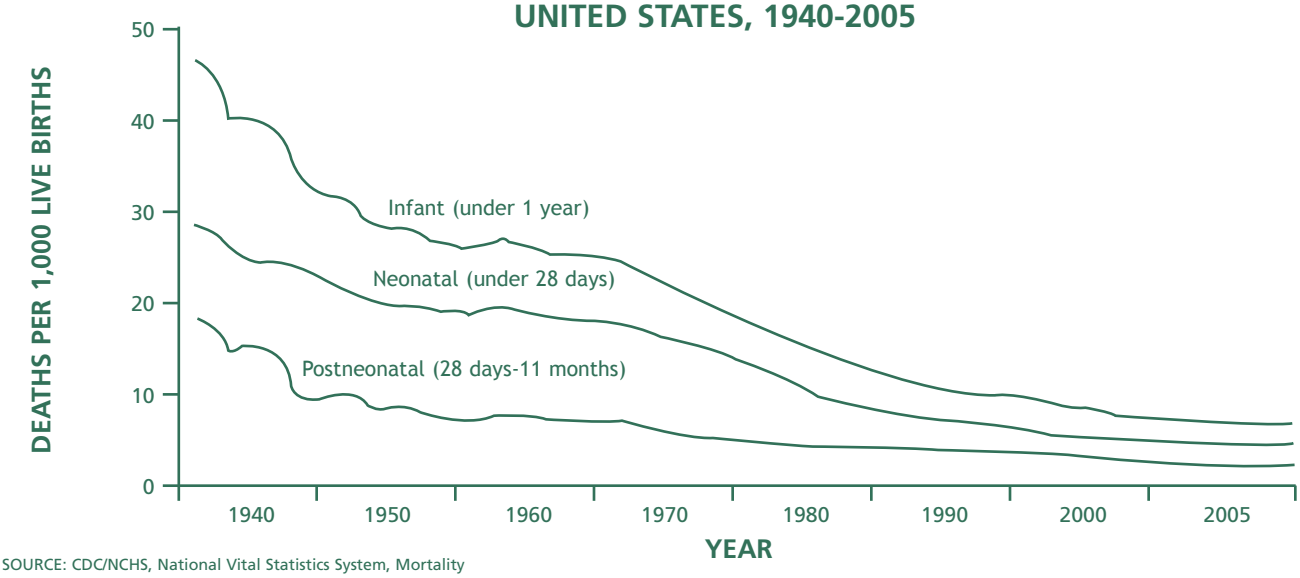
SEX	2005	2006	2007	RACE	2006	2007	2008
FEMALE	267	281	317	WHITE	436	406	429
MALE	362	337	374	BLACK	182	190	232
UNKNOWN	0	0	0	OTHER	11	22	30
	629	618	691		629	618	691



Leading illness/natural cause deaths among children over the age of one include cancer, congenital anomalies, and cardiac conditions.

Infant Mortality

One of the most important health trends in the United States in recent decades, has been the reduction of high infant mortality rates. Between 1950 and 1996, the U.S. infant mortality rate was reduced by 75%. In the United States, the leading causes of infant mortality include congenital malformations, deformations and chromosomal abnormalities (congenital anomalies) and disorders related to short gestation and low birth weight, not elsewhere classified (low birth weight). Also among the leading causes of infant death are Sudden Infant Death Syndrome (SIDS), newborn affected by maternal complications, newborn affected by cord and placental complications, and unintentional injuries.



SOURCE: CDC/NCHS, National Vital Statistics System, Mortality

Infant mortality in the United States declined more than 45% between 1980 and 2000. However, the gap between black and white infant death rates has widened. Blacks continue to have a 2- to 3-fold greater risk than whites of giving birth to low-birth-weight (<2500 grams) and very low-birth-weight (<1500 grams) infants. *(CDC)*

In Missouri, in 2007, the infant morality rate increased slightly, from 7.4 to 7.5 per 1,000 live births. The increase in infant mortality primarily reflects an increase in very low birth weight babies weighing less than 1.1 pounds. Approximately 90% of these very small babies die, so even a relatively small increase or decrease has a major impact on infant mortality. *(Missouri Department of Health and Senior Services)*

In Missouri, in 2007, prematurity was the cause of **312** infant deaths, representing 45% of all illness/natural cause deaths, other than SIDS. Of those, **204** (65%) were born at 25 weeks or less gestation and **32** (16%) of those were born at less than 20 weeks gestation. In 2007, congenital anomalies were the cause of **166** infant deaths, representing 24% of all illness/natural causes, other than SIDS.

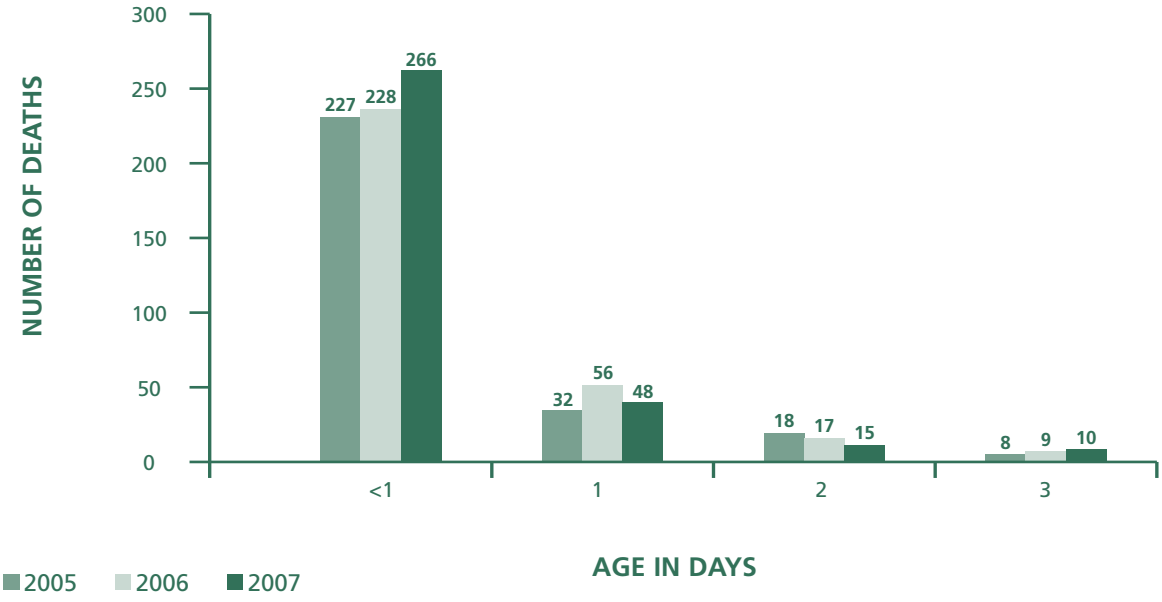
Infants less than one year of age comprised the majority (79%) of the illness/natural cause deaths in 2007, with **548**.

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

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	208	217	239	WHITE	325	306	324
MALE	274	264	309	BLACK	148	159	200
UNKNOWN	0	0	0	OTHER	9	16	24
	482	481	548		482	481	548

Of the 548 infant deaths <1 due to illness/natural cause, **339** (62%) occurred within the first three days of life and **266** (49%) occurred within 24 hours of birth.

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



Natural Cause Deaths in Infants Less Than One Year as Reported on CFRP Data Forms

AGE AT DEATH	
0 - 24 hours after birth	301
24 - 28 hours	24
48 hours - 6 weeks	143
6 weeks - 6 months	45
6 months - 1 year	35
Not Answered	0

GESTATIONAL AGE AT BIRTH	
<20 weeks	39
20 - 25 weeks	199
26 - 30 weeks	61
31 - 37 weeks	68
>37 weeks	53
Unknown	59
Not Answered	69

BIRTH WEIGHT IN GRAMS	
<750 grams (<1lb 10oz)	187
750 - 1,499 grams (1lb 10oz - 3lbs 5oz)	60
1,500 grams - 2,499 grams (3lbs 5oz - 5lbs 5oz)	39
>2,500 grams (>5lbs 5oz)	70
Unknown	83
Not Answered	109

MULTIPLE BIRTHS	
Yes	76
No	405
Not Answered	67

The data on the following charts were collected only from those illness/natural deaths where the county panels completed a Data Form 2.

MEDICAL COMPLICATIONS DURING PREGNANCY	
Yes	7
No	4
Unknown	37
Not Answered	12

SMOKING DURING PREGNANCY	
Yes	9
No	11
Unknown	34
Not Answered	6

DRUG USE DURING PREGNANCY	
Yes	10
No	16
Unknown	29
Not Answered	5

ALCOHOL USE DURING PREGNANCY	
Yes	0
No	10
Unknown	39
Not Answered	11

"Infant morality is the most sensitive index we possess in social welfare."
-Julia Lathrop, Children's Bureau, 1913

Fetal and Infant Mortality Review (FIMR) in Missouri

The death of a child, especially the youngest, most vulnerable infant, is viewed as a sentinel event that is a measure of a community's overall social and economic well being, as well as its health. During the last decade, two methods for examining these sentinel deaths at the local level have emerged: child fatality review (CFR) and fetal and infant mortality review (FIMR).

Fetal mortality is defined as the death of a fetus in utero at 20 weeks or more gestation. It is viewed as an important indicator of overall perinatal health. The health of the mother plays a significant role in maintaining a healthy pregnancy. Conversely, maternal medical complications of pregnancy are adversely associated with fetal deaths.

Infant mortality is defined as the death of a child before one year of age. The infant mortality rate is associated with a variety of social and economic factors, as well as medical/health conditions. Nationally, two-thirds of these deaths occur during the first 28 days of life, the neonatal period.

Fetal and Infant Mortality Review is a community-owned, action-oriented process that results in improved service systems and resources for women, infants, and children. The FIMR process brings a team together to examine confidential, de-identified cases of infant deaths. Many sources provide information for FIMR reviews. A maternal interview is sought from the family. Medical records, including hospital and physician records, as well as any existing medical examiner records are abstracted. The purpose of these reviews are to understand how a wide array of local social, economic, public health, educational, environmental, and safety issues relate to the tragedy of infant loss. Having gained a comprehensive understanding of these issues form case reviews, a board/forum of interested community members and leaders, elected officials, providers, agencies, advocates, and consumers are able to reason together and act to improve services and resources.

The FIMR process in Missouri conforms to the principles and guidelines set by the National Fetal and Infant Mortality Review Program, which is a collaborative effort between the American College of Obstetricians and Gynecologists and the Maternal and Child Health Bureau, Health Resources and Services Administration. The overall goal of Fetal and Infant Mortality Review (FIMR) is to enhance the health and well being of women, infants and families by improving the community resources and service delivery systems available to them.

The FIMR program in Missouri was established in 2003, when the Department of Health and Senior Services collaborated with the Infant Mortality Workgroup of the Maternal Child and Family Health Coalition of Metropolitan St. Louis and Bootheel Healthy Start. The Bootheel program disbanded after a few months. However, the St. Louis FIMR, which began with just three zip codes served by the Healthy Start program, has expanded to all of St. Louis City and County. Since its inception they have abstracted and reviewed over 70 infant and fetal deaths.

In 2004, the Maternal Child Health Coalition of Greater Kansas City began a Fetal and Infant Mortality Review program in the seven zip codes served by Healthy Start in Kansas City. Plans are currently being formulated to expand the program to an additional three zip codes. Since its inception, the Kansas City FIMR has abstracted and reviewed more than 75 infant and fatal deaths.

The presence of FIMR programs serving the major metropolitan areas in Missouri, will bring about a more thorough understanding of the contributing factors of fetal and infant deaths, as well as a larger

engagement of community health professionals and institutions to improve maternal and child health throughout our state. In 2009, the Missouri Department of Health and Senior Services will be compiling data collected by the two FIMR sites and develop a report on trends noted in Missouri.

While there are many similarities between CFRP and FIMR, there are distinct and important differences, including basic human concern and advocacy. In Missouri, FIMR and CFRP will be distinct, but complementary systems, sharing a common mission and some promising opportunities for collaboration. It is anticipated that, when appropriate, the two systems will be able to collaborate in significant ways, such as joint reporting of aggregate findings, sharing recommendations with media and the public, and improving systems and resources for children, mothers and families in our state.

For more information, visit:
www.dhss.mo.gov/FIMR
www.stl-mcfhc.org

Sudden Unexpected Infant Deaths

In 2007, there were 127 sudden, unexpected deaths of infants less than one year of age in Missouri.

Representative Cases:

- **Infants should be placed on their backs for every sleep.**

  The father of an 8-week-old infant put her down to sleep prone on a standard size pillow, in an adult bed. He later found her unresponsive, after she had apparently slid off the pillow with her face down into the bedding.

  A child care provider placed a 10-week-old infant on his side in a playpen for a nap. A short time later, she found him lifeless on his stomach with his face down.

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

  A week-old infant was sleeping in a full-size bed between her parents. She was found lying on her right side, face down into a comforter.

  A mother was lying in bed with her three-week-old infant cradled in her arm. When she awoke, she realized that she was lying on top of the baby, who was face down on the mattress, unresponsive.

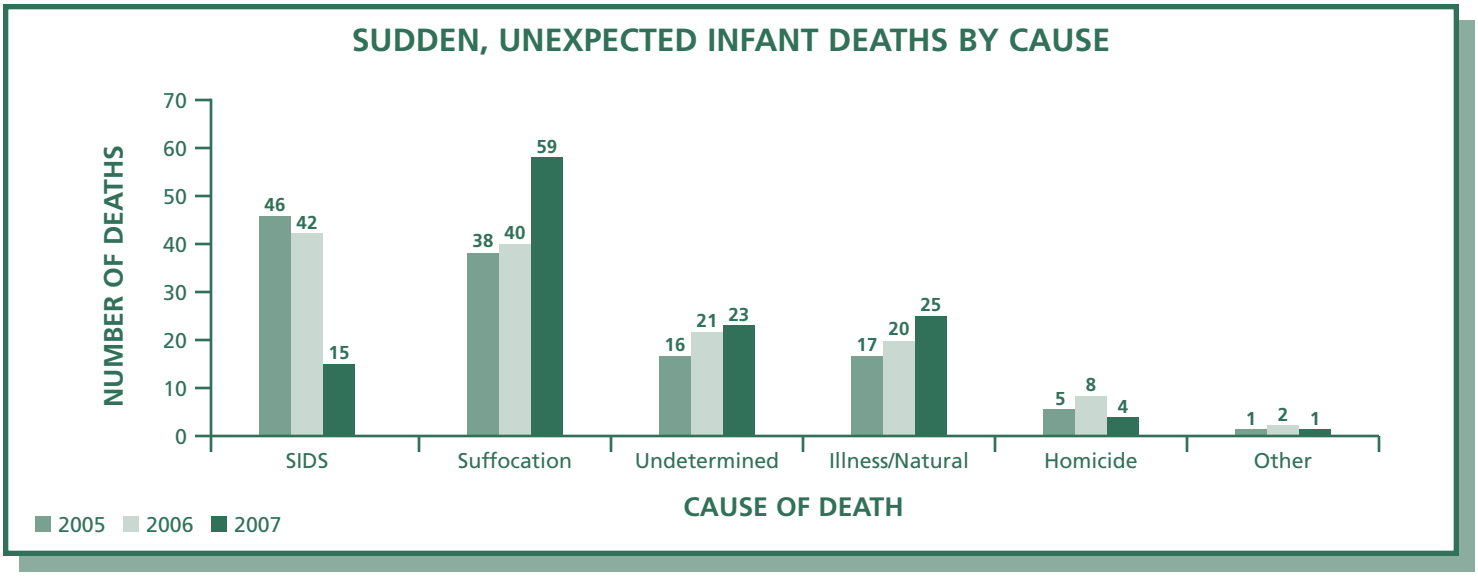
  A six-week-old infant was sleeping in a full-size bed with his mother and two siblings, ages 5 and 3. The mother was awakened by the five-year-old telling the three-year-old to get off the baby. The infant was unresponsive.

  A three-month-old infant was placed on his stomach in a crib with bumper pads. He scooted to the corner of the crib with his face against the plastic bumper. This created an environment in which he was re-breathing his own exhaled air, causing him to suffocate.

In 2007, there were **127** sudden, unexpected deaths of infants under the age of one year reported to the Child Fatality Review Program. Based on autopsy, investigation and CFRP panel review, **15** were diagnosed as Sudden Infant Death Syndrome (SIDS), **59** Unintentional Suffocation, **25** Illness/Natural Cause, and **23** could not be determined. **Four** infants were found to be victims of Homicide and **one** infant's death was determined to be an Accident, resulting from exposure to excessive heat. Those five deaths are discussed under "Fatal Child Abuse and Neglect."

SUDDEN UNEXPECTED INFANT DEATHS BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	52	58	52	WHITE	84	93	75
MALE	71	75	75	BLACK	37	38	52
UNKNOWN	0	0	0	OTHER	2	2	0
	123	133	127		123	133	127



Investigation of Sudden, Unexpected Infant Deaths

Each year in the United States, more than 4,500 infants die suddenly of no obvious cause and about half of these sudden, unexpected infant deaths are diagnosed as Sudden Infant Death Syndrome (SIDS). Historically, the national Back to Sleep campaign's effort to reduce prone sleeping rates, SIDS rates resulted in a 50% decline in SIDS deaths between 1990 and 1999. However, studies have shown that since 1999, some deaths previously classified as SIDS are now classified as accidental suffocation or undetermined. This finding suggests that changes in reporting of cause of death may account for part of the recent decrease in SIDS rates and that, in fact, the rate of sudden, unexpected infant deaths in the United States has not changed significantly during this time period.

By definition, SIDS can be diagnosed only after a thorough examination of the death scene, a review of the clinical history, and performance of an autopsy fail to find an explanation for the death. Yet, we know that some sudden, unexpected infant deaths are not investigated and, when they are, cause of death data are not collected and reported consistently. The medical community has struggled to define universally acceptable guidelines for evaluation and certification of sudden, unexpected infant deaths. This causes concern because inaccurate investigation and classification of cause and manner of death impedes prevention efforts. Researchers cannot adequately monitor national trends or evaluate prevention programs.

In 2004, the CDC (Centers for Disease Control) launched an initiative to improve the investigation and reporting of sudden, unexpected infant deaths (SUID). CDC collaborated with federal and state agencies and organizations, representing medical examiners, coroners, death scene investigators, EMS, law enforcement, forensic nurses, SIDS researchers, and parents who have experienced the death of an infant. In March 2006, CDC released the Sudden Unexplained Infant Death Investigation (SUIDI) reporting form for state and local use in infant death scene investigations. In collaboration with a team of national experts, CDC developed a comprehensive training curriculum and materials for infant death scene investigations. Training materials highlight infant growth and development, interviewing and investigative skills, scene recreation using a doll, and how to fill out a death certificate. *(CDC)*

Of the **127** sudden, unexpected infant deaths in Missouri in 2007, a scene investigation was completed in **122** cases (96%); **60** (49%) of those were completed by a medical examiner or coroner or their investigator. The Death-Scene Investigative Checklist is one of the many tools available to professionals

involved in the investigation and evaluation of all child deaths. Refined and updated over time, the Checklist provides a guide to the investigator, regardless of experience level, to consistently collect the information necessary for an accurate determination of the cause and manner of death. The Investigative Checklist and other tools and information are available at www.dss.mo.gov/stat or by calling 800-487-1626.

Sudden Infant Death Syndrome (SIDS)

In 2007, Sudden Infant Death Syndrome (SIDS) was the cause of death of 15 Missouri infants.

The term Sudden Infant Death Syndrome (SIDS) was proposed in 1969 to describe a clinical entity with characteristic findings to diagnose the sudden unexplained deaths of infants, typically during their sleep. SIDS is the sudden death of an infant under one year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history. 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 two to four months. While there are several known risk factors, the cause or causes of SIDS are unknown at this time.

Current Research Findings and Theories

Most scientists now believe that infants who die of SIDS are born with one or more conditions that make them especially vulnerable to internal and external stressors. A team of researchers funded by the National Institute of Child Health and Human Development has discovered that infants who die of SIDS may have abnormalities in several parts of the brainstem. This finding builds on the results of an earlier study of SIDS infants that identified abnormalities in the region of the brain known as the arcuate nucleus and four other regions of the brain thought to play a crucial role in controlling breathing, heart rate, body temperature and arousal.

The concept of underlying abnormalities that place certain infants at risk for sudden death is advanced by the Triple Risk Model, which 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 the brainstem arousal responses), at a critical development period (less than six months of age), exposed to outside stressors, such as prone sleep position, overheating, and exposure to tobacco smoke. According to the model, all three elements must interact in order for a sudden infant death to occur. In and of themselves, outside stressors do not cause infant deaths, but in a vulnerable infant, "may tip the balance against the infant's chances of survival" *(Filiano and Kinney, 1994)*.

Other Risk Factors

Other risk factors, many associated with the mother's health and behavior, place the infant at significantly higher risk of sudden, unexpected infant death.

- Prematurity
- Low birth weight
- Less than 18 months between births
- Mother younger than 18
- Prenatal smoking
- Multiple birth
- Late or no prenatal care
- Alcohol and substance abuse

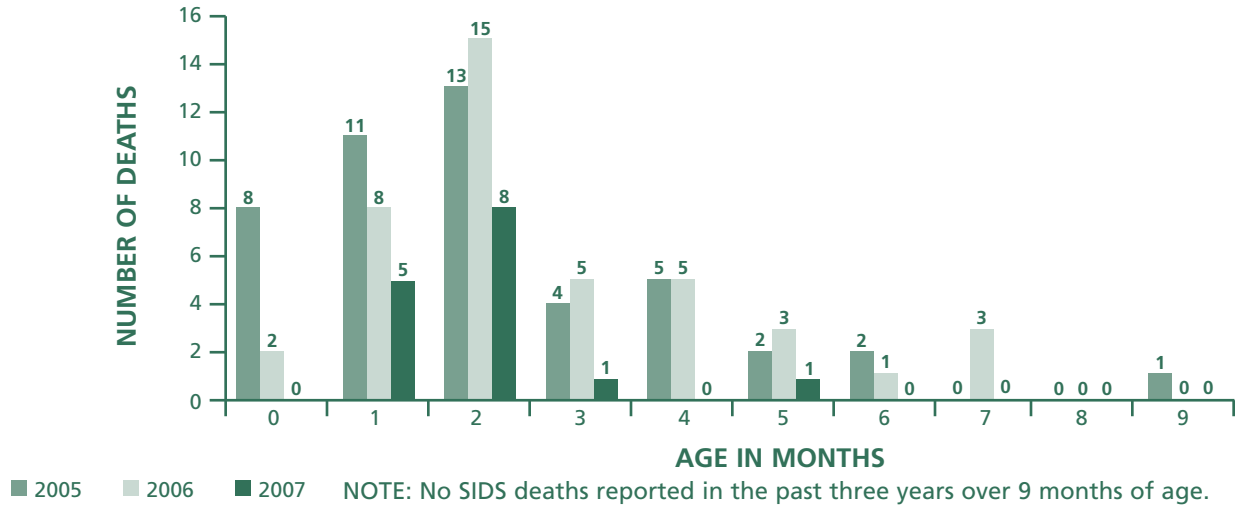
Certain environmental stressors have been shown to be highly significant risk factors. Environmental stressors are modifiable and the reduction of these risk factors through parent/caretaker education has great potential to save infant lives.

- Prone or side sleeping
- Soft sleep surfaces
- Loose bedding
- Bed sharing
- Overheating
- Exposure to tobacco smoke

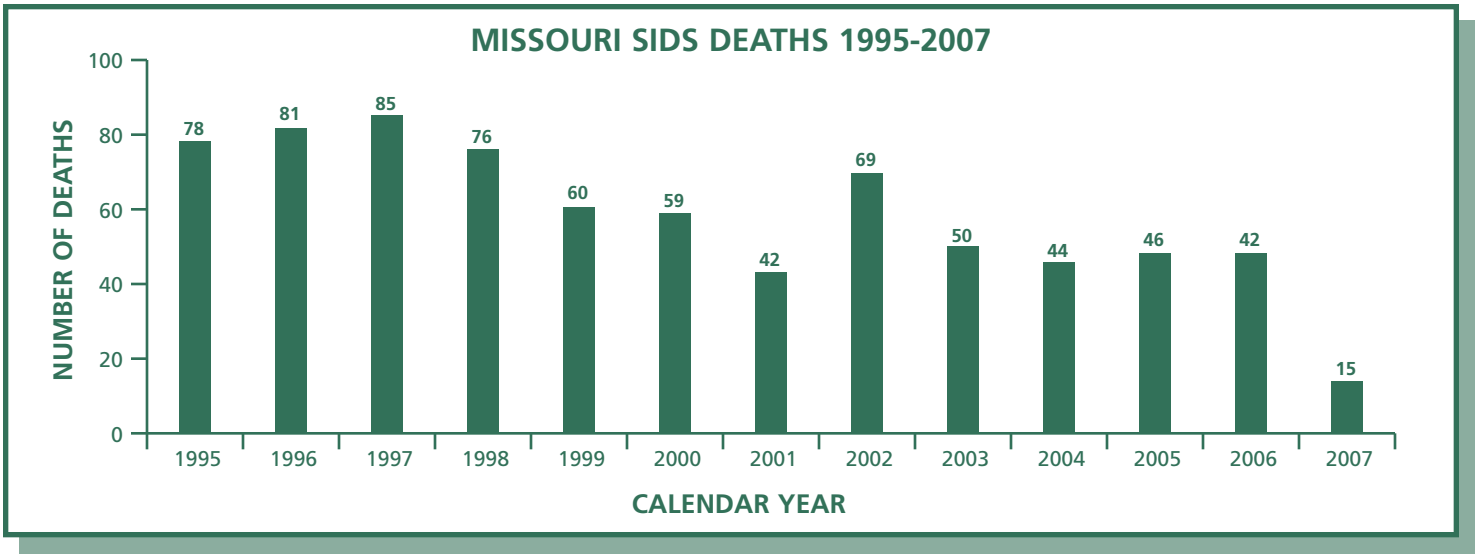
SIDS FATALITIES BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	21	22	5	WHITE	34	28	11
MALE	25	20	10	BLACK	11	14	4
UNKNOWN	0	0	0	OTHER	1	0	0
	46	42	15		46	42	15

SIDS BY AGE (IN MONTHS)



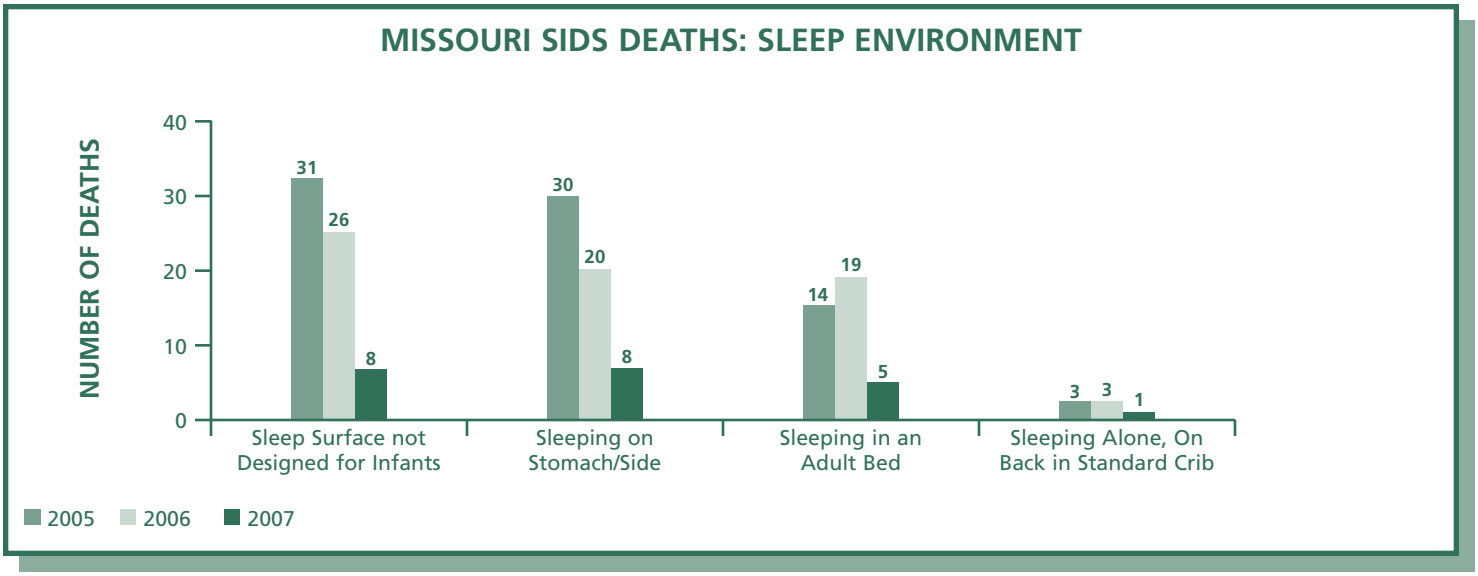
NOTE: No SIDS deaths reported in the past three years over 9 months of age.



It is estimated that as many as 900 infants, whose deaths are attributed to Sudden Infant Death Syndrome (SIDS) each year, are found in potentially suffocating environments, frequently on their stomachs, with their noses and mouths covered by soft bedding. *(Safe Kids)*

Unsafe sleep arrangements occur 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, in 2007, of the **15** sudden, unexpected infant deaths reviewed by county CFRP panels and diagnosed as SIDS, **8** (53%) were known to be sleeping on their stomach or side. **Eight** of those infants were not sleeping in a standard crib on a firm mattress and **5** (33%) were known to be sleeping in an adult bed. Only **one** (6.7%) infant who died suddenly and unexpectedly, whose death was diagnosed as SIDS was known to be sleeping alone on their back, in a standard crib with head and face uncovered. This graph demonstrates that 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.



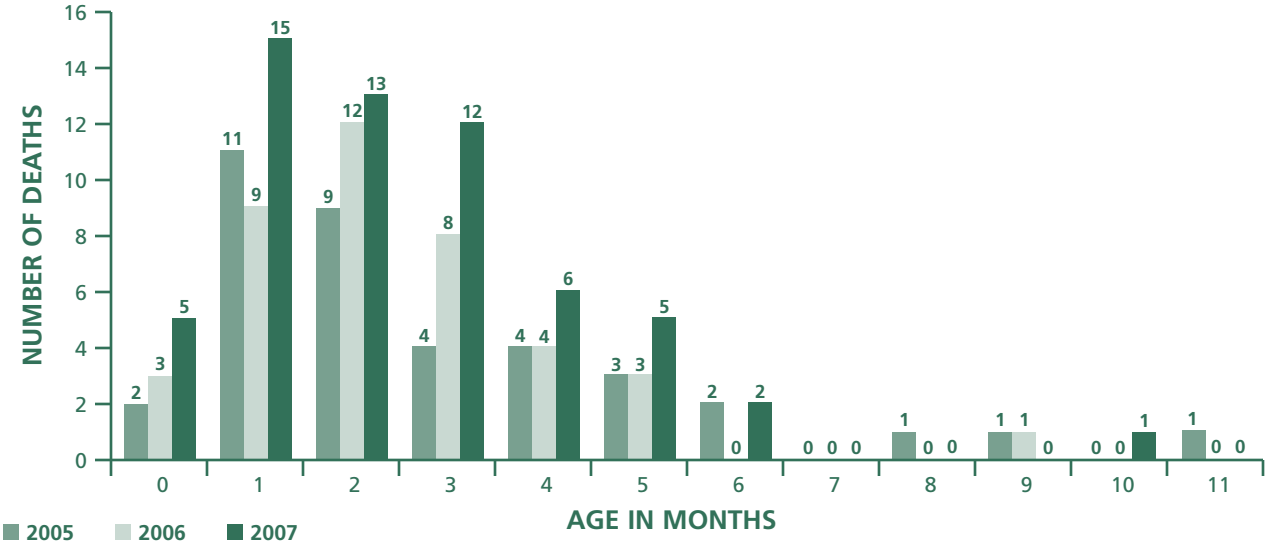
Suffocation in Infants

Unintentional Suffocation was the cause of death of 59 Missouri infants in 2007.

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.

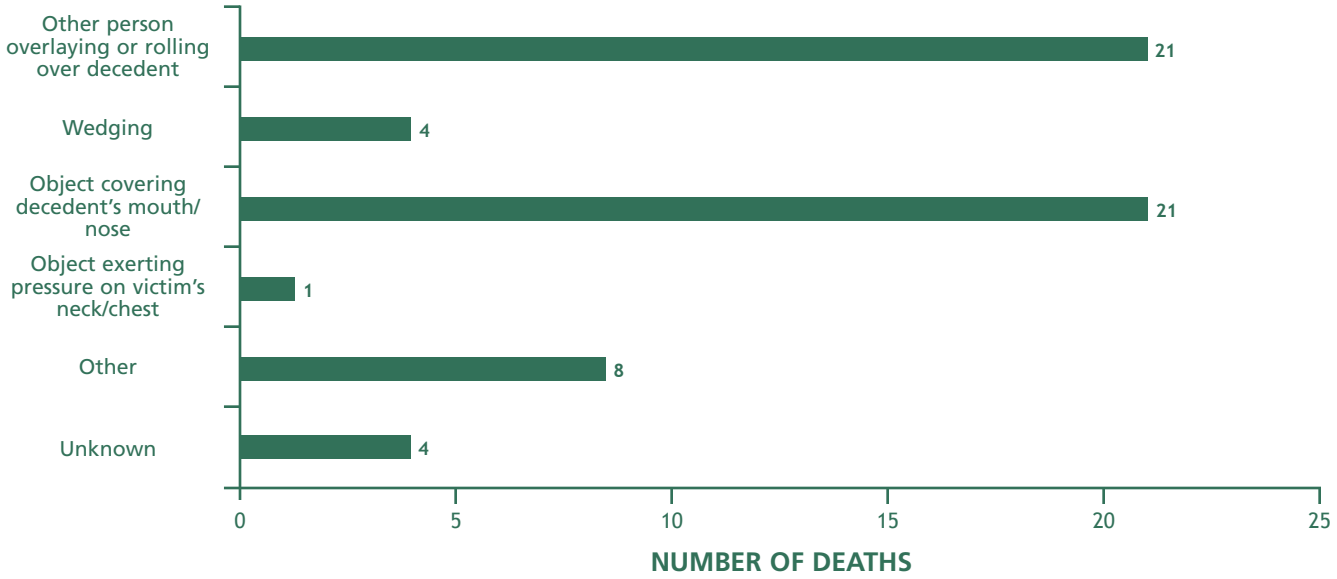
UNINTENTIONAL SUFFOCATION, UNDER 1 YEAR OF AGE BY AGE (IN MONTHS)



UNINTENTIONAL SUFFOCATION BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	12	15	27	WHITE	27	31	43
MALE	26	25	32	BLACK	10	9	11
UNKNOWN	0	0	0	OTHER	1	0	5
	38	40	59		38	40	59

CAUSE OF UNINTENTIONAL STRANGULATION/SUFFOCATION DEATHS



Undetermined

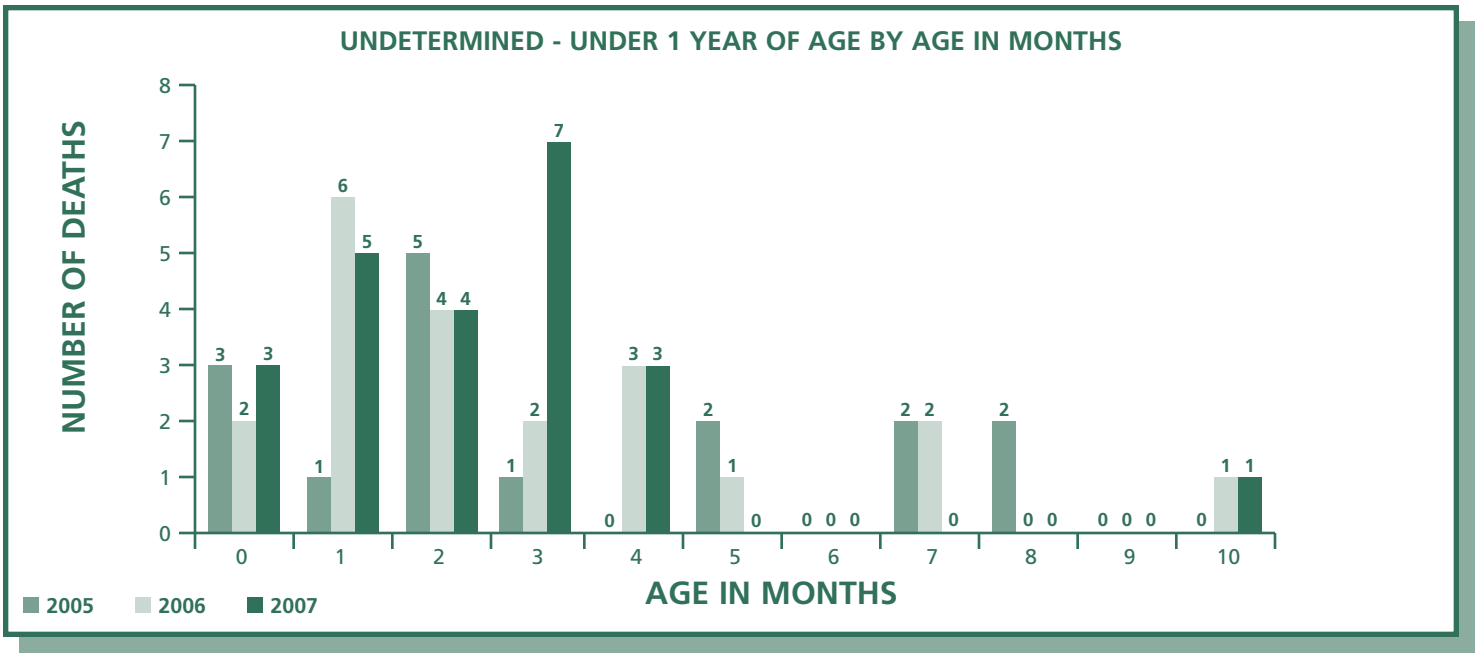
In 2007, the cause of death of 23 Missouri infants could not be determined.

In some cases, even the most thorough autopsy and scene investigation do not produce a definitive cause of death, yet 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. The extent to which such environmental challenges play a role in a particular sudden infant death, often cannot be determined. Therefore, a sudden unexpected infant death involving an unsafe sleep environment would be classified as **undetermined**, when unintentional suffocation is not conclusively demonstrated by the scene investigation.

UNDETERMINED BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	9	8	6	WHITE	6	15	14
MALE	7	13	17	BLACK	10	5	9
UNKNOWN	0	0	0	OTHER	0	1	0
	16	21	23		16	21	23



Sudden, Unexpected Infant Deaths in Child Care Settings

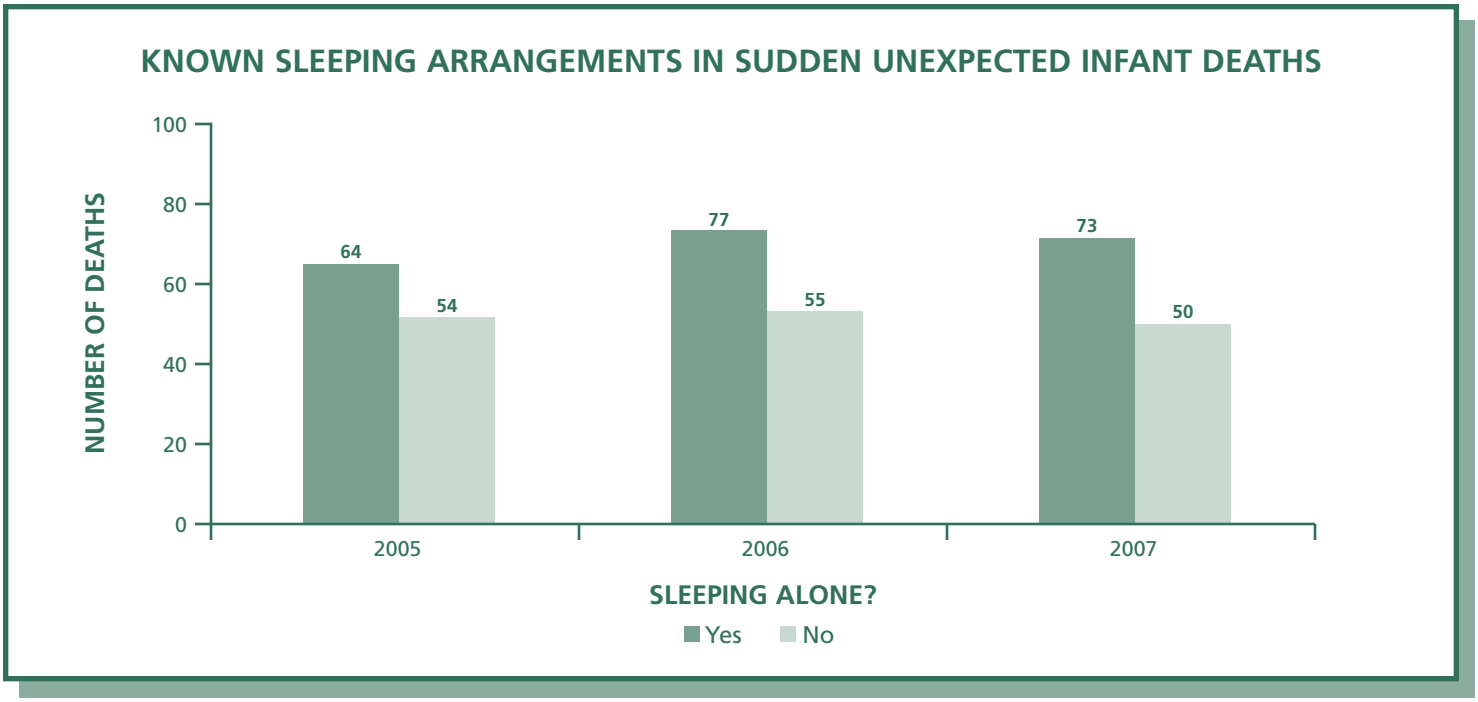
In the United States, two-thirds of U.S. infants younger than 1 year are in nonparental child care. Thirty-two percent of infants are in child care full time. *(Ehrle et al, 2001)* Approximately 20% of SIDS deaths occur while the infant is in the care of a nonparental caregiver. *(Moon, Patel, and Shaefer, 2000)* Although media and mailings have been largely effective in communicating safe sleep information to many childcare centers, back positioning and other risk reduction measures are not universally practiced among child care providers *(Moon and Biliter, 2000)*.

In Missouri, in 2007, **16** sudden, unexpected infant deaths occurred in child care settings. Of those, **two** were determined to be child abuse fatalities. Of the remaining 14 infant deaths, **two** were diagnosed as illness/natural cause deaths, **three** SIDS, **six** suffocation, and **three** undetermined.

Reducing the Risk of Sids

In an updated policy statement published in Pediatrics in November 2005, the American Academy of Pediatrics (AAP) addressed several issues that have become relevant since they published a statement in 2000.

- Back position during every sleep. Infants should be placed for sleep in a supine position (wholly on the back) for every sleep. Side sleeping is not a safe alternative to back sleeping and is not advised.
- Bed sharing is not recommended. Infants may be brought into bed for nursing or comforting, but should be returned to their own crib or bassinet when the parent is ready to return to sleep. However, there is growing evidence that room sharing (infant sleeping in a crib in parent's bedroom) is associated with a reduced risk of SIDS. The AAP recommends a separate, but proximate, sleeping environment.
- Research now indicates an association between pacifier use and a reduced risk of SIDS. The AAP recommend that a pacifier should be used when placing the infant down for sleep and not be reinserted once the infant falls asleep.



A Safe Sleeping Environment Infants

Physicians are the #1 influencer of patient health care choices. All pediatric health care providers should model safe sleep practices when working with patients and talk about safe sleep for infants. All parents and child care providers should have information about safe sleep for infants. The American Academy of Pediatrics has 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 Sleep Practices for Infants

- Place baby on his/her back for every sleep. Side sleeping is not a safe alternative to back sleeping and is not advised.
- Bedsharing during sleep is hazardous and is not recommended. A separate but proximate sleeping environment is recommended, such as a separate crib in the parents' bedroom.
- Use a firm, tight-fitting mattress in a crib that meets current safety standards.
- Remove all fluffy and loose bedding from the sleep area; use a bottom sheet and no blanket. Consider a sleeper/sac rather than a blanket.
- Avoid commercial devices marketed to reduce the risk of SIDS (wedges, positioners, etc.)
- Avoid overheating and over bundling the infant.
- Offer a pacifier during nap and bedtime during the first year of life.

Courtesy of Missouri Children's Trust Fund.

Risk Reduction Recommendations:

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

For parents:

- *Safe Sleep:* Parents should be informed about safe sleep practices for infants, including the fact that bed-sharing is hazardous, and follow safe sleep recommendations.
- *Smoking:* Avoid smoking during pregnancy. Create a smoke-free environment around the baby after birth.
- *Breastfeeding:* Mothers should be encouraged to breastfeed. Infants may be brought into bed for nursing but should be returned to their own crib or bassinet when the parent is ready to return to sleep.
- *Maternal and infant healthcare:* Early prenatal care and recommended well baby care should be encouraged.

For professionals:

- All pediatric health care providers should be informed about current recommendations for safe sleep for infants, model safe sleep practices when working with patients, and talk about safe sleep for infants.

For community leaders and policy makers:

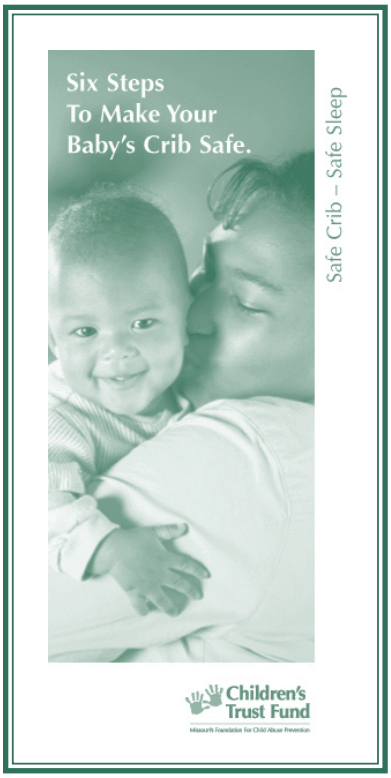
- Implement and support safe sleep campaigns.
- Require safe sleep education for all licensed child care providers.

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.
- Encourage proper scene investigations in all sudden unexpected infant deaths.
- Remember that all data and information pertaining to any SUID is critically important in identifying risk factors and developing effective prevention strategies.

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 Healthy Child Care America Back to Sleep Campaign . . . . . http://www.healthychildcare.org/section_SIDS.cfm

National SIDS/Infant Death Resource Center . . . . . www.sidscenter.org

St. Louis Safe Sleep Task Force . . . . . www.stlsafesleepforbabies.com

SIDS Resources, Inc., 135 West Monroe, St. Louis, MO 63122
Counseling and support, research, training and education . . . . . www.sidsresources.org

Missouri Children's Trust Fund
Safe Crib-Safe Sleep campaign www.ctf4kids.org

Fetal-Infant Mortality Review . . . . . www.dhss.mo.gov/FIMR

"The truth on how these deaths occur must be known and shared for there to be any opportunity to prevent the next infants' death. We need to work in a kind and caring way, but still need the truth on how the death occurred – nothing less…We have an obligation to our infants and their families to seek only truth – and offer only honesty."

- Pat Tackitt, RN, MS
Wayne County, Michigan CDRT Coordinator

Motor Vehicle Fatalities

There were 105 motor vehicle fatalities among Missouri children in 2007. Of those, 93 were reviewed by CFRP panels.

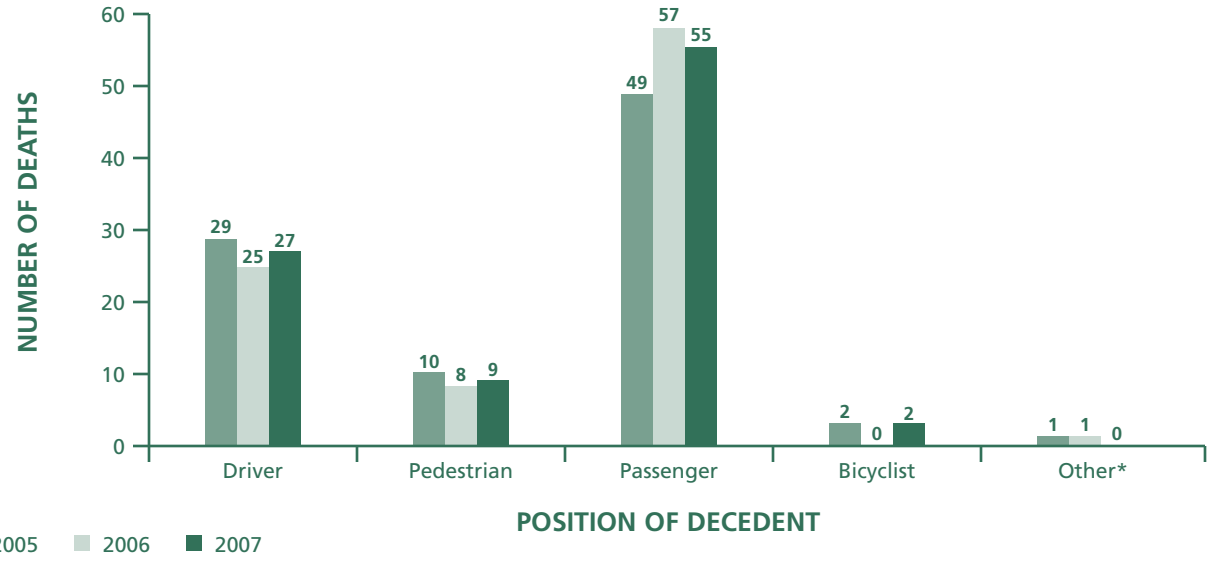
In the United States, motor vehicle crashes are the leading cause of injury death for children and adults and the second leading cause of injury death for children ages birth to one. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles, bicyclists and occupants in any other form of transportation, including all-terrain vehicles.

Of the **105** motor vehicle deaths among Missouri children in 2007, **101** were reported to the Child Fatality Review Program; **93** (92%) of those were reviewed by a local CFRP panel.

MOTOR VEHICLE FATALITIES BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	43	41	38	WHITE	108	91	88
MALE	79	64	63	BLACK	13	12	10
OTHER				OTHER	1	2	3
	122	105	101		122	105	101

MOTOR VEHICLE FATALITIES BY POSITION AT TIME OF INJURY (AS REPORTED BY CFRP)



*"Other", in 2005, refers to a fetus in utero. The crash caused the mother to go into labor, resulting in premature delivery. In 2006, a child riding a skateboard was struck by a motor vehicle.

Motor Vehicle Fatalities as Reported on CFRP Data Form 2

TYPE OF VEHICLE			
Car	40	All-Terrain Vehicle	3
Truck/RV/Van/SUV	29	Farm Tractor	8
Motorcycle	0	Not Applicable	9
Bicycle	2	Not Answered	2

CONDITION OF ROAD	
Normal	65
Loose Gravel	5
Wet	9
Ice or Snow	1
Other	2
Unknown	7
Not Answered	4

RESTRAINT USED	
Present, Not Used	30
None in Vehicle	7
Used Correctly	22
Used Incorrectly	3
Unknown	16
Not Applicable	13
Not Answered	2

PRIMARY CAUSE OF ACCIDENT	
Speeding	14
Carelessness	24
Mechanical Failure	1
Weather Conditions	4
Other	8
Unknown	3
Not Answered	2

ALCOHOL AND/OR OTHER DRUG USE	
Decedent Impaired*	7
Driver of Decedents Vehicle Impaired	9
Driver of Other Vehicle Impaired	5
Not Applicable	59
Not Answered	13

*NOTE: In three cases, the decedent was the driver of the vehicle.

HELMET USE	
Helmet Worn	3
Helmet Not Worn	5
Not Applicable	80
Not Answered	5

Driver and Passenger Fatalities

Of the **93** reviewed motor vehicle deaths in Missouri in 2007, **82** (88%) involved drivers and passengers.

Representative Cases:

- **Children age four years and under should ride appropriately restrained in a child safety seat.**

  A mother was driving her minivan with her three-year-old as a passenger. When one of the tires blew, the driver lost control of the vehicle. The child had undone the safety belt to retrieve a toy and was ejected; she suffered a fatal head injury.

  A two-year-old was riding unrestrained in a truck driven by his father. The driver dropped a wheel off the paved portion of the road. The vehicle skidded into a ditch, overturning and ejecting the child, who was crushed under the overturned vehicle.

- **The most significant risk factors among teen drivers are inexperience, low rates of seatbelt use and alcohol.**

  A 16-year-old was riding unrestrained with his 17-year-old brother. The driver lost control of the vehicle, struck the side of an oncoming vehicle and then struck another vehicle head-on, killing both of the occupants. The driver and his passenger had been drinking and the driver's blood alcohol level was .20.

The National Center for Injury Prevention and Control lists two factors as most significant in contributing to motor vehicle-related fatalities among children: (1) unrestrained children and (2) drunk drivers. Unrestrained children refers to infants and toddlers who are not riding in properly installed car seats and older children whose seatbelts are not fastened. The National Safe Kids Campaign reports that young children riding unrestrained are at twice the risk of death and injury as those riding restrained. Heightened public awareness of the importance of appropriate selection and proper installation of child safety seats, coupled with increases in the use of child restraint, have resulted in reduction in the rate of passenger fatalities among young children. However, much work needs to be done. In 2007, **25** of the child passenger fatalities in Missouri were known to be riding unrestrained. The most common reasons restrained children are killed are misuse of child safety seats and premature graduation to seatbelts.

Of the **93** reviewed motor vehicle fatalities, **21** involved either a victim or a driver who was impaired. In 2007, CFRP panels determined that **seven** of these deaths involved a teen victim who was impaired; **three** of those were drivers of a vehicle that crashed, and the other **four** were drunken passengers. There were **nine** deaths in which the driver of the victim's vehicle was impaired; **eight** of those fatalities involved a teen riding with a driver who was impaired. The last **five** of these 21 deaths involved collisions with other vehicles driven by an impaired driver.

The highest fatality rates are found among teenage drivers. Teenagers are three to four times more likely to be involved in a crash than the driving population at large. According to the National

Center for Injury Prevention and Control, the most significant risk factors among teenage drivers are inexperience, low rates of seatbelt use and alcohol. Inexperienced drivers lack the perception, judgment and decision-making skills that take practice to acquire.

Graduated licensing for teen drives must be combined with education for parents and teens about risks to teenage drivers, including the dangers of underage drinking, speeding, inattention and low seatbelt use. Seatbelts are known to reduce the risk of fatal motor vehicle injury by as much as 45%. In 2007, **49** (53%) of the reviewed motor vehicle fatalities among children in Missouri were teenagers age 15-17. Of those, **26** (53%) were known to be unrestrained at the time of the crash; **23** were passengers and **24** were drivers.

Pedestrian Fatalities

Of the **93** reviewed motor vehicle fatalities among Missouri children in 2007, **nine** were pedestrians; **three** of those were age four and under; **two** others were between the ages of five and nine.

Representative Cases:

- **Young children require constant supervision.**

  The parents of a one-year-old child were both leaving at the same time. The father backed a vehicle out of the driveway of the residence. He was still in the vehicle with their other child, when the mother backed another vehicle out of the garage. Both parents thought the toddler was with the other. The mother felt a bump and found that she had run over the child.

  A three-year-old child was playing on the side of the road. The child was struck by a vehicle approximately 3 feet from the curb by a driver who was travelling on the wrong side of the road. The child was pronounced dead at the scene.

Pedestrian Deaths Among Children

- Children are particularly vulnerable to pedestrian death, because they are exposed to traffic threats that exceed their cognitive, developmental, behavioral, physical and sensory abilities. This is exacerbated by the fact that parents overestimate their children's pedestrian skills. Children are impulsive and have difficulty judging speed, spatial relations and distance.
- Toddlers (ages one and two years) sustain the highest number of pedestrian injuries, primarily due to their small size and limited traffic experience. More than half of all pedestrian injuries involving toddlers occur when a vehicle is backing up. Young children are at increased risk of pedestrian death and injury in driveways and other relatively protected areas.
- Children, age five through nine, are at the greatest risk from pedestrian death and injury. Children, ages 14 and under, are more likely to suffer pedestrian injuries in residential areas with high traffic volume, a higher number of parked vehicles on the street, higher posted speed limits, few pedestrian-control devices and few alternative play areas.
- Practical, skills-based pedestrian safety training efforts have demonstrated improvements in children's traffic behavior. Environmental modifications are effective at reducing pedestrian-motor-vehicle related incidents. *(Safe Kids)*

Bicycle-Related Fatalities

By definition, motor vehicle fatalities include bicycle-related injuries that occur when children are either struck by a motor vehicle or fall. Of the **93** reviewed motor vehicle fatalities among Missouri children in 2007, **two** were bicyclists. **One** was reported to be wearing a helmet.

Representative Cases:

- **Children should always wear a properly fitted helmet when riding a bicycle.**

  A 14-year-old and his grandfather were riding bikes on the side of the road, when a pickup ran into the back of them. Neither was wearing a helmet. Both suffered fatal injuries.

  A 17-year-old boy was riding his bicycle along a city street when he was struck by a vehicle that was being pursued by the police. He sustained multi-systems trauma and died at the hospital.

Bicycles are associated with more childhood injuries than any other consumer product except the automobile. Head injury is the leading cause of death in bicycle crashes and is the most important determinant of bicycle-related death and permanent disability. Scientific evidence has shown that the single most effective safety device available to reduce head injury and death from bicycle crashes is a helmet, which reduces the risk of bicycle-related death and injury, as well as the severity of head injury when a crash occurs. In the event of a crash, wearing a bicycle helmet reduces the risk of serious head injury by as much as 85% and the risk for brain injury by as much as 88%. *(Safe Kids)*

Fatalities Involving All-Terrain Vehicles

Three of the **93** motor vehicle fatalities reviewed by CFRP panels in 2007 involved all-terrain vehicles (ATV's).

Representative Cases:

- **Children younger than 16 should not ride adult-size all-terrain vehicles.**

  A 12-year-old was being taught to drive an ATV by his aunt. The child was on the front seat and the aunt was in the rear. They were doing circles in a rural yard, when he got too close to a barbed wire fence, hit the throttle instead of the brake, sending the ATV into the fence at a high rate of speed. The child suffered fatal injuries and was pronounced at the scene.

- **Children should always wear motorcycle-style helmets when riding ATV's.**

  A 13-year-old was driving an ATV on a gravel road, when he lost control and ran off the roadway, striking a tree. He suffered massive head injuries. He was not wearing a helmet.

All-terrain vehicles are motorized cycles, with three or four, over-sized, low-pressure tires, designed for off-road use on a variety of terrains. Although ATV's give the appearance of stability, the three-wheeled design is especially unstable on hard surfaces. The ATV stability is further compromised by a high center of gravity, a poor or absent suspension system, and no rear-wheel differential. The danger is magnified, because these vehicles can weigh over 600 pounds and attain substantial speeds up to 75 mph. As bigger and faster ATV's have been introduced into the market over the past decade, ATV-related deaths and injuries have increased substantially in every age group. In the United States, children account for nearly one-third of all ATV-related injuries.

Most injuries involving ATV's occur when the driver loses control and the vehicle rolls over, the driver or passenger is thrown off, or there is a collision with a fixed object. Head injuries account for most of the deaths, which are instantaneous. Only **one** of the **three** Missouri children who died in ATV-related accidents in 2007 was wearing a helmet.

ATV's are inherently difficult to operate. Children under the age of 16 do not have the cognitive and physical capabilities to operate these vehicles safely. In June 2000, the American Academy of Pediatrics (AAP) issued a policy statement which included recommendations for legislation in all states prohibiting the use of two and four-wheeled off-road vehicles by children younger than 16 years, as well as a ban on the sale of new and used three-wheeled ATV's. Currently, 27 states have minimum age requirements for operation of an ATV. Missouri is one of only three states that require ATV operators to be 16 or older. *(AAP, Safe Kids, National Center for Injury Prevention and Control)* In 2007, only **one** of the ATV fatalities among Missouri children was age 16; the other **two** were age 12 and 13.

Other Vehicular Fatalities

Motor vehicle fatalities include drivers, passengers and pedestrians fatally injured in or by any form of transportation. In 2007, **eight** Missouri children died as a result of injuries involving vehicles listed as "Other." A six-year-old passenger on a hayride fell from the wagon and was crushed by the wheels. Two Amish children died when their horse-drawn buggy was struck by a tractor trailer. A 17-year-old student pilot crashed while practicing stunt maneuvers. A 10-year-old fell from the front of a pontoon boat and was run over by the propeller. A 15-year-old was riding in a go-cart being pulled by a 17-year-old on a minibike; the driver of the minibike ran a red light and pulled the go-cart into the path of a school bus. A nine-year-old operating a go-cart on the street was struck by an SUV. Another nine-year-old was a passenger in a small private plane that crashed in a rural area.

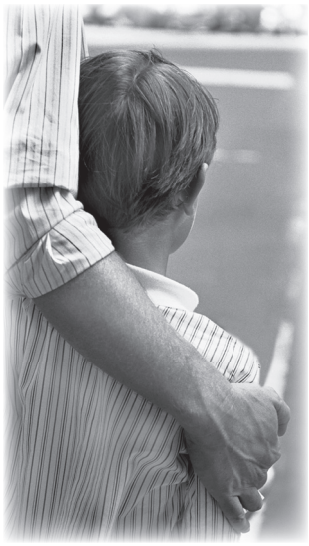
Prevention Recommendations:

For parents:

- Children, 12 years old and younger, should always ride appropriately restrained in the back seat of all passenger vehicles, particularly vehicles with airbags.
- Children under eight should ride in a booster seat, unless they are 80 pounds or 4'9" tall.
- Children should always wear a helmet when participating in any wheeled activities, including bicycles, skateboards, inline skates, scooters, etc.
- Never allow children under age 12 to cross streets alone.
- Always model and teach proper pedestrian behavior.

- Children under the age of 16 should never ride or operate ATV's of any size, including youth-sized ATV's.
- Never leave children alone in a motor vehicle, even when they are asleep or restrained.

For community leaders and policy makers:



- Community leaders should encourage enforcement of existing child restraint laws.
- Missouri lawmakers should strengthen child restraint laws by mandating the following:
  - Include children age four through 15 in the child restraint law; thereby, making restraint use in the age group subject to primary enforcement.
  - Raise the penalty for violation of child restraint laws to at least $100 and one driver's license point.
  - Remove the provision of the vehicle equipment regulations that states if there are not enough safety belts for all passengers, they are not in violation for failure to use.

For professionals:

- Facilitate and implement programs that educate parents on appropriate restraint of children in motor vehicles, and provide child safety seats to those who do not have them, such as safety seat check-up events.
- Facilitate and implement programs that educate parents and children on helmet use, instructions on fitting helmets properly and events that provide helmets at little or no cost.

For Child Fatality Review Panels:

- Ensure that speed limits, and laws prohibiting driving while intoxicated, along with other traffic safety laws, are strictly enforced.

Resources and Links:

American Academy of Pediatrics . . . . . www.aap.org
Children's Safety Network . . . . . http://www.childrenssafetynetwork.org/
National Safe Kids Campaign . . . . . www.safekids.org
National Center for Injury Prevention and Control . . . . . www.cdc.gov/ncipc
Harborview Injury Prevention and Research Center . . . . . http://depts.washington.edu/hiprc
National Highway Transportation Safety Administration . . . . . www.nhtsa.dot.gov
Missouri Coalition for Roadway Safety . . . . . www.saveMolives.org
The Think First Injury Prevention Foundation . . . . . www.thinkfirst.org
Harrison's Hope (Formerly Kids 'N Cars) . . . . . www.harrisonshope.org

Keeping Children Safe In and Around Motor Vehicles

Attention concerning child safety and motor vehicles has focused largely on protecting children as they ride in and on vehicles of all kinds, primarily motor vehicles on public roads. The Missouri CFRP reviews and collects data on motor vehicle fatalities among children as passengers and drivers, pedestrians and bicyclists. However, children who are unsupervised in or around motor vehicles that are not in traffic are at an increased risk for injury and death.

The Centers for Disease Control (CDC) examined injuries and fatalities among children involved in non-traffic, motor vehicle-related incidents from July 2000-June 2001, and documented 78 fatal injuries. Of the fatally injured children, most were age <4 years. The most common type of fatal incident was exposure to excessive heat inside a motor vehicle, followed by being backed over and being hurt when a child put a motor vehicle in motion.

The CDC study recommended several areas for possible prevention, including education campaigns aimed at parents and caregivers that communicate the following: (1) Ensure adequate supervision when children are playing in areas near parked motor vehicles. (2) Never leave children alone in a motor vehicle, even when they are asleep or restrained. (3) Keep motor vehicles locked in a garage or driveway and keep keys out of children's reach.

Harrison's Hope (Formerly Kids 'N Cars) maintains a national database to evaluate the circumstances and consequences of leaving children unattended in or around motor vehicles. Go to www.harrisonshope.org for more information.

Something We Can Do: "Not Even for a Minute" Campaign

Children's Trust Fund points out that a child left alone in an automobile is a car accident that can be prevented. For additional information or to order education materials contact CTF at 573-751-5147 or visit the web site at www.ctf4kids.org.

Resources and Links:

CDC. Injuries and Deaths Among Children Left Unattended in or Around Motor Vehicles-United States, July 2000-June 2001. MMWR 2002;51:No.26.

Harrison's Hope (Formerly Kids 'n Cars) . . . . . www.harrisonshope.org

Unintentional Suffocation/Strangulation, Children Age One Year and Older

In 2007, there were 12 unintentional suffocation/strangulation deaths among Missouri children age one year and older.

Representative Cases:

- **Parents and caretakers often underestimate the degree of supervision required by young children.**

  A two-year-old child, left unattended in his room for approximately two hours, apparently attempted to climb out the window. His head was trapped between the screen and the ledge, resulting in strangulation.

  Two Missouri children, an 11-year-old and a 16-year-old, accidentally hung themselves in 2007, while playing the "choking game", which produces a feeling of euphoria or being high.

Note: The suffocation/strangulation deaths as reported in this section are unintentional. Suffocation/strangulation deaths may also be intentional, inflicted by others (homicide), self-inflicted (suicide) or of an undetermined manner.

Airway Obstruction Injuries Among Young Children: Choking, Suffocation and Strangulation

The majority of airway obstruction injuries occur among infants less than one year of age. In the United States, it is estimated that as many as 900 infants, whose deaths are attributed to Sudden Infant Death Syndrome (SIDS) each year, are found in potentially suffocating environments, frequently on their stomachs, with their noses and mouths covered by soft bedding. Children placed in adult beds are at increased risk for airway obstruction injury as well. *(Safe Kids)* Sudden, unexpected deaths of infants under the age of one year, including suffocations related to unsafe sleep environments, are described and discussed in "Sudden, Unexpected Infant Deaths."

Airway obstruction injuries occur when children are unable to breathe normally, because food or objects block their internal airways (choking); materials block or cover their external airways (suffocation); or items become wrapped around their neck or exert pressure on their neck and interfere with breathing (strangulation). Young children, especially those under age three, are particularly vulnerable to airway obstruction injury and death, due to the small size of their upper airways, their relative inexperience with chewing, and their natural tendency to put objects in their mouths. Additionally, infants' inability to lift their heads or extricate themselves from tight places, puts them at greater risk. In Missouri, in 2007, **twelve** children over the age of one year died of unintentional airway obstruction injuries; of those, **eight** were young children under the age of four years.

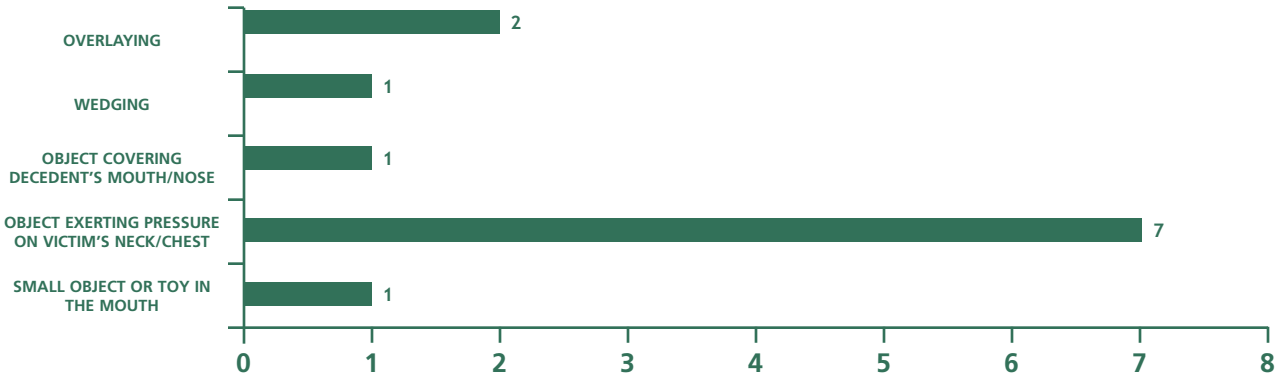
UNINTENTIONAL SUFFOCATION BY AGE >1 YEAR 2005-2007

UNINTENTIONAL SUFFOCATIONS ONE YEAR OR OLDER BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	0	2	1	WHITE	3	4	10
MALE	3	5	11	BLACK	0	3	2
	3	7	12		3	7	12

The majority of childhood choking injuries are associated with food. Children are at risk from choking on small, round foods such as hot dogs, candies, nuts, grapes, carrots and popcorn. Children can easily choke or aspirate small objects, most often toys, beads, balloons and coins. In the United States, cribs and play yards are involved in nearly 53% of all nursery product-related deaths among children ages five and under. Cribs (primarily older, used cribs) are responsible for about 26 strangulation and suffocation deaths each year. *(Safe Kids)*

CAUSE OF UNINTENTIONAL SUFFOCATION/STRANGULATION DEATHS IN CHILDREN ONE YEAR OR OLDER



Airway obstruction injuries can also result from entanglement or entrapment. Children strangle in openings big enough for parts of their bodies, but too small for their heads. These include spaces in bunk beds, cribs, playground equipment, baby strollers, carriages and high chairs. Since 1990, at least 57 children in the United States, nearly all ages three and under, have died due to entrapment in bunk beds. Children can also become entangled in clothing drawstrings and window covering cords, resulting in strangulation.

Young children can become entrapped or wedged in a small space, such as between a bed or mattress and a wall. They can also become entrapped in airtight spaces, such as a cedar chest, unused refrigerator or freezer.

Fortunately, safety laws and regulations protect children from airway obstruction injury hazards. For example, the Child Safety Protection Act bans any toy intended for use by children under age 3, that may pose a choking, aspiration or ingestion hazard and requires choking-hazard warning labels on packaging for these items when intended for use by children ages three to six years. In 1999, the U.S. Consumer Product Safety Commission (CPSC) issued a mandatory standard for bunk beds to address entrapment hazards. The CPSC has also issued voluntary guidelines for drawstrings on children's clothing, to prevent children from strangling in the neck and waist drawstrings of upper outerwear garments, such as jackets and sweatshirts.

Prevention Recommendations:

For parents:

- Remove drawstrings from children's clothing.
- Tie up or remove all cords for window covers.
- Buy only age-appropriate toys.

For community leaders and policy makers:

- Support legislation that requires improved product design, or removal of hazardous products from the market.

For professionals:

- Information about unintentional suffocation/strangulation hazards to young children, including unsafe sleep practices should be widely disseminated.
- Teach parents CPR and the Heimlich Maneuver for infants and young children.

For Child Fatality Review Panels:

- Report any child death that appears to involve a product hazard to Consumer Product Safety Commission. The CPSC can also be accessed for product safety research assistance; contact STAT for assistance.

Resources and Links:

Consumer Product Safety Commission . . . . . www.cpsc.gov
National Safe Kids Organization . . . . . www.safekids.org
American Academy of Pediatrics . . . . . www.aap.org
Missouri Children's Trust Fund, "Safe Crib-Safe Sleep" Campaign www.ctf4kids.org

Unintentional Fire/Burn Fatalities

In 2007, 22 Missouri children died of fire/burn injuries.

Representative Cases:

- **Lighters, matches and other sources of fire should be kept locked away from children.**

  A 4-year-old set his bed on fire while playing with matches. He was rushed to the hospital, where he died in the emergency room. It was reported that he had been caught playing with matches the day before.

- **Properly installed and maintained smoke detectors are effective in preventing fatalities.**

  Four children and two adults all died in a house fire that was a result of faulty wiring. There were no smoke detectors in the house.

- **Children who are chronically neglected are at great risk of severe and fatal injury.**

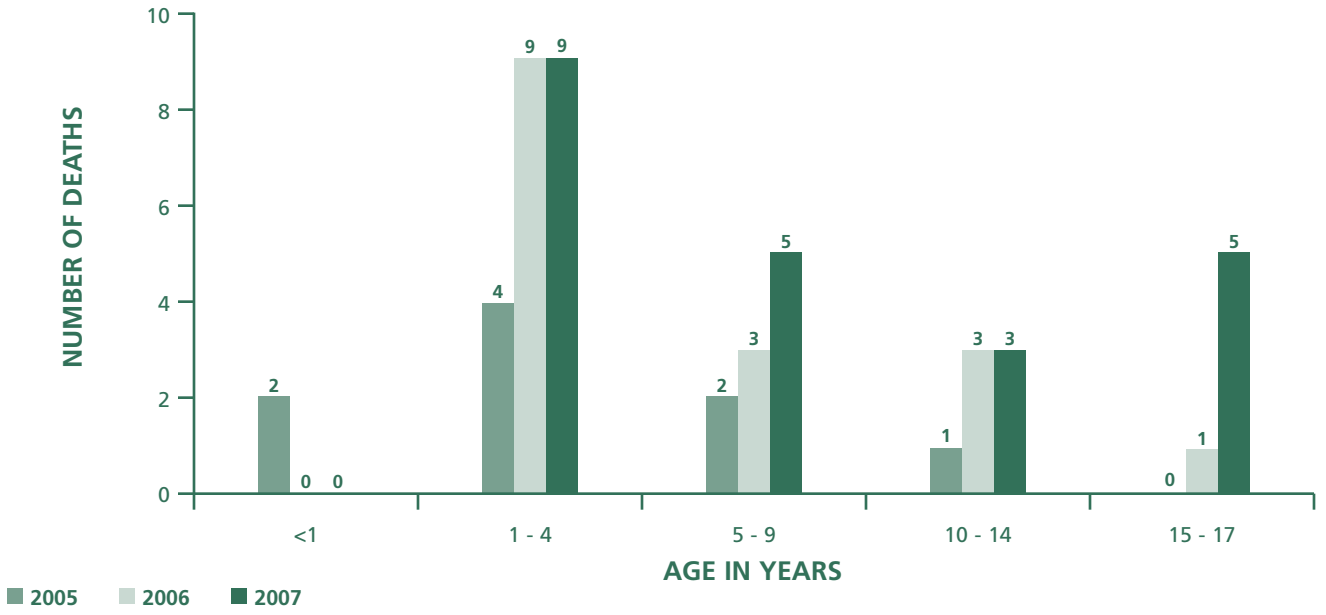
  A mother left her two children at home asleep during the night. She returned at 5 a.m. to find that a fire had broken out, apparently during the morning hours. Both children were found dead in their beds.

Each year in the United States, more than 600 children ages 14 and under die, and nearly 47,000 are injured, in fires. In Missouri in 2007, **22** children died as a result of unintentional fire/burn injury. Fire and burn injuries are the third leading cause of unintentional injury deaths among Missouri children.

Fire/Burn Deaths Among Children

Young children, ages four and under are at greatest risk from home fire- and burn-related death and injury, and are more than twice as likely to die in a fire than the rest of the population. Of the **22** fire/burn fatalities among children in Missouri in 2007, **nine** were under the age of five. Young children have a less acute perception of danger, limited ability to quickly and properly respond to a life-threatening fire or burn situation, and faster metabolic rates. They are also less able to physically tolerate toxic combustion products, rendering them more susceptible to fire-related asphyxiation. Additionally, because younger children have thinner skin that adults, their skin burns at lower temperatures and more deeply. *(Safe Kids)* Children with disabilities are also at high risk of burn-related death and injury. These children are especially at risk from scald and contact burns.

UNINTENTIONAL FIRE/BURN DEATHS BY AGE



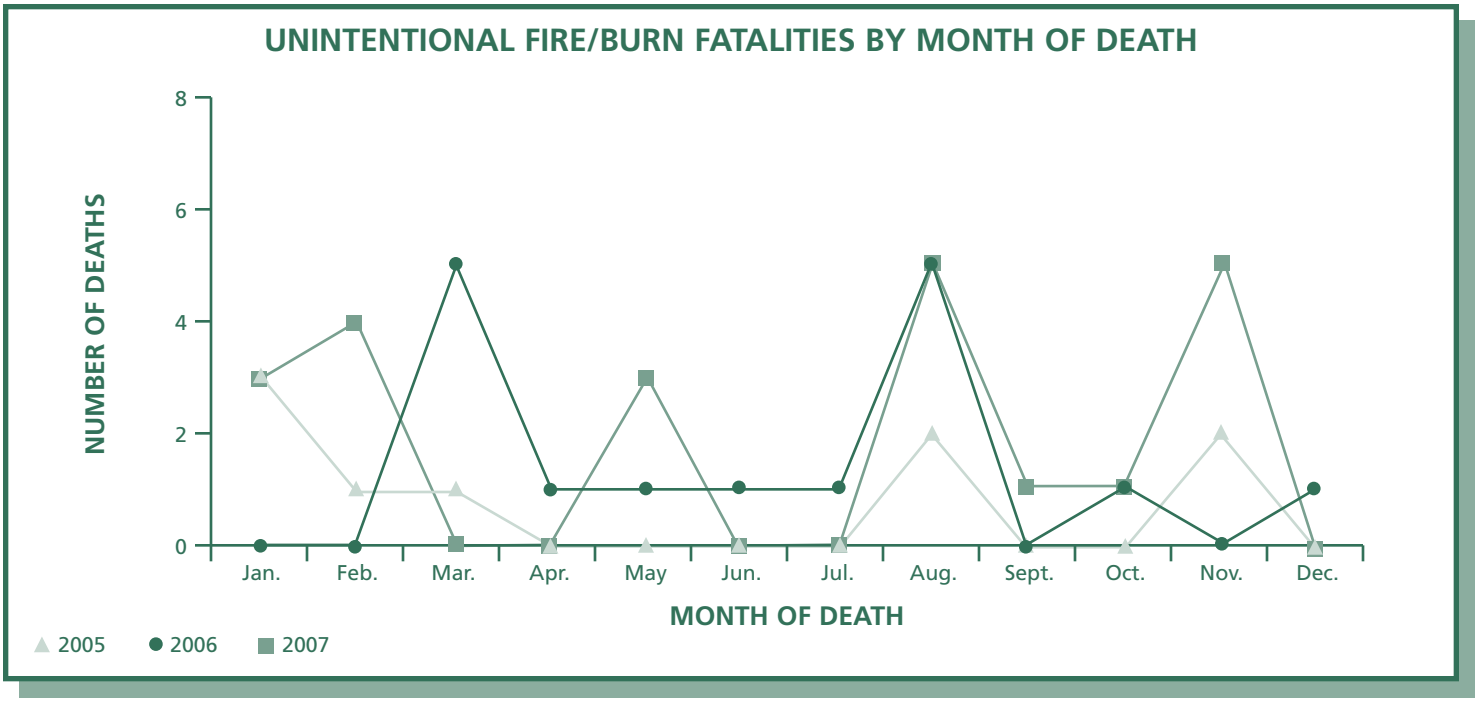
UNINTENTIONAL FIRE/BURN DEATHS BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	4	8	8	WHITE	6	7	17
MALE	5	8	14	BLACK	3	9	5
	9	16	22		9	16	22

In the United States, the largest percentage of fire-related deaths (76% in 2004) occurs in residences, with the majority of these one- and two-family dwellings. Cooking is the leading cause of fires at 28%; incendiary or suspicious fires (arson) cause another 21% of fires. The two leading causes of civilian deaths are arson and smoking. Residential structure fires and related fatalities tend to occur more often during cold-weather months, when the use of heating systems is at a peak. Most heating fires are initiated by space heater. *(United States Fire Administration)*

In the United States, a working smoke alarm is not present in two-thirds of the residential fires in which a child is injured or killed. Smoke detectors were reported to be present in only **nine** of the **22** fatal Missouri fires reviewed by county CFRP panels in 2007, of those, **four** were known to be in working order. Approximately 90% of homes in the U.S. have a smoke alarm; however, these alarms are not always properly maintained. *(United States Fire Administration)*

Children from low-income families are at greater risk for fire-related death and injury, due to factors such as lack of working smoke alarms, substandard housing, use of alternative heating sources and economic constraints on providing adequate adult supervision. Children living in rural areas have a dramatically higher risk of dying in a residential fire. *(Safe Kids, USFA)*



The death rate from fire and burn injury declined 56% among children ages 14 and under from 1987 to 2000, yet fire and burn injury remains the third leading cause of child unintentional injury-related death in the United State. Smoke alarms have been duly promoted as an invaluable tool for preventing fire and burn injury. Nationwide increases in the prevalence of smoke alarms in homes and the passage of smoke alarm legislation requiring smoke alarms for new and existing dwellings, partly explain the downward trend in the fire and burn death rate.

Intensive public education campaigns by federal agencies such as the CPSC and the U.S. Fire Administration, national organizations and fire departments that promote residential fire safety and burn prevention have played a role in reducing the death rate from fire and burn injury. The regulation child-resistant cigarette lighter, fireworks and other burn-related products by the CPSC and the enforcement of the Flammable Fabrics Act that set flammability standards for apparel, children's sleepwear, rugs and mattresses, have also been important. *(United States Fire Administration, SafeKids)*

Juvenile Firesetting

Nationally, over 30% of the fires that kill young children are started by children playing with matches or lighters. These fires tend to begin in the bedroom or living room, where children are often left alone to play. *(National Center for Injury Prevention and Control)* In Missouri, in 2007, **three** children are known to have died in fires started by other children playing with matches or lighters. The United States Fire Administration points out that events such as this are not isolated incidents and the number of fires set by children is growing. In a typical year in the United States, 300 people are killed and $300 million in property is destroyed in fires set by children. Children themselves are usually the victims of these fires, accounting for 85 of every 100 fatalities.

It is generally recognized that the motivation for firesetting can be considered in two categories: (1) *Curiosity firesetters* are usually two to seven year olds, whose fascination leads them to play with

matches or lighters. These children do not recognize the consequences of their behavior. They usually respond to educational services, including educational programs, firehouse tours, etc. (2) *Problem firesetters* may also be very young, but generally are five to 17 years old. Their behavior may be considered pathological, a "cry for help." These children appear to light fires because of emotional or mental disturbances ranging from mild to severe. When firesetting appears to be related to emotional problems, referrals should be made to mental health services. *(United States Fire Administration)*

Regardless of the motivation, firesetting behavior must always be taken very seriously. The United States Fire Administration recommends that parents contact their local fire department or state fire services for help. Local fire departments throughout the state are adopting various approaches to critical elements of prevention: (1) identification/referral of the firesetter, (2) evaluation, and (3) intervention.

Fire/Burn Fatalities as Reported on CFRP Data Forms

SMOKE ALARM PRESENT	
Yes	9
No	4
Unknown	6
Not Applicable	0
Not Answered	3

SMOKE ALARM IN WORKING ORDER	
Yes	4
No	4
Unknown	7
Not Applicable	4
Not Answered	3

FIRE STARTED BY	
Decedent	2
Other	4
No One	10
Unknown	4
Not Answered	2

ACTIVITY OF PERSON STARTING FIRE	
Playing	3
Smoking	2
Cooking	1
Unknown	1
Not Applicable	10
Not Answered	5

SOURCE OF FIRE	
Matches	2
Lighter	1
Cigarette	2
Space Heater	2
Faulty Wiring	8
Other	4
Unknown	1
Not Answered	2

MULTIPLE FIRE DEATHS	
Yes	17
No	3
Not Answered	2

FOR A STRUCTURE FIRE, WHERE WAS THE DECEDENT FOUND?	
Hiding	2
In Bed	7
Stairway	1
Close to Exit	2
Other	7
Not Answered	3

Something We Can Do: Fire Prevention Awareness Day

When three children died in a house fire in St. Louis, CFRP panel members and other community leaders talked about finding a way to target that neighborhood for a fire safety campaign that would provide an appropriate prevention response to those tragic deaths. Smoke detectors, properly installed and maintained, have proven extremely effective in preventing fatalities. For the last 10 years, volunteers have brought "Fire Prevention Awareness Day" to high-risk neighborhoods throughout the region. Working from a staging area where families can gather for food, fun and prevention education, firefighters and volunteers go door to door, installing smoke detectors or fresh batteries and providing fire safety information. Media attention for these events helps spread the prevention message.

Prevention Recommendations:

For parents:

- Young children require vigilant supervision.
- Keep matches, gasoline, lighters and all other flammable materials locked away and out of children's reach.
- Install smoke alarms on every level and in every sleeping area. Test them once a month. Replace batteries at least once a year.
- Plan and practice several fire escape routes from each room of the home and identify an outside meeting place. Practicing an escape plan may help children who become frightened and confused in a fire, to escape to safety.

For community leaders and policy makers:

- Enact laws that require smoke detectors in new and existing housing, and making landlords responsible for ensuring that rental properties have working smoke detectors.
- Enforce building codes and conduct inspections.

For professionals:

- Smoke detector giveaway programs have proven useful when high-risk areas are targeted. Implement such a program in your community.
- Implement a multi-faceted community campaign to prevent burn injuries. Target a well-defined population with a very specific message.

For Child Fatality Review Panels:

- When reviewing a child death that is the result of a residential fire, determine if the local building code requires smoke detectors in residences, and if a working smoke detector was present in the home. Use that information to develop an action plan, such as working to change the code or pursing prosecution of a negligent landlord. Special attention should be paid to the issue of adult supervision, when investigating deaths of young children in house fires.

Resources and Links:

Missouri Division of Fire Safety . . . . . www.dfs.dps.mo.gov
United States Fire Administration . . . . . .www.usfa.fema.gov
National Safe Kids Campaign . . . . . www.safekids.org
Harborview Injury Prevention and Research Center . . . . . depts.washington.edu/hiprc

Unintentional Drownings

In 2007, 24 children drowned in Missouri.

Representative Cases:

- **Personal flotation devices should be worn at all times in and around open water.**

  A 16-year-old boy dove into a lake without a life vest. He had only a "noodle" for a flotation device and, when he lost hold of the "noodle" he began to struggle. Others jumped in to attempt a rescue, but they were unsuccessful. They could not hold on to the panic-stricken victim.

- **Infants and young children require constant supervision while in a bathtub.**

  A 13-month-old child fell into a bath tub with 9 inches of water in it, while her entire family was in the front yard. The child was found with her face and chest in the water and her feet and legs outside of the tub.

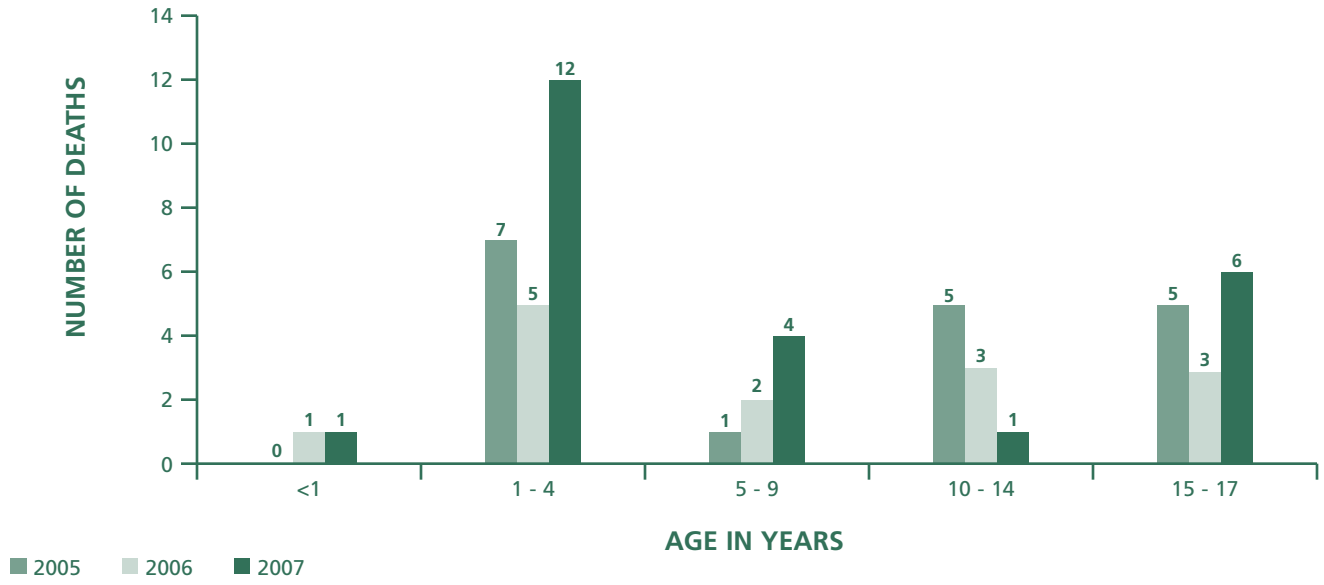
- **Young children require vigilant adult supervision when outdoors near bodies of water, such as pools, creeks and streams.**

  A 3-year-old child wandered away from the house and gained access to an unsecured pool at a neighbor's home, where she drowned.

  A 4-year-old was playing alone in the back yard and wandered off to a pond. He fell through the thin layer of ice, apparently chasing after a duck, and he drowned.

In the United States, drowning is the second leading cause of unintentional injury-related deaths among children ages one to 14 and the leading cause of unintentional injury-related death among children ages one to four years. Young children, age four and under, have the highest drowning death rate. Of the **24** Missouri children who drowned in 2007, **13** (54%) were age four and under.

UNINTENTIONAL DROWNING DEATHS BY AGE



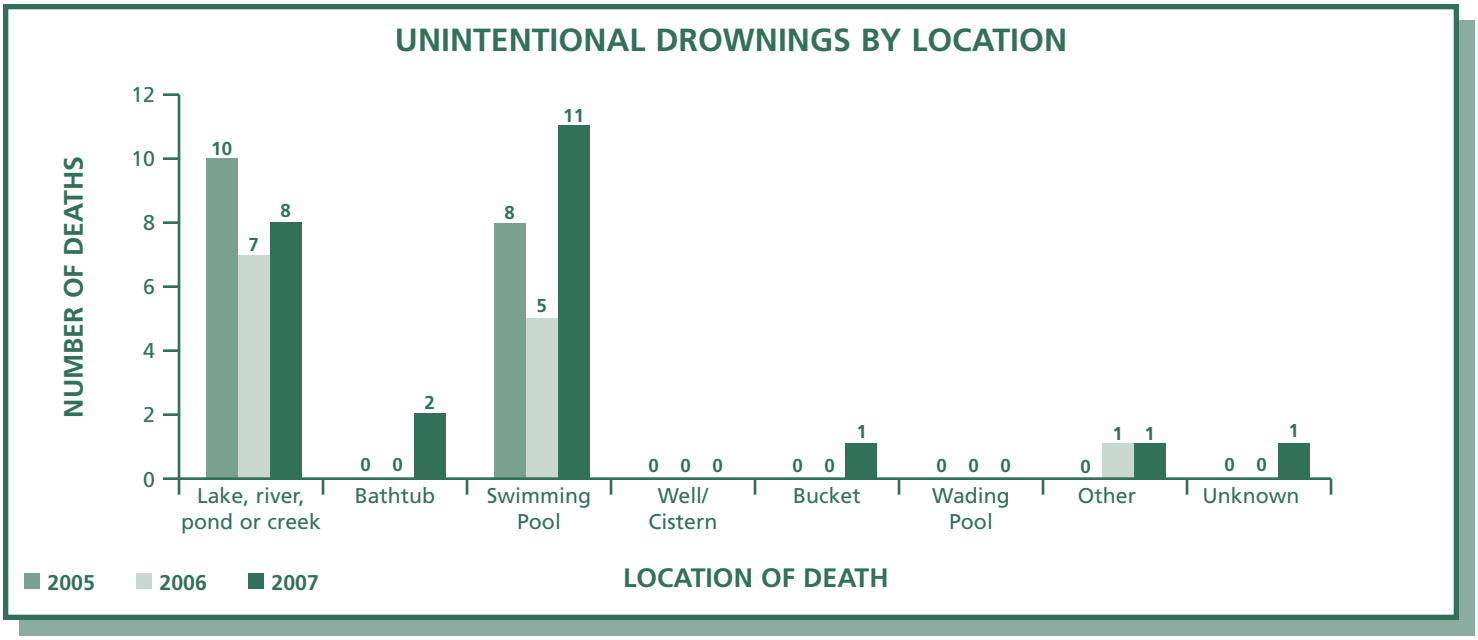
UNINTENTIONAL DROWNINGS BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	4	5	3	WHITE	16	6	19
MALE	14	8	21	BLACK	2	7	5
	18	13	24		18	13	24

Drownings among infants under age one, typically occur in residential bathtubs. Most drownings among children one through four years old, occur in residential swimming pools. However, children can drown in as little as one inch of water and, therefore, are at risk of drowning in wading pools, buckets, toilets and hot tubs. In 2007, **one** Missouri infant under the age of one drowned in a shower with a blocked drain. The head of an infant or toddler is disproportionately large and heavy, representing approximately 20% of the total body weight, making them top-heavy and unable to escape when head-first in a toilet or bucket.

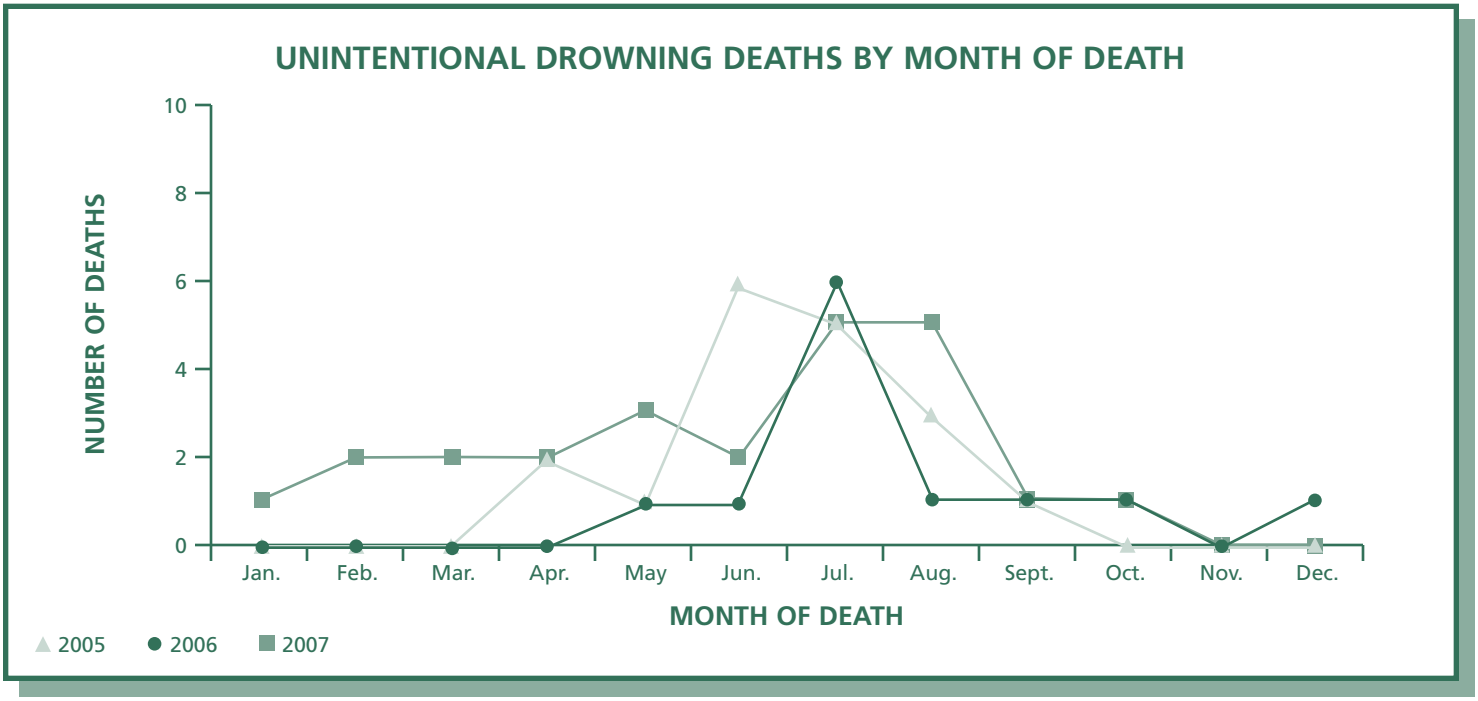
Older children are more likely to drown in open water sites such as creeks, lakes and rivers. Of the **24** Missouri children who drowned in 2007, **11** (46%) occurred in swimming pools and **eight** (33%) occurred in open water sites.

Childhood drownings can happen in a matter of seconds and typically occur when a child is left unattended, or during a brief lapse in supervision. Contrary to what many people believe, drowning usually occurs quickly and silently. The scenario that a drowning person will make lots of noise, while thrashing around in the water and resurface several times before actually drowning, is pervasive, but entirely false. *(SafeKids)*



Drowning Deaths Among Children

- Supervision of children in and around water is critical. Of the **24** drowning fatalities in 2007, in which supervision of the child victim was a consideration, panels found that **10** (42%) had entered the water unattended.
- Use of a personal flotation device is well established as an effective means to prevent drowning deaths. **None** of the Missouri children who drowned in 2007, were wearing a personal flotation device.
- The warm-weather months of June, July, August and September are peak months for drowning, coinciding with increased activity in swimming pools and open water sites.



Prevention Recommendations:

For parents:

- Never leave a child unsupervised in or around water in the home or outdoors, even for a moment.
- For families with residential swimming pools: Install four-sided pool fencing with self-closing and self-latching gates. The fence should be at least four feet tall and completely separate the pool from the house and play area of the yard.
- Ensure that children always wear U.S. Coast Guard-approved personal flotation devices near open water or when participating in water sports.
- Learn CPR.

For community leaders and policy makers:

- Enact and enforce pool fencing ordinances.
- Enforce existing regulations regarding the use of personal flotation devices when boating.

For professionals:

- Parents, as well as children, should receive water safety education. This should include discussion of water hazards to children (including buckets) and the importance of vigilant supervision.
- Facilitate CPR training for parents of small children.

For Child Fatality Review Panels:

- Promote public education about drowning hazards to children and strategies to prevent drowning.

Resources and Links:

National Safe Kids Campaign . . . . . www.safekids.org

National Center for Injury Prevention . . . . . www.cdc.gov/ncipc

Harborview Injury Prevention and Research Center . . . . . http://depts.washington.edu/hiprc

Consumer Product Safety Commission . . . . . www.cpsc.gov

Red Cross . . . . . www.redcross.org

The United States Lifesaving Association (USLA) . . . . . www.usla.org

Unintentional Poisoning

In 2007, 11 Missouri children died of unintentional poisoning.

Representative Cases:

- **Parents should ensure that all medications are properly labeled and follow instructions carefully.**

  An 8-year-old child overdosed on an over-the-counter pain reliever/fever reducer. He apparently was self-medicating. He was taken to the hospital with high levels of acetaminophen and eventually died of liver failure.

- **Parents and teens should be educated about the risks of prescription and over-the-counter drug abuse.**

  A 15-year-old boy died of an overdose of prescription medications. He had a history of abuse of prescription drugs.

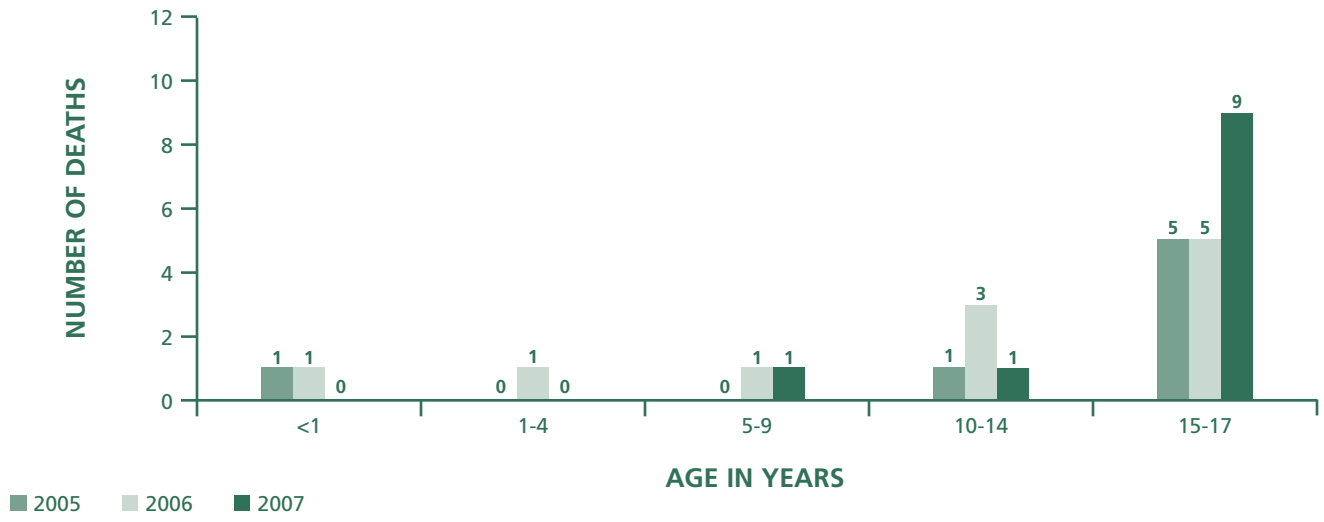
  A 17-year-old girl died of a cocaine overdose. She had an extensive history with police and EMS for prior drug abuse and delinquent behavior.

A poison is a substance that is harmful to the body when ingested, inhaled, injected or absorbed through the skin. Children are at risk of poisoning from household and personal care products, medications, vitamins, indoor plants, lead and carbon monoxide (CO).

In 2007, **11** Missouri children died of unintentional poisoning; **one** eight-year-old died of toxic doses of over-the-counter medication. The remaining **10** children were teens age 12-17. Children ages four and under are at greatest risk of unintentional poisoning, with a death rate 1.5 times higher than that of all children. Poisoning of young children is still a common occurrencel; however, deaths have declined dramatically in recent decades. The majority of calls to poison centers in the United States concerning exposures of children under the age of six are non-pharmaceuticals (59%). *(McGuigan, 1999)*

The reduction in deaths from unintentional poisonings to children under five are due to a myriad of factors, including the decreased use of aspirin for treatment of child fever, reduction of the amount and dosage of child analgesics in bottles, and improved medical care for ingestion treatment. The implementation of child-resistant packaging for certain household substances and medications has been instrumental in the death rate reduction. Also important are increased access to certified poison control centers, warning labels on products containing iron, and finally, intensive efforts to reduce lead in consumer products such as gasoline and paint. *(SafeKids)* Unfortunately, there have not been similar reductions in deaths from carbon monoxide poisoning and other gases, nor in deaths from accidental overdose in older adolescents.

UNINTENTIONAL POISONING DEATHS BY AGE



UNINTENTIONAL POISONING DEATHS BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	4	2	6	WHITE	5	14	10
MALE	3	14	5	BLACK	1	2	0
UNKNOWN	0	0	0	OTHER	1	0	1
	7	16	11		7	16	11

Ten Missouri teens ages 12-17, died of unintentional poisoning in 2007. Of those, **one** died of carbon monoxide poisoning, **one** overdosed on an over-the-counter medication, **four** overdosed on illegal drugs and the remaining **five** overdosed on prescription medications from various sources.

A number of national studies and published reports indicate that the intentional abuse of prescription drugs, such as pain relievers, tranquilizers, stimulants and sedatives, is a growing concern. In fact, among teens ages 12-17, prescription drugs have become the second most abused illegal drug, behind marijuana. This trend has been accompanied by a 21% increase in hospital emergency department visits, admissions for treatment, and an increase in deaths from unintentional overdose. *(DAWN, 2007)*

Studies show that teens are abusing prescription drugs, because they believe the myth that these drugs provide a medically safe high. Teens admit to abusing prescription medication for reasons other than getting high, including to relieve pain or anxiety, to sleep better, to experiment, to help with concentration or to increase alertness. *(Boyd, McCabe, Cranford and Young, 2006)*

The majority of teens get prescription drugs easily and for free, often from friends and relatives. Pain relievers such as OxyContin and Vicodin are the most commonly abused prescription drugs by teens, followed by stimulants, tranquilizers and sedatives. *(NSDUH, 2006)* More than half of teens surveyed say prescription pain relievers are easy to get from parents' medicine cabinets, through other people's

prescriptions, online or by phone and they are "available everywhere." Girls are more likely than boys to intentionally abuse prescription drugs to get high. *(SAMHSA, 2006)*

Adolescents are more likely than young adults to become dependent on prescription medication. Prescription drug abuse among teens has dramatically increased during the last 10 years and the number of teens going into treatment for addiction to prescription pain relievers has increased by more than 300%. *(TEDS, 2006)*

Prevention Recommendations:

For parents:

- Parents should educate themselves and their teens about the risks of prescription and over-the-counter drug abuse.
- When using prescription medications, parents and children should follow directions carefully and discard old or unused medications.

For community leaders and policy makers:

- Advocate for mandatory child-resistant packaging on all hazardous drugs and household products.
- Pass carbon monoxide detector use laws.

For professionals:

Increase public education campaigns to improve detection of potential poisoning from carbon monoxide, lead and household products.

For Child Fatality Review Panels:

- Promote public education about the hazards to children regarding prescription and over-the-counter medications.

Resources and Links:

National Safe Kids Campaign . . . . . www.safekids.org

Harborview Injury Prevention and Research Center . . . . . http://depts.washington.edu/hiprc

National Center for Injury Prevention and Control . . . . . .www.cdc.gov/ncipc

Parents, The Anti-Drug . . . . . www.theantidrug.com/drug_info/

"Teens and Prescription Drugs, An Analysis of Recent Trend on the Emerging Drug Threat February 2007" and related publications . . . . . www.whitehousedrugpolicy.gov/publications

"The only way to keep your children from going astray is for them to have a role model they can respect."
-Mom, from Missouri

Unintentional Firearm Fatalities

In 2007, six Missouri children died of unintentional firearm injuries.

Representative Cases:

- **Education should be offered in all communities about gun safety. Parents should monitor children who are handling firearms.**

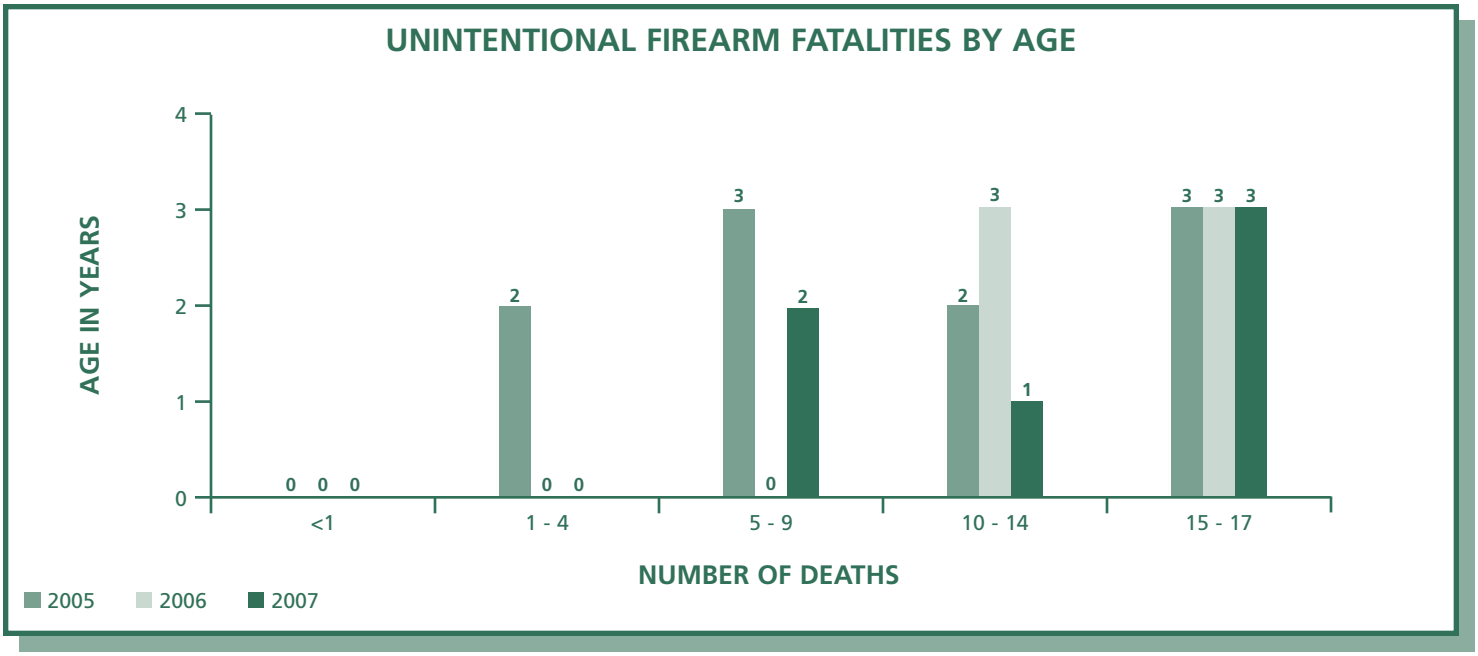
  A 14-year-old boy was target-shooting with his step-father. While the step-father went to check on the targets, he heard a shot go off. The child told him that he had dropped the gun and it had gone off. He was shot in the chest and died on the way to the hospital.

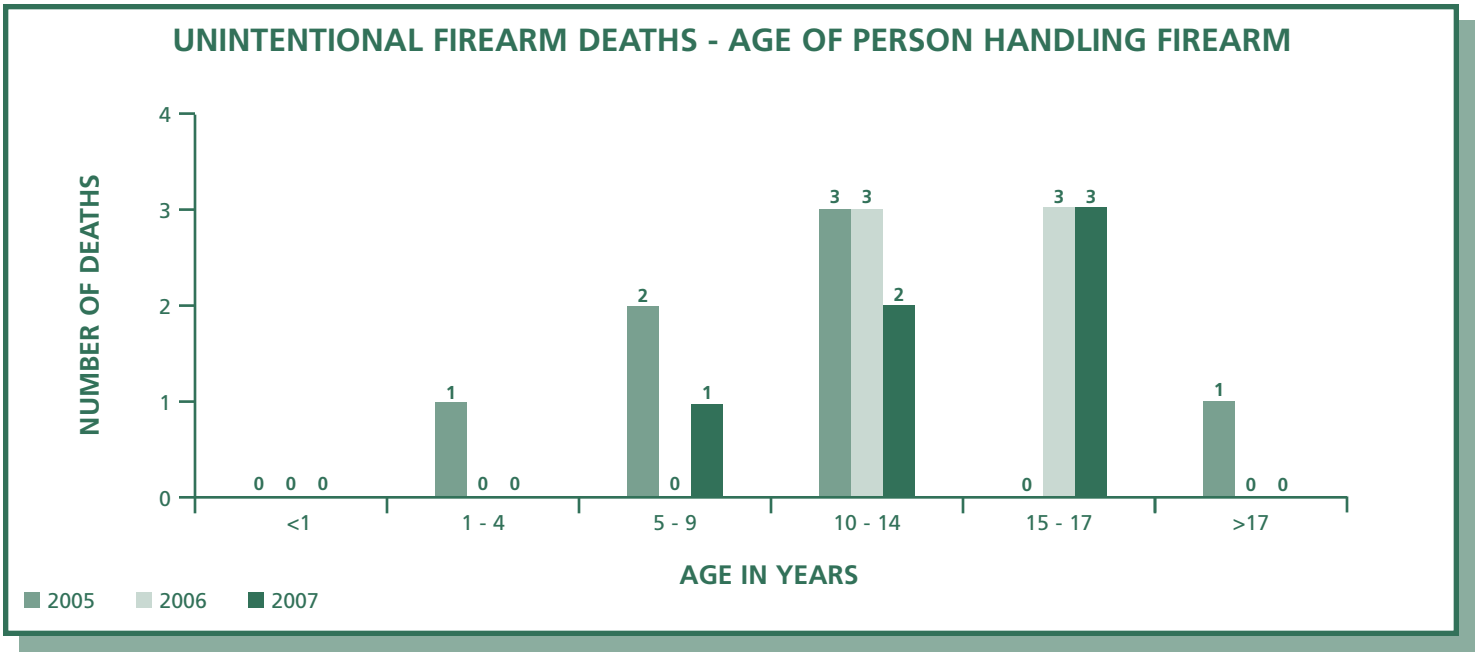
- **Parents who own guns should always store firearms unloaded and locked up, out of children's reach. Use gun locks, load indicators, and other safety devices on all firearms.**

  A 16-year-old was watching television and playing video games with two friends. There were no adults present. A 14-year old was playing with a hand gun, "dry firing", when it went off, striking the 16-year-old in the head.

  A 7-year-old girl and her 9-year-old brother were alone in the house. The brother discovered a handgun and began playing with it. The gun went off, striking the 7-year-old. She died of her injuries.

In the United States, about 500 children die each year from unintentional shootings and at least five times as many are wounded. In 2007, **six** Missouri children died of unintentional firearm injuries.





Certain groups of children are at higher risk for unintentional firearm-related injuries. In the United States, male children are far more likely to be injured and die from unintentional shootings than female children. Of those children age 14 and under who are killed by an unintentional shooting, 82% are male. In Missouri, in 2007, **five** of the **six** child victims of unintentional shootings were male and **one** was female. Children living in the South and in rural areas have higher rates of unintentional firearm-related deaths than other areas.

Nationally, more than 70% of unintentional shootings involve handguns. In 2007, **four** of the **six** unintentional firearm deaths among children involved handguns. **One** involved a rifle and **one** was unknown as to type.

Forty percent of gun owners keep firearms in the home for protection and crime prevention. Guns in the home for protection are more likely to be handguns, found in a home with children, stored loaded and unlocked. Of the **six** unintentional firearm deaths reviewed by CFRP panels in 2007, **three** involved a gun that was owned by a family member and **one** gun was owned by an acquaintance. Ownership of the other **two** is unknown. **Three** of the Missouri children who died as a result of unintentional firearm injury in 2007 were killed with a gun that was stored in a location accessible to children or not locked and secured; storage of the gun involved in the other **three** unintentional firearm fatalities is unknown.

Unintentional Firearm Deaths Among Children

Unrealistic perceptions of children's capabilities and behavioral tendencies with regard to guns are common.

- Most unintentional childhood shooting deaths involve guns kept in the home, that have been left loaded and accessible to children and occur when children play with loaded guns. **Two** of the **six** Missouri children who died as a result of unintentional firearm injury in 2007, were reported to be playing with the gun.
- Unintentional shootings among children most often occur, when children are unsupervised and out of school.

- Nearly two-thirds of parents with school-age children, who keep a gun in the home, believe that the firearm is safe from their children. However, one study found that when a gun was in the home, 75-80% of first and second graders knew where the gun was kept.

- Generally, before age eight, few children can reliably distinguish between real and toy guns, or fully understand the consequences of their actions.

- Children as young as age three are strong enough to pull the trigger of many of the handguns available in the U.S.

Declines in child firearm and BB-pellet gun-related injury rates during the 1990's, coincided with increased prevention efforts, including legislation and education, aimed at reducing unsupervised access to guns by children.

- It is estimated that two safety devices - gun locks and load indicators - could prevent more than 30% of all unintentional firearm deaths.

- To distinguish them from real guns, toy guns must conform to marking requirements under the U.S. Department of Commerce "Marking of Toy Look Alike and Imitation Firearms" regulation.

- Eighteen states have enacted child access prevention laws, which may hold adults criminally liable for failure to either store loaded firearms in a place inaccessible to children, or use safety devices to lock guns.

- State safe-storage laws intended to prevent child access to guns, have reduced unintentional firearm-related deaths among children ages 14 and under, by an average of 23 percent. *(Safe Kids)*

One possible strategy to decrease firearm injury and deaths to children, is educational programs. These can be directed at the children themselves, or at parents and adults, to store guns more safely in the home (or out of the home). The National Rifle Association's "Eddie Eagle" program is an example of the former type of educational intervention. Unfortunately, few of these educational interventions have been evaluated. *(National Injury Prevention and Research Center)*

Prevention Recommendations:

For Parents:

- Parents who own guns should always store firearms unloaded and locked up, with ammunition locked in a separate location, out of children's reach, use gun locks, load indicators and other safety devices on all firearms.

- All parents should teach children never to touch a gun and tell an adult, if they find a gun.

For community leaders and policy makers:

- Enforce laws and ordinances that restrict access to and decrease availability of guns.

- Enact and enforce laws requiring new handguns be designed to minimize the likelihood of discharge by children.

- Enact laws outlining owner liability for harm to others, caused by firearms.

For professionals:

- Implement gun safety education. It is important to include public education about the hazards of firearms, as one component of an overall effort to reduce the incidence of firearm injuries and deaths.

For Child Fatality Review Panels:

- In all cases of firearm fatalities involving children, ensure that every effort is made to determine the source of the gun and consider the responsibility of the gun owner in the incident.

Resources and Links:

National Safe Kids Campaign . . . . . www.safekids.org

Harborview Injury Prevention and Research Center . . . . . http://depts.washington.edu/hiprc

National Rifle Association
"The Eddie Eagle GunSafe® Program" . . . . . www.nrahq.org/safety/eddie

Missouri Department of Conservation Hunter Education Program . . . . . www.mdc.mo.gov
"Education" features education resources for teachers, youth groups and organizations, including an educational materials request form, as well as information on Hunter Education class locations, conservation and other outdoor skills education programs. The Hunter Eduction Program features the film, "The Last Shot," which targets older children and teen audiences with an effective gun safety message.

Homicides

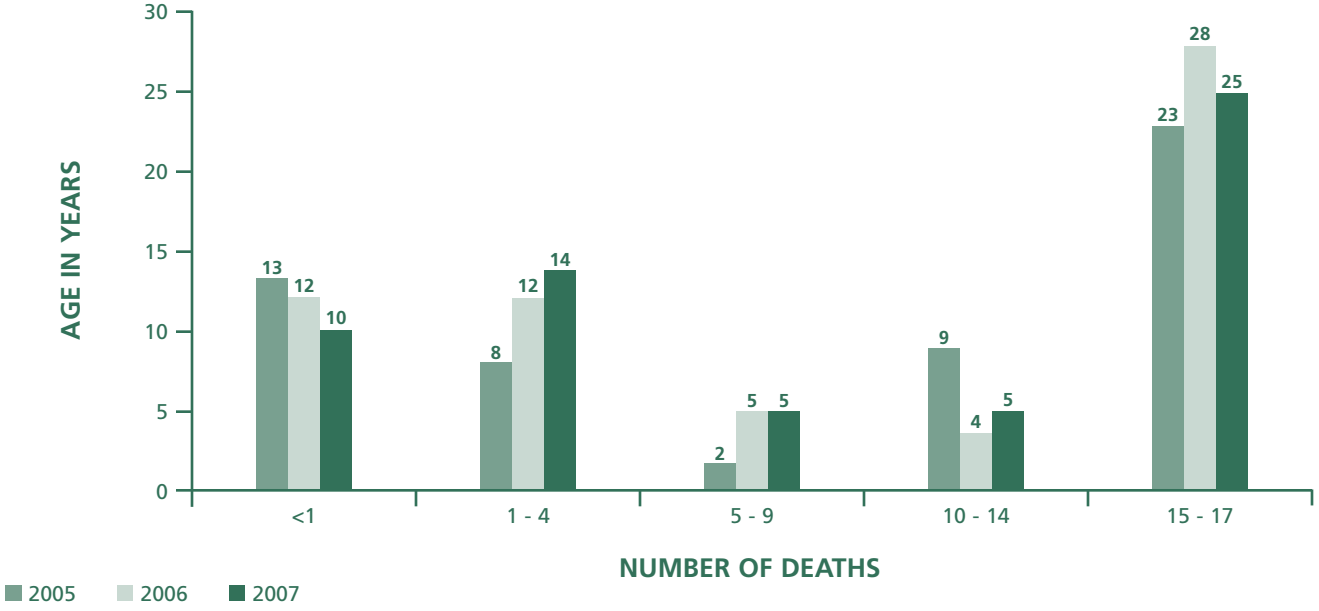
In 2007, homicide was listed as the death certificate manner of death for 59 Missouri children.

1. **Fatal Child Abuse and Neglect: Child death resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent.** This includes, but is not limited to, children whose deaths were reported as *homicide* by death certificate. In 2007, a total of **86** Missouri children were identified by CFRP panels, as victims of Fatal Child Abuse and/or Neglect; of those, **30** were reported by death certificate as Homicide.

2. **Death of a child in which the perpetrator was not in charge of the child.** This most often includes youth homicides, such as gang-related or drug-related shootings and child abductions that culminate in murder. There were **25** such fatalities among Missouri children in 2007. Of those, CFRP panels identified **one** child death in which parental negligence was a contributing factor.

3. **Deaths of children in which the perpetrator, not in charge of the child, was engaged in criminal or negligent behavior, and the child was not an intended victim.** Examples often involve firearms or motor vehicles and drugs or alcohol. In 2007, there were **four** such deaths of this type among Missouri children.

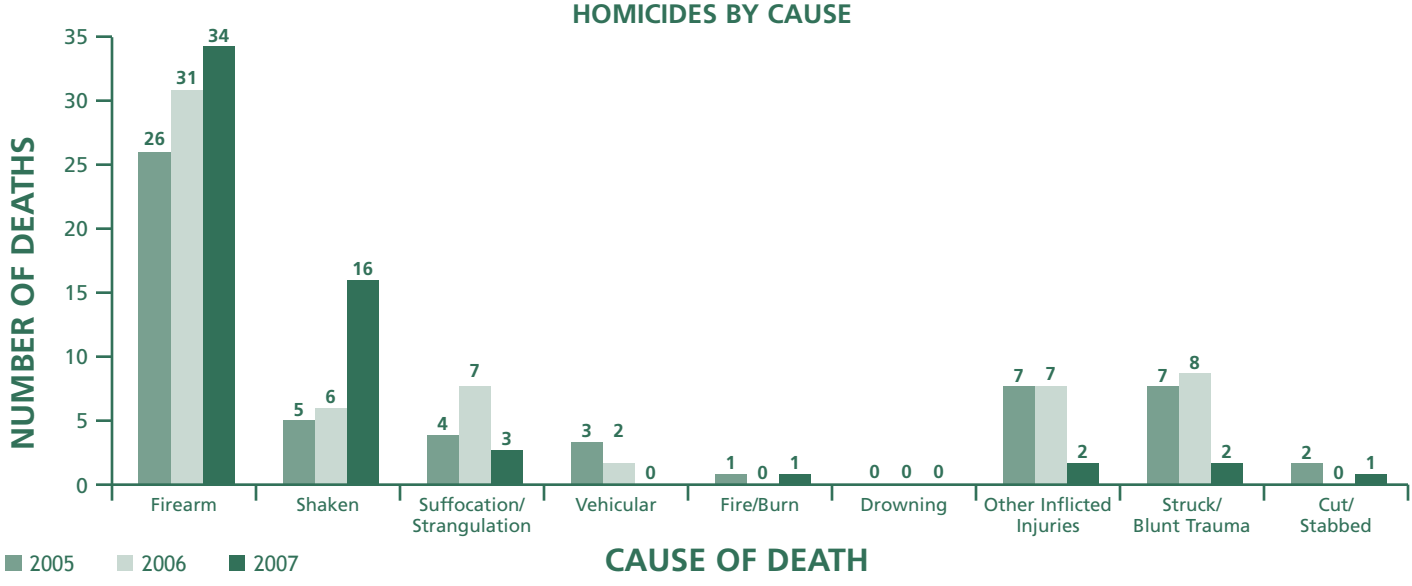
HOMICIDES BY AGE



HOMICIDES BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	17	16	17	WHITE	29	18	23
MALE	38	45	42	BLACK	26	43	34
UNKNOWN	0	0	0	OTHER	0	0	2
	55	61	59		55	61	59

HOMICIDES BY CAUSE



Fatal Child Abuse and Neglect

In 2007, 86 Missouri children were victims of Fatal Child Abuse and Neglect. Of those, 30 were reported as homicide by Death Certificate.

Representative Cases:

- **Young children are more likely to die from abuse and neglect.**

  A family was living in a hotel room. EMS responded to a call for a 9-month-old not breathing. Conditions in the hotel room were deplorable. The child had bruises and bite marks all over him. The child was rushed to the hospital where he died five days later from an abusive brain injury.

  A three-year-old child was riding unrestrained in a truck driven by her father, when he lost control and skidded into a ditch, overturning and ejecting the child, who was crushed by the vehicle.

  A four-year-old died in a house fire that started while he was playing with matches. He had been caught playing with matches the day before, but his parents failed to ensure that all matches were out of his reach. The father, who also died in the fire, was found to have a blood alcohol of .30.

  A mother left her five-month-old infant in the care of her teenage son while she went to work. The infant was left in his crib for several hours and apparently became entangled in several blankets and suffocated. It is apparent that the babysitter was not even in the house at the time of the infant's death.

- **Parents and caretakers must be educated about the dangers of shaking and ways to cope with crying infants.**

  A six-month-old was left in the care of his mother's paramour. The paramour became frustrated with the infant's crying and shook him, resulting in a traumatic brain injury.

  A four-month-old was left with a child care provider, who was caring for several children in her home. The infant was found unresponsive and taken to a hospital where he was found to be suffering from a traumatic brain injury. The babysitter later admitted hitting the child's head against a changing table.

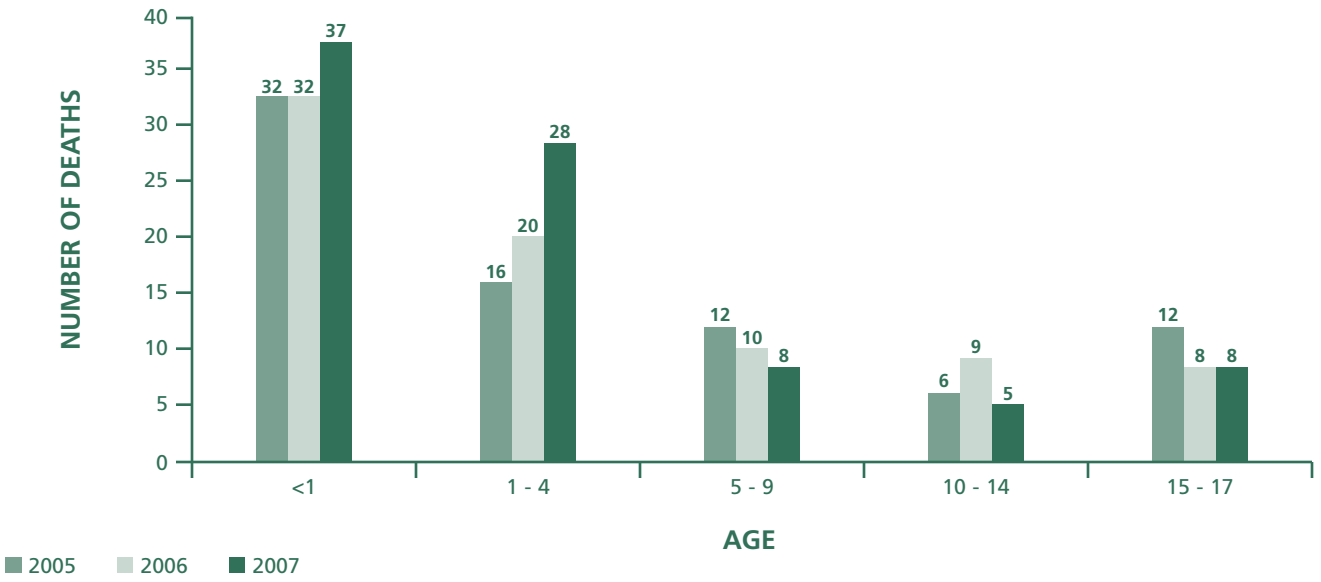
- **Multidisciplinary teams should be developed, supported and trained on the local level to investigate serious offenses against children.**

  An 11-week-old infant was allegedly found unresponsive by his father, face down on a pillow. Investigation and autopsy revealed that the infant's face had been pushed into the pillow and that the cause of death was suffocation.

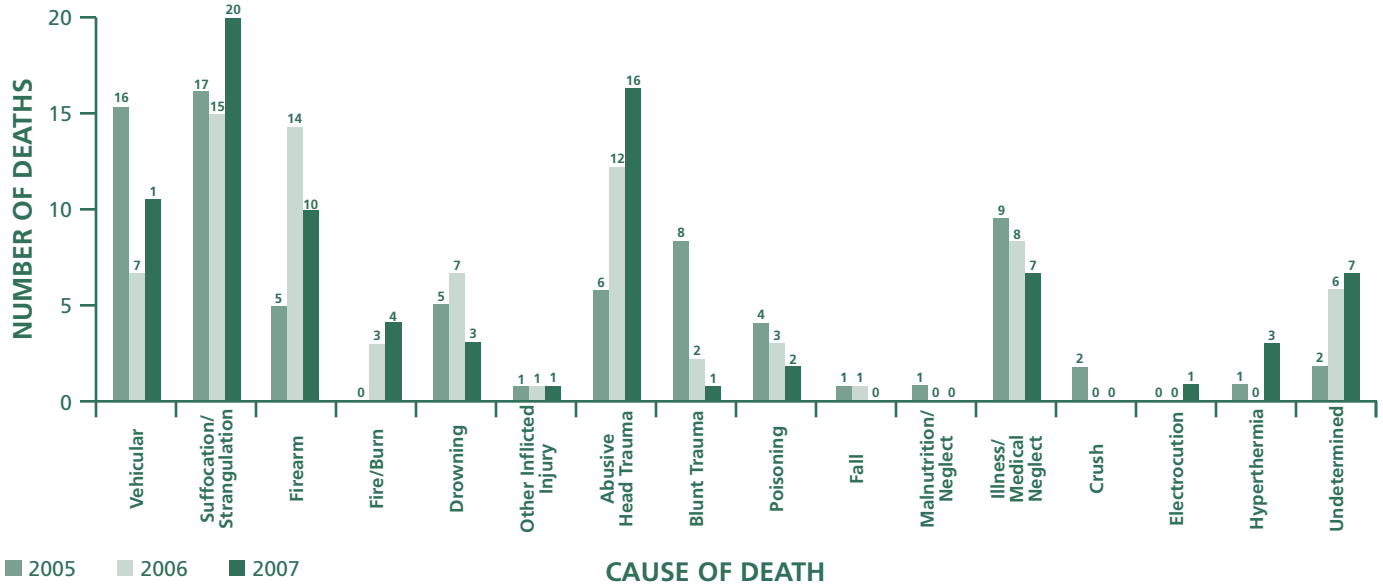
CHILD ABUSE AND NEGLECT FATALITIES BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	35	27	37	WHITE	63	37	60
MALE	43	52	49	BLACK	15	40	23
UNKNOWN	0	0	0	OTHER	0	2	3
	78	79	86		78	79	86

CHILD ABUSE AND NEGLECT FATALITIES BY AGE



CHILD ABUSE AND NEGLECT DEATHS BY CAUSE



Child fatalities are the most tragic consequence of child abuse and neglect. In the United States, approximately 1,200 children die of abuse or neglect each year, according to vital records (NCAN-DS). However, it is well documented that child abuse and neglect fatalities are under-reported and that, nationally, at least 2,000 children die each year at the hands of their parents or caretakers. Some estimates are as high as 3-5,000. (Ewigman et al., 1993; Herman-Giddens et al., 1999) There are a number of reasons for the discrepancies and some of the fundamental problems are highlighted in this section. The Centers for Disease Control has funded an effort to develop a standardized national surveillance system capable of accurately reporting child abuse and neglect fatalities. On a state level, properly organized and functioning child fatality review systems have improved the accuracy of child death reporting.

In Missouri, there are three entities within state government responsible for child fatality information: **Department of Health and Senior Services' Bureau of Vital Statistics, Department of Social Services, Children's Division** and **Child Fatality Review Program.** All three exchange and match child fatality data in order to ensure accuracy throughout the system. However, the Bureau of Vital Statistics, Children's Division and the Child Fatality Review Program serve very different functions and, therefore, different classifications and timing periods apply, when child fatality data is reported.

Vital Statistics and Death Certificate Information

The death certificate is issued for two major purposes. One is to serve as legal documentation that a specific individual has died. In general, the death certificate serves as legal proof that death has occurred, but not as legal proof of the cause of death. The second major purpose of the death certificate is to provide information for mortality statistics that may be used to assess the nation's health, causes of morbidity and mortality, and developing priorities for funding and programs that involve public health and safety issues.

Death certificate information is widely recognized as inadequate as a single source for identification of child abuse and neglect deaths. Misidentification of deaths may occur, because of inadequate scene investigation or autopsy procedure, inadequate investigation by law enforcement or child protection, or misdiagnosis by a physician or coroner. Child abuse and neglect fatalities often mimic illness and accidents. Neglect deaths are particularly difficult to identify, because negligent treatment often results in illness and infection that can be attributed to natural causes.

Children's Division: Child Abuse/Neglect Fatalities

The Missouri Department of Social Services, Children's Division is the hub of the child protection community. Children's Division provides a unique, multiple-response system for responding to each report of child abuse and neglect received by the Child Abuse/Neglect Hotline Unit (CANHU). Children's Division's responsibilities are limited to those reports that meet the legal definition of child abuse and neglect, stipulated in 210.110, RSMo, for children under the age of 18, from whom the perpetrator has care, custody and control.

Since August 2000, all child deaths are reported to the Children's Division Central Registry. Any child not dying from natural causes, while under medical care for an established natural disease, is brought to the attention of the division by the coroner or medical examiner. A fatality report is taken and, when appropriate, the report is accepted for investigation of child abuse and neglect by the

division. The Child Fatality Review Program is immediately notified of all fatality reports. The division is also responsible, if ordered by a judge, for protecting any other children in the household, until the investigation is complete and their safety can be assured.

After a report of child abuse or neglect has been made, investigations that return sufficient evidence supporting the report are classified as *preponderance of evidence child abuse and neglect*. When there is probable cause to believe that a child who has died was abused or neglected, or when this finding is court-adjudicated, that death is considered by the division to be a *preponderance of evidence child abuse and neglect fatality*. Thus, reports classified by the division as *preponderance of evidence child abuse and neglect fatalities* include deceased children whose deaths may or may not have been a direct result of the abuse or neglect. An example would be an unsupervised toddler who was run over in the driveway of her home. That death would be included as a pedestrian fatality in this CFRP Annual Report, with Inadequate Care as a contributing factor. In a case such as this, Children's Division would determine that there was *a preponderance of evidence* to believe that this child was a victim of *neglect*, specifically, lack of supervision.

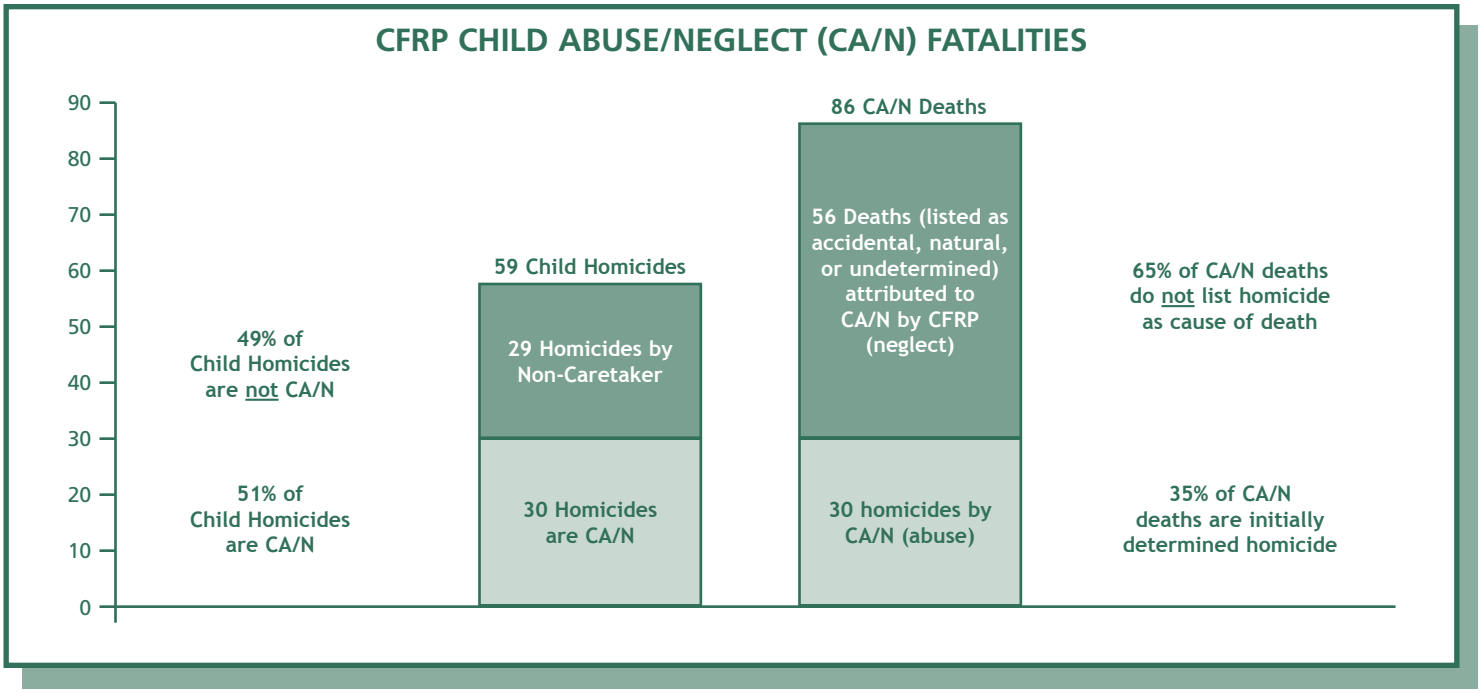
The Missouri Child Fatality Review Program: Fatal Child Abuse and Neglect

Child fatalities represent the extreme of all issues that have a negative impact on children. Despite an increasing awareness of severe violence against children, very little was known in the past about fatal child abuse and neglect. In the late-1980's, Missouri researchers discovered that many fatal child injury cases were inadequately investigated and that many children were dying from common household hazards with inadequate supervision. Many cases of fatal abuse and neglect went undetected, misclassified as natural deaths, accidents or suicides. The information necessary for a thorough investigation of a child death was distributed among agencies, which could not share records. In 1992, Missouri initiated a comprehensive, statewide child fatality review system. The CFRP review process has resulted in better investigations, more timely communication, improved training and technical assistance, and standardized data collection that allows us to understand much more about how our children die, the circumstances in which they die and who may be responsible.

Beginning in 1999, the Child Fatality Review Program Annual Reports refined the reporting and analysis of CFRP data in many ways, including an examination of data concerning "Fatal Child Abuse and Neglect", as defined by local panels. Those numbers represented a subset of child fatalities reported as *homicide* by death certificate. These changes allowed us to begin to understand much more about how Missouri children die, the circumstances in which they die and who may be responsible.

The Child Fatality Review Program defines *Fatal Child Abuse and Neglect* as child deaths resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent. This number includes, but is no longer limited to, children whose deaths were reported as homicide by death certificate; their death certificate manners of death may include natural, accident or undetermined. See Appendices 6 and 7 for additional information.

"Murder is no less a crime because a child, rather than an adult, is the victim."
-Unknown



Fatal Child Abuse: Inflicted Injury

In 2007, 30 Missouri children died from inflicted injury at the hands of a parent or caretaker.

Fatal child abuse may involve repeated abuse over a period of time, as in battered child syndrome, or it may involve a single, impulsive incident, such as drowning, suffocation or shaking a baby. Infants and young children under the age of four years are at greatest risk of severe injury and death due to physical abuse. These children are the most vulnerable for many reasons, including their dependency, small size and inability to defend themselves. In 2007, **22** of the **30** Missouri children (73%) who died from inflicted injuries at the hands of a parent or caretaker were four years of age or younger. Of those, **ten** (47%) were infants under the age of one year.

In 2007, **one** Missouri child died of blunt trauma injuries to the abdomen or chest, when they were struck, punched, kicked or thrown. Infants and young children are especially vulnerable because vital organs are in close proximity to each other; the ribs are small and cannot protect vital internal organs. Blunt trauma to the chest and abdomen can result in massive internal injuries and bleeding.

In the United States, Abusive Head Trauma (Shaken Baby Syndrome) is the second most common cause of death due to trauma in children and the cause of more than 95% of serious head injuries in infants less than one year of age. In 2007, **16** Missouri children were victims of fatal Abusive Head Trauma, commonly known as Shaken Baby Syndrome (SBS).

Another common type of physical abuse among young children, but often more difficult to detect, is suffocation/strangulation. These injuries occur when hands or materials are used to block or cover external airways (suffocation) or used to exert pressure on the neck and interfere with breathing (strangulation), or pressure is exerted on the chest in order to interfere with breathing. In 2007, **three** Missouri children died of suffocation/strangulation injuries at the hands of a parent or caretaker.

In 2007, **seven** Missouri children died of gunshot wounds at the hands of a parent or caretaker. In **four** of those cases, the parent committed suicide by gunshot after shooting the child.

Fatal Abuse: Inflicted Injury

FATAL ABUSE INFLICTED INJURIES BY AGE	
<1 year	10
1-4 years	12
5-9 years	5
10-14 years	2
15-17 years	1

FATAL ABUSE INFLICTED INJURIES BY SEX	
Females	12
Males	18

FATAL ABUSE INFLICTED INJURIES BY RACE	
White	20
Black	8
Other	2

FATAL ABUSE INFLICTED INJURIES BY CAUSE			
Abusive Head Trauma	16	Fire/Burn	1
Blunt Trauma	1	Other Inflicted Injury	1
Suffocation/Strangulation	3	Neglect/Hyperthermia	1
Firearm	7		

Shaken Baby Syndrome (Abusive Head Trauma)

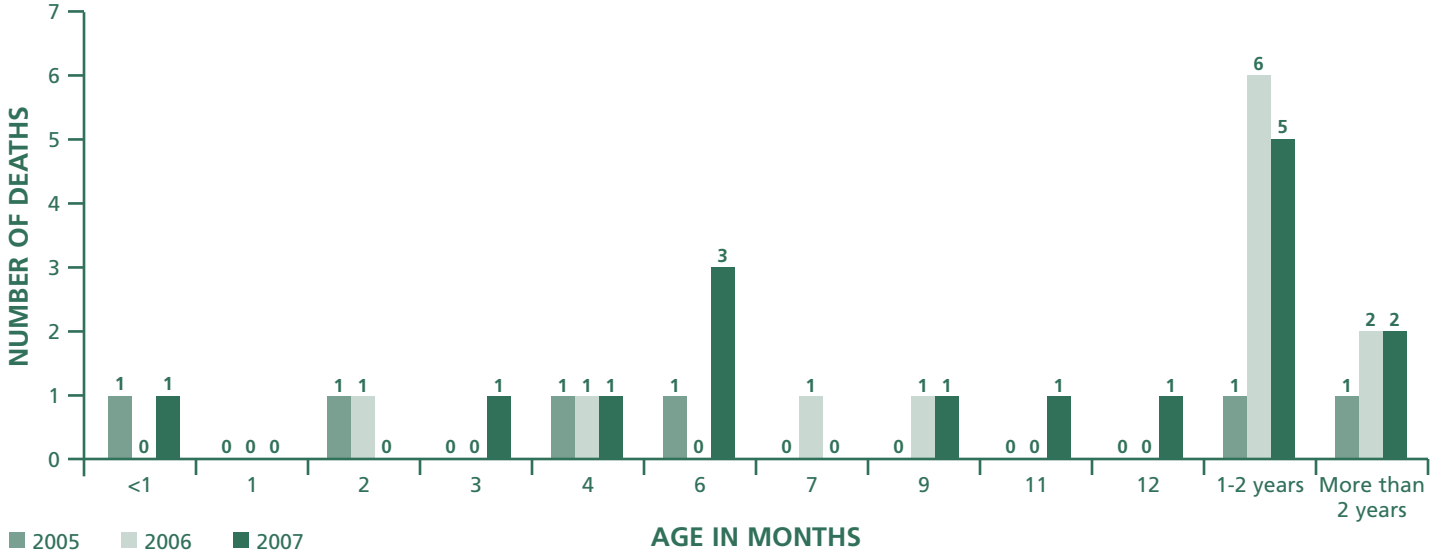
Of the **30** Missouri children who died from inflicted injury at the hands of a parent or caretaker in 2007, **16** (53%) were victims of abusive head trauma (or inflicted traumatic brain injury), commonly known as Shaken Baby Syndrome. Shaken Baby Syndrome (SBS) is the second most common cause of death due to trauma in children and the cause of >95% of serious head injuries in children less than one year of age.

Shaken Baby Syndrome involves the violent shaking or shaking and impacting of the head of an infant or young child, usually under the age of four years. Signs and symptoms range from minor (irritability, lethargy, tremors, vomiting) to major (seizures, coma, stupor, death). These neurological changes are due to destruction of brain cells secondary to trauma, lack of oxygen to the brain cells, and swelling of the brain. Extensive retinal hemorrhages in one or both eyes are found in the vast majority of cases. Fractures of long bones and/or ribs may also be seen in some cases. *(National Center on Shaken Baby Syndrome)*

Shaken Baby Syndrome is so lethal that approximately 30% of victims require hospitalization and 20% of victims die in the first few days after injury. Approximately 50% of survivors suffer permanent neurologic disabilities ranging from mild (learning disorders, behavioral changes) to moderate and severe, such as profound mental and developmental retardation, paralysis, blindness, inability to eat or exist in permanent vegetative state. Many survivors initially thought to be normal have subsequent learning disabilities or other psychomotor delays that are not diagnosed until they reach school age.

The vast majority of SBS victims are indeed, “babies” or infants, less than one year of age, but victims can range in age from <1 month to eight years; the median age is four to six months. Infants are particularly vulnerable to shaking injuries, because of their unique physical and behavioral characteristics. Infants’ heads are large and heavy in proportion to their total body weight and their neck muscles are too weak to support such a disportionately large head. Because an infant’s brain is immature, it is more easily injured. When an infant or young child is violently shaken, the head rotates wildly on the axis of the neck, resulting in rotation of the brain within the skull.

ABUSIVE HEAD TRAUMA BY AGE



ABUSIVE HEAD TRAUMA FATALITIES BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	1	4	5	WHITE	5	6	9
MALE	5	8	11	BLACK	1	6	5
	0	0	0	OTHER	0	0	2
	6	12	16		6	12	16

Young parents, unstable family conditions, low socioeconomic status and disability or prematurity of the child make an infant particularly vulnerable. The triggering event for the shaking is almost always the baby's uncontrollable crying and loss of control by the caregiver. Crying peaks between six weeks and four months. Infant crying was known to be the apparent triggering event in **ten** of the sixteen SBS abuse fatalities among Missouri children in 2007; other triggering events included feeding difficulties.

Research has established that 60-70% of perpetrators of SBS are male. Birth fathers account for the majority, followed by the mother's boyfriend, female babysitters, and mothers. In 2007, perpetrators of SBS abuse fatalities in Missouri included **six** birth fathers, **five** mother's boyfriends, **three** child care providers, **one** friend of the mother and, in **one** case, both the birth mother and her boyfriend abused the infant.

"I shook her and her eyes half closed and they never moved."

Fatal Child Neglect: Inadequate Care and Grossly Negligent Treatment

The majority of unintentional fatalities and serious injuries among young children are the result of a temporary lack of supervision or inattention at a critical moment. This is often the case when infants and toddlers drown in bathtubs and swimming pools, or young children dart in front of moving vehicles. Parent and other caretakers often underestimate the degree of supervision required by young children. This is complicated by the mistaken idea that young children have some sort of innate fear of dangerous situations.

Negligent treatment of a child is an act of omission, which is often fatal when due to grossly inadequate physical protection, withholding nutrition or health care necessary to preserve life. Child deaths resulting from grossly negligent treatment are frequently difficult to identify, because neglect often results in illnesses and infections that can be attributed to natural causes, or exposure to hostile environments or circumstances that result in fatal "accidents."

Definitions of negligent treatment vary depending on whether one takes a legal, medical, psychological, social service or lay perspective. There are broad, widely recognized categories of neglect that include: *physical neglect, emotional neglect, medical neglect, neglect of mental health, and educational neglect*. Within those definitions, there are subsets, as well as variations in severity that often include *severe* or *"nearly-fatal"* and *fatal*. Negligent treatment may or may not be intentional; however, the end result for the child is the same whether the parent is willingly neglectful (e.g., out of hostility) or neglectful due to factors such as ignorance, depression or overwhelming stress and inadequate support.

Grossly negligent treatment by a parent or caretaker generally involves failure to protect from harm and withholding or otherwise failing to provide food, shelter, or medical care necessary to meet the child's basic needs. This level of negligence is egregious and surpasses momentary inattention or a temporary condition; it is often part of a pattern of negligent treatment. Child deaths often result when a parent or caretaker fails to adequately supervise the child, usually for extended periods of time.

In some cases, "failure to protect from harm" or failure to meet basic needs, involves exposure to a hostile environment or a hazardous situation with potential for serious injury or death. An example would be a three-year-old who was riding unrestrained, while his intoxicated parents were "playing chicken" with another vehicle. The child was ejected in the crash and died instantly. Another example is a toddler, put outside to play alone, who wandered out of the yard and drowned in a pond.

Medical neglect, as a form of grossly negligent treatment, refers to failure to provide prescribed medical treatment or emergency medical care for a known illness or injury with potential for a serious or fatal outcome. Examples include untreated diabetes or asthma.

As part of the review process, CFRP panels are asked to consider and designate all child fatalities in which Inadequate Care and/or Grossly Negligent Treatment contributed to the death of the child. In 2007, CFRP panels found Grossly Negligent Treatment had contributed to the deaths of **56** Missouri children; of those **two** were designated as Homicide by death certificate. For data purposes, all 56 deaths are included in the appropriate data section, Illness/Natural Cause, Unintentional Injury, Homicide or Suicide.

Total Child Deaths	Cause of Death	*Circumstances of Gross Negligent Treatment that Contributed to the Death					Examples
		Lack of Supervision	Medical Neglect	Exposure to Hostile Environment or Hazardous Situation	Unrestrained Children	Other	
7	Illness/ Natural Cause	1	4	3	0	2	Three infants were born preterm and died due to maternal drug abuse. Three children died because medical care was withheld; one of those was exposed to crack cocaine.
11	Vehicular	2	0	2	5	5	Five young children, who were riding unrestrained or improperly restrained, were killed in motor vehicle crashes; two of those were riding with drivers under the influence of alcohol or drugs. One teen was riding with a driver who was drag racing.
17	Infant Suffocation	4	0	6	0	10	Ten infants died while bedsharing with adults, exposing them to soft bedding and the possibility of overlay by others. Two infants suffocated while unsupervised for several hours. One infant was trapped between a crib bumper pad and a wall. One infant suffocated in a box filled with pillows and blankets, where she was placed by a 5-year-old. One infant suffocated when soft bedding was used to prop a bottle.
2	Poisoning	0	0	2	0	0	One child was staying with her boyfriend and his parents, who were known heroin users. The two teens were using heroin and prescription medications supplied by the adults. The victim died of an overdose.
3	Firearm	1	0	3	0	0	One child was shot while he and a group of friends were playing with a gun. Another child was fatally shot when his two uncles fired at each other during a fight. A three-year-old was shot with a shotgun that was kept stored under a bed; this was not the first time that gun had gone off accidentally.
3	Drowning	1	0	0	0	2	A 2-year-old climbed over a closed and locked gate to gain access to the pool where he drowned. Another toddler was left playing in a bathtub, when the drain became clogged and he drowned as the water level rose. A low-functioning autistic child, who was left unattended got out of his parents' house and drowned in a pond.
3	Fire/Burn	2	0	0	0	1	A four year old child had a history of playing with matches, but parents failed to store matches safely. The child and his twin died when he started a fire in his room. Another child died in a house fire that started when a cigarette ignited the contents of a trash can.
10	Other/ Undetermined	6	0	3	5	0	Two different infants died from hyperthermia when they were left unattended in closed vehicles during the heat of the day. One child was electrocuted when an extension cord with exposed wires was left on the ground. Seven children whose causes of death could not be determined were also found to be victims of inadequate supervision or gross negligence.
*Total CHild Deaths = 56		15	4	19	5	25	

*In some cases, more than one neglect category was applied to a single child death.

Investigation and Prosecution of Physical Child Abuse and Homicide

Most serious child abuse occurs in the privacy of the home, and seldom in the view of family or other witnesses. If evidence exists, it is often concealed or destroyed. Perpetrators rarely fit the image of a criminal, and most jurors and judges find it hard to accept that any parent or caretaker would intentionally harm a child. There may be no outward signs of trauma, as in most cases of abusive head trauma (Shaken Baby Syndrome). Cases of physical child abuse and homicide are complex and technical; proof hinges on the expertise with which the investigation is conducted and the clarity with which details of the medical evidence are presented to the jury. The legal and medical issues are often daunting, but there are resources designed to assist criminal investigators and prosecutors in identifying perpetrators and holding them accountable.

The State Technical Assistance Team (STAT), a commissioned law enforcement unit with the Department of Social Services, *is available 24 hours a day to respond to requests for assistance in the complex and highly technical field of child abuse, neglect and exploitation. Besides managing the Child Fatality Review Program, STAT also provides hands-on assistance, training, and expertise.* 1-800-487-1626 www.dss.mo.gov/stat

National Center for the Prosecution of Child Abuse, a program of the American Prosecutors' Research Institute APRI . . . . . www.ndaa.org/apri/programs/ncpca/ncpca_home.html
Provides training and technical assistance. A clearinghouse on child abuse case, law, statutory initiatives, court reforms, information on expert witnesses, and trial strategies and research.

National Center on Shaken Baby Syndrome . . . . . .www.dontshake.org
Provides technical assistance, research, expertise to investigation professionals, including scene investigation and suspected incidents, legal professionals, including visual presentation of medical evidence, and medical professionals, including recognizing abusive head trauma.

Missouri Attorney General's Office. . . . . www.ago.mo.gov
Special prosecutions and assistance, when requested by the local prosecutor.

"Child Abuse casts a shadow the length of a lifetime."
- Herbert Ward

Something We Can Do: Preventing Shaken Baby Syndrome

The majority of fatal inflicted injury deaths among children involve abusive head trauma, commonly known as Shaken Baby Syndrome (SBS). Research has demonstrated that prevention programs targeting all new parents and caregivers with education about the dangers of shaking and ways to cope with crying infants, results in a measurable reduction in the number of serious and fatal injuries.

Children's Trust Fund, Missouri's Foundation for Child Abuse Prevention, provides SBS Prevention materials, including brochures and "Preventing Shaken Baby Syndrome" videotapes for parent and for child care providers.

For additional information, or to order education materials, contact CTF at 573-751-5147 or visit the website at www.ctfkids.org.

Prevention Recommendations:

For parents:

- Report child abuse and neglect.
- Seek crisis help through the Parental Stress Helpline (800-367-2543) or ParentLink (800-552-8522).

For community leaders and policy makers:

- *Support and fund home-visitation child abuse prevention programs that assist parents.*
- *Enact and enforce laws that punish those who harm children.*

For professionals:

- Support and facilitate public education programs that target male caretakers and child care provider.
- Expand training on recognition and reporting of child abuse and neglect.
- Support development and training for multidisciplinary teams to investigate child abuse.

For Child Fatality Review Panels:

- The role of CFRP panel is critical in identifying fatal child abuse, protecting surviving children, and ensuring that the family receives appropriate services. CFRP panels provide important data that enhances our ability to identify those children who are most likely to be abused and intervene before they are harmed.

Resources and Links:

The National Center on Shaken Baby Syndrome . . . . . www.dontshake.org

U.S. Department of Justice
Office of Juvenile Justice and Delinquency Prevention. . . . . www.ojjdp.ncjrs.org

Centers for Disease Control and Prevention . . . . . www.cdc.gov

Missouri Department of Social Services, Children's Division . . . . . www.dss.mo.gov/cd

Missouri Child Abuse Hotline. 1-800-392-3738

National Center for Missing and Exploited Children . . . . . www.missingkids.com

Missouri Office of Child Advocate for Children's Protection and Services . . . . . www.oca.mo.gov

The National Council of Juvenile & Family Court Judges . . . . . www.ncjfcj.org
Publication: *Resource Guidelines: Improving Court Practice in Child Abuse & Neglect Cases*

Child Welfare Information Gateway . . . . . *www.childwelfare.gov*
(Formerly the National Clearinghouse on Child Abuse and Neglect Information)

Other Homicides

Of the 59 child homicides in Missouri in 2007, 29 involved perpetrators who were not in charge of the child; of those, 27 (93%) involved firearms.

Representative Cases:

- **The increased availability of guns and drugs contributes to violence.**

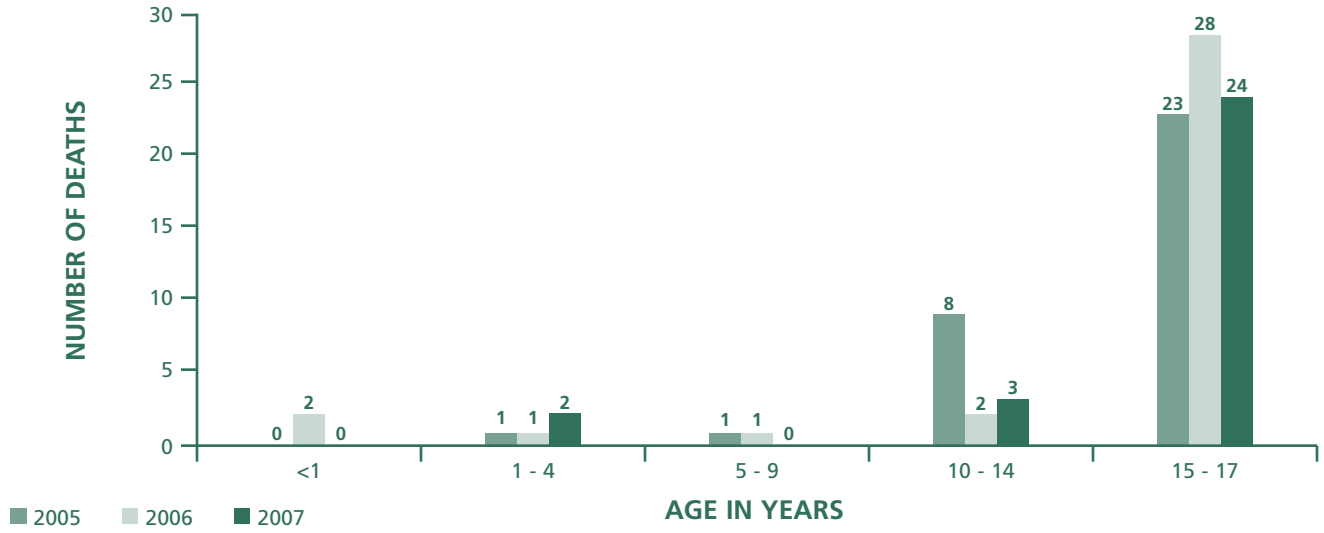
  A 17-year-old was fatally shot by occupants of a passing vehicle. The shooting was apparently drug-related. The victim tested positive for two drugs of abuse.

  Another 17-year-old was shot while running through a park. He was reportedly selling drugs.

  A 15-year-old was shooting craps with a group of individuals in a vacant house. When a fight ensued, the victim was chased down the street and shot.

  A 13-year-old was caught in the crossfire between two rival gangs. She died as a result of a gunshot wound to the head.

OTHER HOMICIDE DEATHS BY AGE



OTHER HOMICIDE DEATHS BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	10	7	5	WHITE	12	7	3
MALE	23	27	24	BLACK	21	27	26
	33	34	29		33	34	29

In 2007, **29** Missouri children were murdered by non-caretakers. Of those, **23** were youth homicides, child deaths in which the perpetrator was another child. Most youth homicides involve juvenile crime and violence, or abductions by adults or other adolescents, that culminated in murder.

Of the **29** Missouri children murdered by non-caretakers, **four** involved a perpetrator who was not in charge of the child, was engaged in criminal or negligent behavior, and the child was not an intended victim. This group of children includes a 17-year-old who was shot when he was caught in the crossfire between two rival gangs and a two-year-old was shot when the driver of a vehicle in which she was riding got into a fight with another adult, who started shooting into the vehicle.

Youth homicide:

The most common mechanism of juvenile homicide is firearms. **Twenty-seven** Missouri children died of intentional firearm injuries in 2007. Youth homicides are a serious problem in large urban areas, especially among black males. The majority of gun homicides among Missouri adolescents has risen sharply in the last three years, particularly when drug and gang activity is a factor.

YOUTH VIOLENCE	
Firearm	21
Stabbing	1
Beating	1
HOMICIDES, OTHER	
Firearm	6

Nationally, the rate of juvenile arrest for violent crime has risen sharply since the mid-1980's, and juvenile arrests for murder, robbery, motor vehicle theft and weapons violations far surpassed the growth in adult arrests, for these crimes. The growth in juvenile homicides has been particularly disturbing. The rapid rise of gun homicides of youth, coincided with the growth of crack cocaine markets in the inner city. The increased availability of guns to youth has been matched by an increased willingness to use violence to achieve one's goals. Violent confrontations are common in adolescence. If both parties are armed, the one who acts first usually gains a decided advantage. The realization that many youth on the street are carrying a weapon, increases the potential for an immediate and exaggerated response to real or perceived threats. Young males commit the majority of juvenile crime and violence. With the exception of rape and domestic violence, males are also more likely to be victims of violence than females. By age 17, the risk of homicide among males is five times that of females. *(Harborview Injury Prevention and Research Center)*

Research on youth violence has increased our understanding of factors that make some populations more vulnerable to victimization and perpetration. Many risk factors are the same, in part, because of the overlap among victims and perpetrators of violence. Risk factors are not direct causes of youth violence; instead, risk factors contribute to youth violence by increasing the likelihood that a young person will become violent. For example, in Missouri in 2005, 19% of high school participants in the Youth Risk Behavior Survey indicated that they had carried a weapon during the past month and 30% had been in a physical fight during the previous year. These behaviors are known to contribute to youth violence and homicide.

Research associates the following risk factors with perpetration of youth violence:

Individual Risk Factors

- History of violent victimization or involvement
- Attention deficits, hyperactivity, or learning disorder

- History of early aggressive behavior
- Involvement with drugs, alcohol, or tobacco
- Low IQ
- Poor behavioral control
- Deficits in social cognitive or information-processing abilities
- High emotional distress
- History of treatment for emotional problems
- Antisocial beliefs and attitudes
- Exposure to violence and conflict in the family

Family Risk Factors
- Authoritarian childrearing attitudes
- Harsh, lax, or inconsistent disciplinary practices
- Low parental involvement
- Low emotional attachment to parents or caregivers
- Low parental education and income
- Parental substance abuse or criminality
- Poor family functioning
- Poor monitoring and supervision of children

Peer/School Risk Factors
- Association with delinquent peers
- Involvement in gangs
- Social rejection by peers
- Lack of involvement in conventional activities
- Poor academic performance
- Low commitment to school and school failure

Community Risk Factors
- Diminished economic opportunities
- High concentrations of poor residents
- High level of transiency
- High level of family disruption
- Low levels of community participation
- Socially disorganized neighborhoods

Protective factors buffer young people from risks of becoming violent. These factors exist at various levels. Protective factors have not been studied as extensively or rigorously as risk factors and most research is preliminary.

Individual Protective Factors
- Intolerant attitude toward deviance
- High IQ or high grade point average
- Positive social orientation
- Religiosity

Family Protective Factors
- Connectedness to family or adults outside of the family
- Ability to discuss problems with parents
- Perceived parental expectations about school performance are high
- Frequent shared activities with parents

- Consistent presence of parent during at least one of the following: when awakening, when arriving home from school, at evening mealtime, and when going to bed
- Involvement in social activities

Peer/School Protective Factors
- Commitment to school
- Involvement in school activities
  (National Center for Injury Prevention and Control)

Violence Prevention Recommendations:

For parents:

- Provide supervision, support and constructive activity for children and adolescents in your household.
- Access family therapy and parenting assistance, as necessary, for help with anger management skills, self-esteem and school problems.

For community leaders and policy makers:

- Support the implementation of violence prevention initiatives.
- Encourage programs that provide support, education and activities for youth.
- Support legislation that restricts access to guns by children and adolescents.

For professionals:

- Support and implement crisis interventions and conflict resolution programs within the schools.

For Child Fatality Review Panels:

- Ensure that support for victims and survivors of youth violence is available.
- Support proactive approaches to crime control, especially those programs that include efforts to confiscate illegally carried firearms.

Resources and Links:

National Center for Injury Prevention and Control . . . . . www.cdc.gov/ncipc
Best Practices of Youth Violence Prevention:
A Sourcebook for Community Action. . . . . www.cdc.gov/ncipc/dvp/bestpractices.htm
Harborview Injury Prevention and Research Center . . . . . http://depts.washington.edu/hiprc
US Department of Justice
Office of Juvenile Justice and Delinquency Prevention. . . . . www.ojjdp.ncjrs.org
The National Youth Violence Prevention Resource Center . . . . . www.safeyouth.org
Missouri Juvenile Justice Association . . . . . www.mjja.org
2005 Youth Risk Behavior Survey . . . . . www.cdc.gov/yrbss

Suicide

"Suicide is not chosen; it happens when pain exceeds resources for coping with pain."

In 2007, 22 Missouri children committed suicide.

Representative Cases:

- **Parents and professionals that are responsible for children must be educated to recognize and respond to risk factors for suicide.**

  A 16-year-old had a history of depression and a prior suicide attempt by overdose. He died as a result of a self-inflicted hanging.

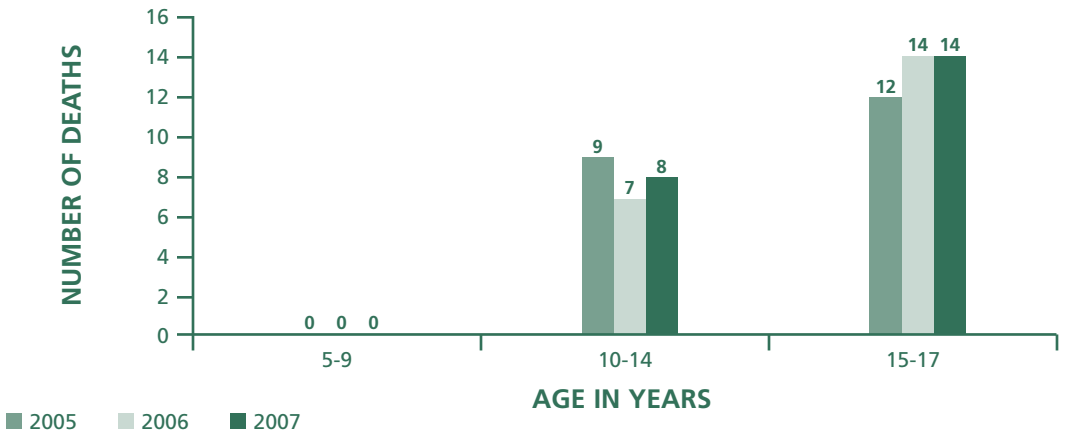
  A 12-year-old with a history of mental illness hung himself with an electrical cord. He had talked of suicide in the past and had been friends with another child who died two days earlier while playing the "choking game."

  A 16-year-old shot himself in the chest. He had a history of behavior disorder and depression. He had also been arrested a number of times during the months preceding his death; the last arrest was just a few days before his death.

  A 17-year-old boy was staying with a friend because he had been told to leave his parent's home. He hung himself at the friend's house.

In Missouri and the United States, suicide is the third leading cause of injury-related deaths for young people following unintentional injuries and homicide. The suicide rate among young teens and young adults increased by more than 300% in the last three decades and rates continue to remain high. In Missouri in 2007, **22** children died of self-inflicted injury; **14** were age 15-17; the remaining **eight** were children ages 10-14.

SUICIDES BY AGE



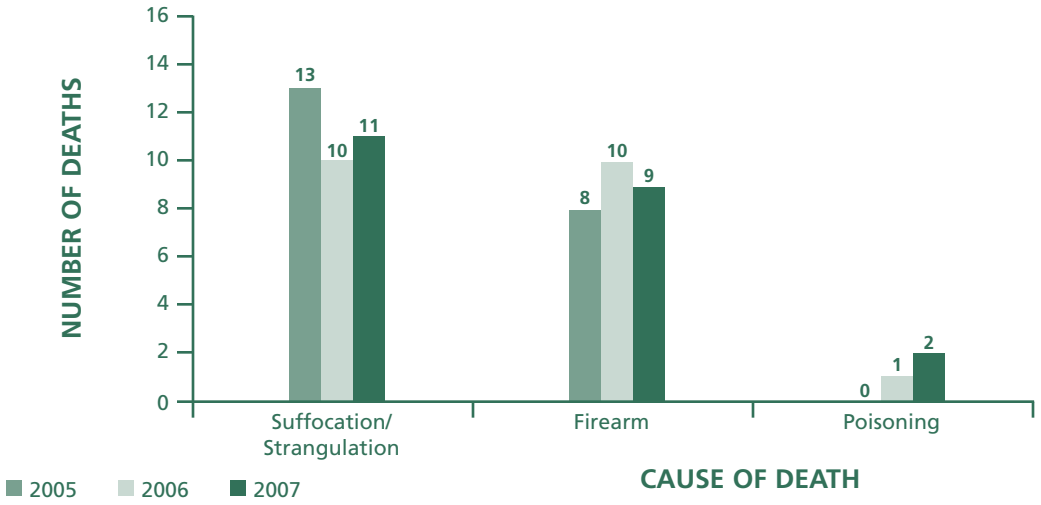
White males comprise the majority of adolescent suicide victims in Missouri. Although more females attempt suicide than males, males are approximately three times more likely to die from suicide.

SUICIDES BY SEX AND RACE

SEX	2005	2006	2007	RACE	2005	2006	2007
FEMALE	6	8	4	WHITE	13	19	18
MALE	15	13	18	BLACK	7	2	4
OTHER	0	0	0	OTHER	1	0	0
	21	21	22		21	21	22

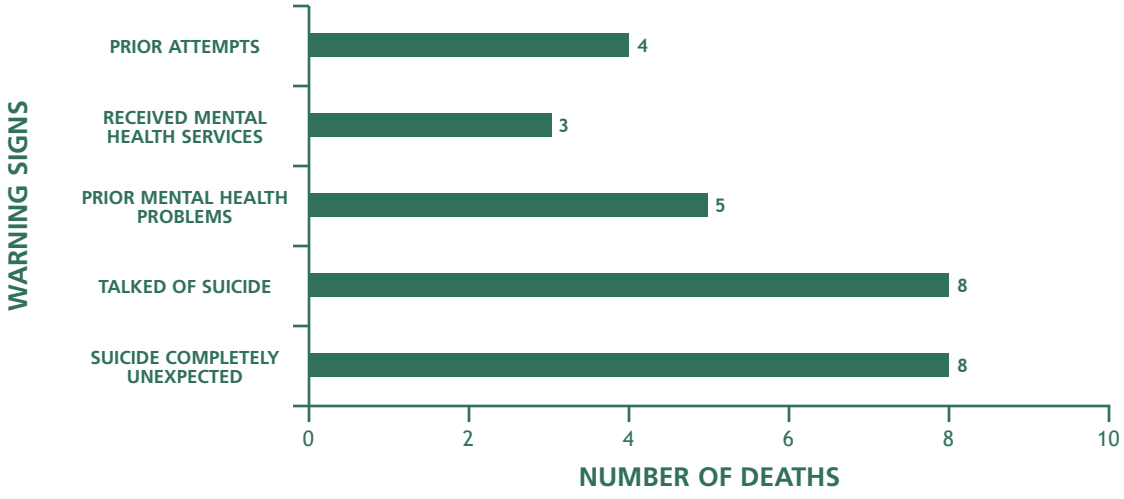
Suffocation/strangulation and firearms are the most common mechanism of suicide among Missouri children.

SUICIDES BY MECHANISM



Suicide is rarely a spontaneous decision and most people give warning signs that they are contemplating taking their own lives. Of the **22** Missouri children who committed suicide in 2007, **nine** (41%) had displayed one or more warning signs.

WARNING SIGNS OF SUICIDE



"The suffering of the suicidal is private and inexpressible, leaving family members, friends, and colleagues to deal with an almost unfathomable kind of loss, as well as guilt. Suicide carries in its aftermath a level of confusion of devastation that is, for the most part, beyond description."
-Kay Redfield Jamison

Risk and Protective Factors For Youth Suicide:

Suicide is a reaction to intense feelings of loneliness, worthlessness, hopelessness, or depression. Suicidal behaviors in young people are usually the result of a process that involves multiple, social, economic, familial, and individual risk factors, with mental health problems playing an important part in its development. Risk factors compiled from the National Strategy for Suicide Prevention fall into three general categories:

Biopsychosocial:
- Mental health disorders, particularly depression, anxiety and related mood disorders
- Alcohol and other substance use disorders
- Hopelessness
- Impulsive and/or aggressive tendencies
- History of trauma or abuse
- Major physical illness
- Previous suicide attempt
- Family history of suicide

Environmental:
- Academic, job or financial loss
- Relational or social loss
- Easy access to lethal means
- Local clusters of suicide that have a contagious influence

Sociocultural
- Lack of social support and sense of isolation
- Stigma associated with help-seeking behavior
- Barriers to accessing health care, especially mental health and substance abuse treatment
- Certain cultural and religious beliefs (for instance, the belief that suicide is a noble resolution of a personal dilemma)

Protective factors reduce the likelihood of suicide; they enhance resilience and may serve to counterbalance risk factors. Both parent-family connectedness and perceived school connectedness have been shown to be protective against suicidal behavior.

Key protective factors for suicide include:
- Effective clinical care for mental, physical and substance use disorders
- Easy access to a variety of clinical interventions and support of help-seeking
- Strong connections to family and community support
- Support through ongoing medical and mental health care relationships
- Skills in problem solving conflict resolution, and nonviolent handling of disputes
- Cultural and religious beliefs that discourage suicide and support self-preservation

Only a few studies have examined protective factors among youth for suicidal behavior.

The Missouri Suicide Prevention Plan:

In 1999, the U.S. Surgeon General, Dr. David Satcher, issued a "Call to Action to Prevent Suicide," introducing an initial blueprint for reducing suicide in the United States, summarized as "AIM," awareness, intervention and methodology. In response to the national recognition of suicide as a worldwide public health problem, collaborative planning efforts began in Missouri that resulted in the passage of legislation in 2003, that mandates the development of a statewide suicide prevention plan.

The "Missouri Suicide Prevention Plan, 2005-2010" includes research, data, specific strategies for reducing suicide and suicidal behaviors, and links to suicide prevention resources. The state plan is available online at the Missouri Department of Mental Health website: www.dmh.mo.gov/cps/issues/suicide.htm. The writers point out that suicide is a huge and complex problem and Missouri's communities are too diverse in their members and needs for a single intervention to be adequate. Thus, a diverse array of interventions will be required to meet the particular local needs of the many unique communities in Missouri. Collaboration is essential if recommendations are to be effective. Communities should use the plan as a guide to develop and implement their own local plan.

Prevention Recommendations:

For parents:

- Seek early treatment for children with behavioral problems, possible mental disorders (particularly depression and impulse-control disorders) and substance abuse problems.
- Limit young people's access to lethal means of suicide, particularly firearms.

For community leaders and policy makers:

- Encourage health insurance plans to cover mental health and substance abuse on the level physical illnesses are covered.
- Support and implement school and community prevention programs designed to address suicide and suicidal behavior as part of a broader focus on mental health, coping skills in response to stress, substance abuse and aggressive behaviors.
- Enact and enforce laws and policies that limit young people's access to firearms and encourages responsible firearm ownership.

For professionals:

- Children who have attempted suicide or displayed other warning signs should receive aggressive treatment attention.

For Child Fatality Review Panels:

- Support or facilitate evidence-based suicide prevention programs in your community.

- In reviewing a possible suicide, consider carefully the warning signs and history of the victim. Consider, also, points of early intervention that can be enhanced in your community to prevent other suicides and suicidal behaviors.

Resources and Links:

Missouri Department of Mental Health, Division of Comprehensive Psychiatric Services . . . . . www.dmh.mo.gov/cps/issues/suicide.htm
The Missouri Suicide Prevention Plan, mental health resources, suicide prevention resources, data, fact sheets, support groups and organizations and other links

KUTO (Kids Under Twenty-One) . . . . . www.kuto.org
Offers a youth crisis Helpline, staffed entirely by trained youth volunteers.
1-888-644-5886

Missouri Department of Elementary and Secondary Education . . . . . http://www.dese.mo.gov/divcareered/guide_crisis_counseling.htm
Offers suicide prevention training to school personnel.

National Youth Violence Prevention Resource Center. . . www.safeyouth.org/scripts/topics/suicide.asp

Yellow Ribbon Suicide Prevention Program . . . . . www.yellowribbon.org

National Center for Injury Prevention and Control . . . . . www.cdc.gov/ncipc

Youth Suicide Prevention Programs: A Resource Guide . . www.cdc.gov/ncipc/pub-res/youthsui.htm

Suicide Prevention Resource Center. . . . . www.sprc.org

Suicide Prevention Advocacy Network . . . . . www.spanusa.org

American Association of Suicidology . . . . . www.suicidology.org

National Suicide Prevention Lifeline: 1-800-SUICIDE (784-2433)

Missouri Department of Mental Health, Access Crisis Intervention (ACI) Hotlines . . . . . www.dmh.mo.gov/cps/ACImap.htm

Life Crisis Services (St. Louis area): 314-647-HELP (4357)

Mid-Missouri Crisis Line: 1-888-761-HELP (4357)

"Suicide has stolen lives around the world and across the centuries. Meanings attributed to suicide and notions of what to do about it have varied with time and place, but suicide has continued to exact a relentless toll. Only recently have the knowledge and tools become available to approach suicide as a preventable problem with realistic opportunities to save many lives."

-National Strategy for Suicide Prevention

The Practical Application of Child Death Review: Prevention of Child Fatalities

The death of a child is a sentinel event that captures the attention of the public and creates a sense of urgency that deserves a well-planned and coordinated prevention response. Generally, successful prevention initiatives are realistic in scope and approach, clear and simple in their message, and based on evidence that they work!

Local and regional teams are remarkably dedicated and enthusiastic in initiating timely prevention activities that serve to raise awareness, educate parents and caretakers, influence public policy and involve the community in prevention initiatives. In Missouri, local CDR team members organized a coalition focused on child fatality prevention after two residential fires killed three children in less than a month. The coalition collaborated with two area fire departments to canvass the neighborhoods where the deaths occurred, installed smoke detectors and batteries where they were needed and raised public awareness through the media. A decade later, the Annual Neighborhood Fire Prevention Awareness Day continues in multiple locations throughout the region.

At the state and national level, the sum of collected data is used to identify trends and patterns that require systemic solutions. Researchers in St. Louis utilized Missouri CDR data to gain new insights into sudden, unexpected infant deaths and concluded that certain unsafe sleep arrangements occurred in the large majority of cases of sudden infant deaths diagnosed as SIDS, unintentional suffocation and cause undetermined. Research had demonstrated what CDR team members had suspected: Infant deaths caused by unsafe sleep conditions were preventable. In Missouri, Iowa, Wisconsin, Minnesota and other states, safe sleep campaigns, developed and implemented by a variety of public and private entities, include parent education and provide a safe crib to families in need. The Consumer Product Safety Commission and the American Academy of Pediatrics revised their safe sleep recommendations to reflect this new information.

Basic principles

It is widely accepted among professionals in the field of injury prevention that the public health tools and methods used effectively against infectious and other diseases and occupational hazards, can also be applied to injury prevention. As a result, attention is given to the environment and to products used by the public, as well as individual behavior. An epidemiologic approach to child fatalities and near-fatalities offers tools that can effectively organize prevention interventions and draws on expertise in surveillance, data analysis, research, public education and intervention. There are four steps that are interrelated:

- ***An ongoing surveillance of child fatalities provides comparable data, documentation and monitoring over time. (What's the problem?)*** Current efforts to create a standardized case report tool and data system on the national level are keys to improving and protecting the lives of all children and adolescents. Even a small subset of uniform data would give us the opportunity to identify valuable national trends and patterns. The National Maternal Child Health Center for Child Death Review provides technical assistance and training, support resources and tools to states with the goal of expanding reviews to all preventable deaths, and using the information from CDR to improve and protect the lives of children.

- ***Risk factor research identifies or confirms what is known about risk and protective factors that may have relevance for public policies and prevention programs. (What's the cause?)*** In Western New York, a hospital-based program was developed to educate all new parents about the dangers of shaking an infant. This initiative has effectively reduced the incidence of Shaken Baby Syndrome in that region every year since it was implemented. This program has been replicated throughout the country and proven equally successful. Several states have passed legislation requiring this program in all hospitals. Other states have included SBS education as part of the licensing process for child care providers. In this way, prevention of Shaken Baby Syndrome is being integrated in state and community systems that provide services and support to children and families.

- ***Identification of evidence-based strategies that have proven effective or have high potential to be effective. (What works?)*** Assessing effectiveness of a prevention strategy as it is implemented is difficult, because of limited resources and limited reliability of existing assessment tools. However, resources are available to assist in evaluating various strategies during the early stages of planning. The benefits in terms of funding and long-term cost are obvious. The safe sleep and SBS initiative described above were based on research. University-based research groups, such as Harborview Injury Prevention and Research Center and the Childhood Injury Research Group at the University of Missouri provide evaluations of various injury prevention strategies. National organizations and governmental agencies, such as the National Safe Kids campaign and the National Center for Injury Prevention at CDC and the American Academy of Pediatrics provide research and prevention information.

- ***Implementation of strategies where they currently do not exist. (How do you do it?)*** Outcomes for prevention initiatives are generally functions of structure and duration. Short-term, emergency and educational programs are effective in the short-term; unfortunately, such programs are usually based on the effort and enthusiasm of a few individuals and a limited funding source. Prevention initiatives that are integrated into community and state systems are sustainable and effective in the long term. Examples include state laws that require proper restraint for child passengers in motor vehicles and helmets for children riding bicycles. In many areas, schools include safety education for children and health care providers, who are in a unique position to assist in the prevention of child maltreatment, actively promote health and safety for children. Many state and local entities responsible for licensing child care providers are mandating education on safe sleep for infants and toddlers and prevention of child abuse, including Shaken Baby Syndrome, as part of their curricula.

Resources:

American Academy of Pediatrics . . . . . www.aap.org

Children's Safety Network . . . . . www.childrenssafetynetwork.org

Consumer Product Safety Commission . . . . . www.cpsc.gov

Harborview Injury Prevention and Research Center . . . . . http://depts.washington.edu/hiprc

Missouri Child Fatality Review Program . . . . . http://dss.missouri.gov/stat/mcfrp.htm

Missouri Child Death Pathologists' Network . . . . . http://dss.missouri.gov/stat/cpn.htm

Missouri Children's Trust Fund www.ctf4kids.org

Missouri Prevention. . . . . www.missouriprevention.org

National Center for Injury Prevention and Control . . . . . www.cdc.gov/ncipc

National Center on Shaken Baby Syndrome . . . . . www.dontshake.com

National MCH Center for Child Death Review . . . . . www.childdeathreview.org

National Safe Kids Campaign . . . . . www.safekids.org

Prevention Findings: The Final Report

"Injury is a problem that can be diminished considerably if adequate attention and support are directed to it. Exciting opportunities to understand and prevent injuries and to reduce their effects are at hand. The alternative is the continued loss of health and life to predictable, preventable and modifiable injuries."

-Dr. William Foege, Former Director of the Centers for Disease Control and Prevention

The difference between a fatal and nonfatal event is often only a few feet, a few inches, or a few seconds. In the past, most people believed that serious and fatal injuries were random or unavoidable events, or simply the result of individual carelessness. Fortunately, the science of injury prevention has moved away for this fatalistic approach to one that focuses on the environment and products used by the public, as well as individual behavior. As a result, unintentional injury-related death rates among children in the United States have declined dramatically over the last two decades. Injuries are now widely recognized as understandable, predictable and preventable.

A *preventable child death* is defined as one in which awareness or education by an individual or the community may have changed the circumstances that lead to the death. Prior to August 2000, CFRP panels were asked to report their conclusions and prevention responses for each death reviewed on the Data Form 2. Legislation passed in 2000, now requires that the panel complete a Final Report, summarizing their findings in terms of circumstances, prevention messages, and community-based prevention initiatives.

The death of a child is a sentinel event that captures the attention of the community, creates a sense of urgency and a window of opportunity to respond to the questions, "What can we do?" County-based prevention activities serve to raise awareness, educate parents and caretakers, influence public policy and involve the community in prevention initiatives that protect and improve the lives of children. In 2007, CFRP panels throughout our state reported their findings and prevention responses utilizing the Final Report. The initiatives highlighted below demonstrate how a few volunteer professionals have been able to measurably reduce or eliminate threats to the lives and well being of countless Missouri children.

Legislation, Law or Ordinance:

A 16-year-old was a passenger in a vehicle whose 17-year-old driver was drag racing with another vehicle. He was not wearing a seat belt. The driver lost control of the vehicle and the passenger was ejected. He suffered massive head and chest injuries. The driver fled the scene. The panel recommended increased patrols in the area, which was known for drag racing, and requested that "red-light" cameras be installed.

Community Safe Project:

A six-week-old infant was sleeping in a full-size bed with his mother and two siblings, ages 5 and 3. The mother was awakened by the five-year-old telling the 3-year-old to get off the baby. The infant had suffocated. There was no crib or bassinet in the household for the infant. The panel recommended that the county health department request funding and information from the Children's Trust Fund to implement a safe crib/safe sleep program in their county.

Four children and two adults died in a house fire that apparently resulted from faulty wiring. There were no working smoke detectors in the house. The panel worked with the local fire department to carry out a neighborhood fire prevention awareness day the next October. Firefighters and volunteers went door to door, installing smoke detectors and providing fire safety information.

Public Forums:

A 9-year-old boy discovered a handgun and began playing with it. The gun went off, striking the 7-year-old. She died of her injuries on the way to the hospital. The panel recommended that their county consider acquiring an enhanced "911" system. Although it may not have prevented this child's death, they agreed that it could reduce fatalities from all types of injuries and illness.

Educational Activities in Schools:

A 16-year-old was watching television and playing video games with friends. One of the friends discovered a handgun in a drawer and began playing with it. He began pulling the trigger, believing it to be unloaded. The gun went off and struck the 16-year-old in the head. He was dead at the scene. The local panel worked with high school officials to implement a gun safety and safe storage program that involved parents as well as students.

A 13-year-old was driving an ATV on a gravel road when he lost control and ran off the roadway, striking a tree. He suffered massive head injuries. He was not wearing a helmet. The panel worked with officials from the local middle and high schools to arrange a presentation on ATV safety and the importance of helmets.

Educational Activities in the Media:

A four-month-old infant was left in a parked vehicle and died of hyperthermia. The father forgot that he was to take the infant to daycare and left the infant in the vehicle on the parking lot. The baby was observed later in the morning; the police and EMS were summoned, but it was too late. The panel worked with a local media on a series of features reminding parents about the dangers to children left alone in and around vehicles.

A week-old infant was sleeping between her parents in a full-size bed. She was found unresponsive in the morning with her face against a blanket. Panel members with expertise in safe sleep for infants contacted local newspapers and television stations and provided information for a public education campaign about safe sleep for infants and the dangers of bed sharing. They worked with Children's Trust Fund to provide safe sleep materials to pediatricians and health clinics.

Consumer Product Safety:

A three-month-old infant was placed on his stomach in a crib with bumper pads. He scooted to the corner of the crib with his face against the plastic bumper. This created an environment in which

he was re-breathing his own exhaled air, causing him to suffocate. The problem of dangers posed by crib bumpers was reported to the Consumer Product Safety Commission by the medical examiner.

News Services:

A 15-year-old boy died when he overdosed on prescription medications. He had a history of abuse of prescription medications, which he had purchased from the internet and from friends at school. The prosecuting attorney issued a press release, cautioning parents to be alert to the growing problem of abuse of prescription medications and warning teens that, contrary to popular opinion, prescription drugs can be just as deadly as street drugs.

Changes in Agency Practice:

A 17-year-old was known by school officials to be dealing prescription drugs. He was referred to juvenile authorities, but before a hearing could be scheduled, he shot himself in the head. The panel recommended that the school district review their policies concerning drug problems and related behavior problems in the schools, provide additional education to staff and teachers, and provide early intervention.

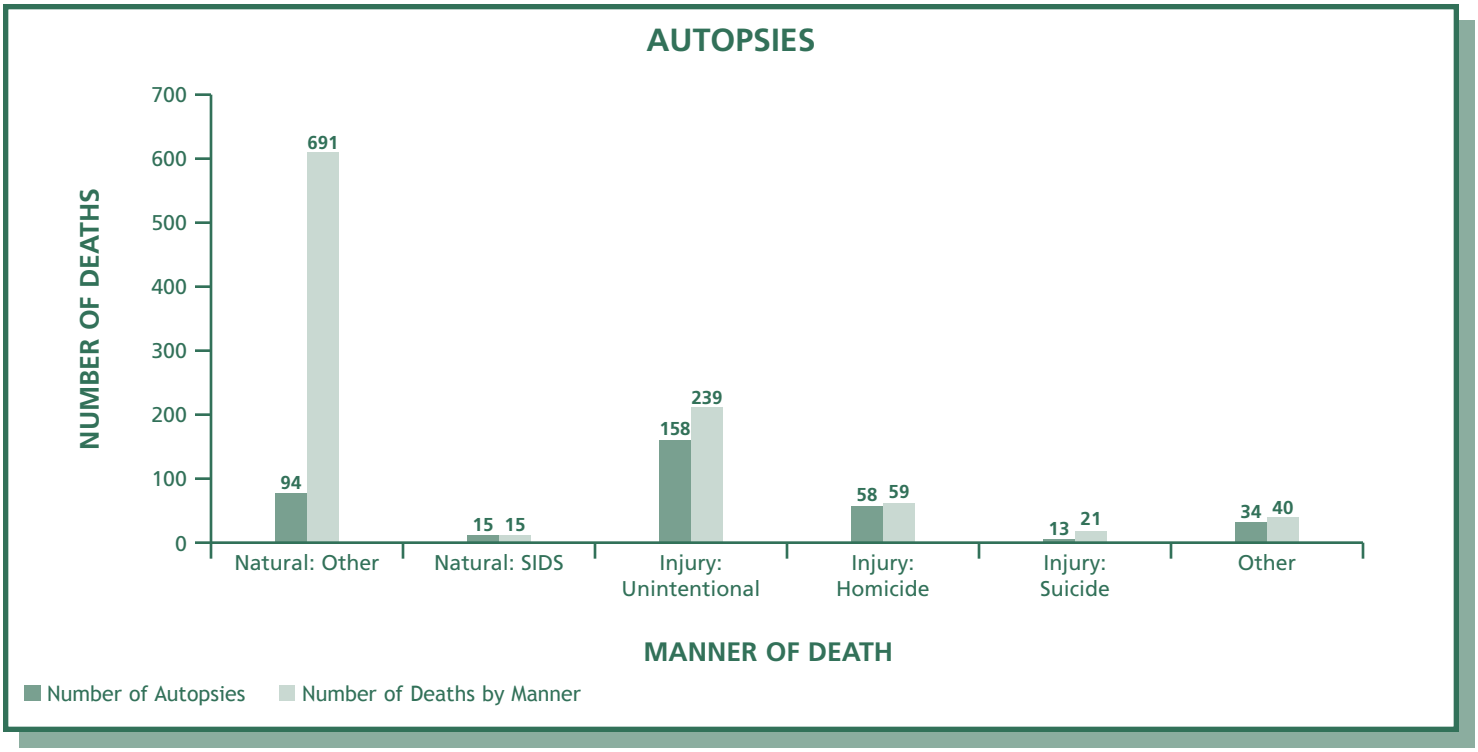
"Alone we can do so little;
together we can do so much."
-Helen Keller

Appendices

Appendix 1. Autopsies

The autopsy is a critical component in accurately determining the cause of death, especially in the case of sudden infant deaths. RSMo 194.117 requires that an autopsy be performed for all children from one week to one year of age, who die in a sudden, unexplained manner.

Missouri's Certified Child-Death Pathologist Network ensures autopsies performed on children, birth through age 17, are performed by professionals with expertise in forensic pediatrics. Additionally, network members are available to consult with coroners and others investigating child deaths. A listing of network members can be obtained through STAT or on the internet at www.dss.mo.gov/stat/cpn.htm.



Appendix 2. Mandated Activities for Child Fatalities

Every county must have a multidisciplinary child fatality review panel (114 counties and City of St. Louis).

The county panel must consist of at least the following seven core members: prosecuting attorney, coroner/medical examiner, law enforcement representative, Children's Division representative, public health representative, juvenile officer and emergency services representative. Panels may elect to have additional members.

All deaths, ages birth to 17, must be reported to the coroner/medical examiner.

Children, age one week to one year, who die in a *sudden, unexplained* manner must have an autopsy.

The State CFRP panel must meet at least twice per year to review the program's progress and identify systemic needs and problems.

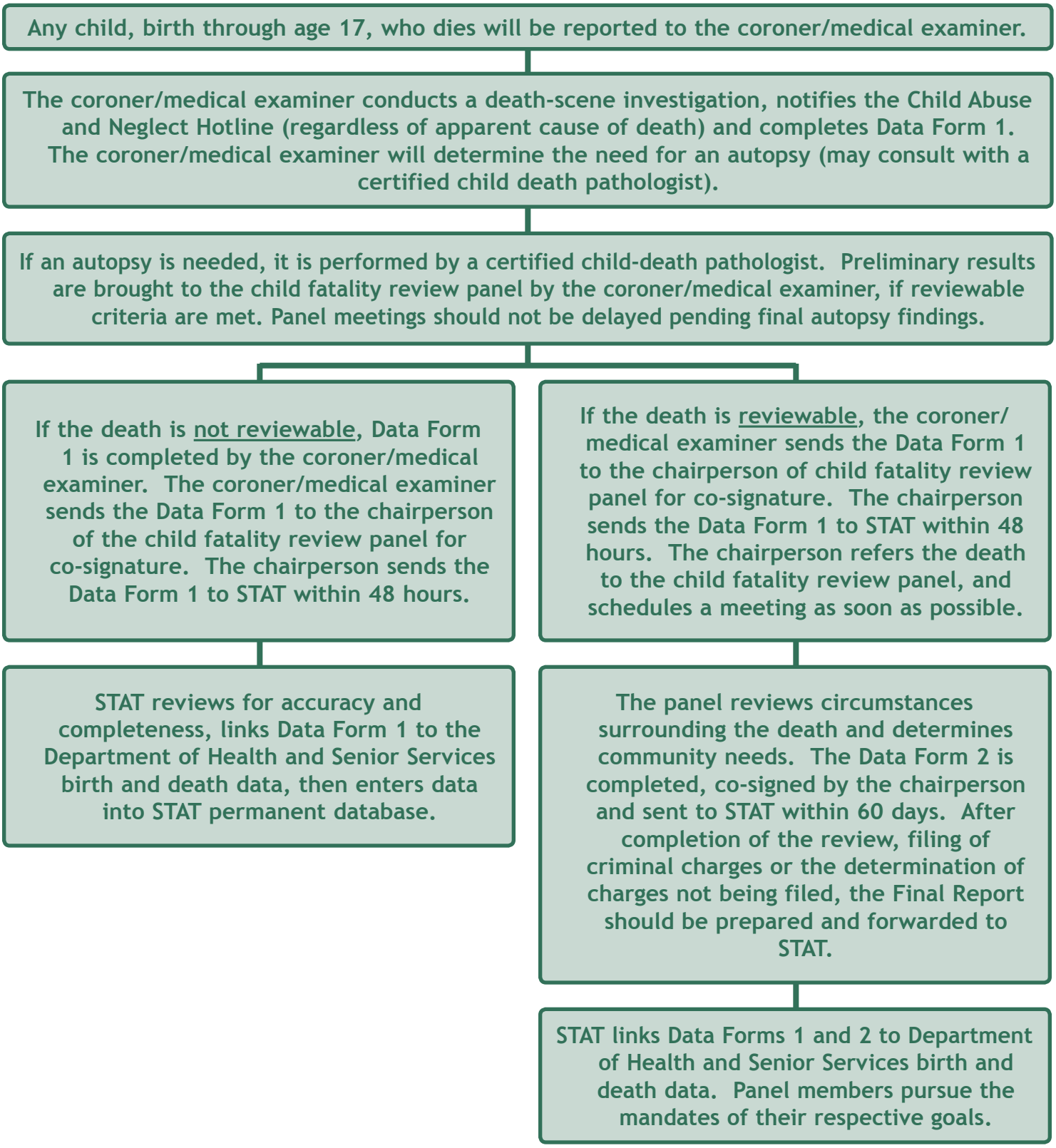
Panels must use uniform protocols and data collection forms.

Certified child-death pathologists must perform the autopsies.

Knowingly violating reporting requirements is a Class A misdemeanor.

When a child's death meets the criteria for review, activation of the panel must occur within 24 hours of the child's death, with a meeting scheduled as soon as practical.

Appendix 3. Process for Child Fatality Reviews



NOTE: Major metropolitan area CFRP panels are supported by Metro Case Coordinators, who coordinate exchange of information between panel members who meet on regularly scheduled monthly meetings, so those panels do not need to follow the above-listed time constraints.

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 2005-2007

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Adair	1	1	3	0	0	0	0	0	0
Andrew	2	4	2	0	4	2	0	4	2
Atchison	0	0	0	0	0	0	0	0	0
Audrain	6	2	1	3	1	1	2	1	1
Barry	11	8	6	9	6	5	8	6	5
Barton	1	1	1	1	1	1	1	1	1
Bates	3	3	4	2	3	4	2	2	3
Benton	1	2	2	1	2	2	1	2	2
Bollinger	5	0	1	4	0	1	4	0	1
Boone	37	42	45	9	10	6	7	10	4
Buchanan	14	10	13	7	3	8	6	2	6
Butler	19	14	10	13	9	6	11	6	4
Caldwell	0	0	0	0	0	0	0	0	0
Callaway	11	9	5	6	7	5	2	5	3
Camden	6	8	2	3	5	2	3	4	2
Cape Girardeau	9	6	7	1	2	4	0	1	3
Carroll	2	0	0	0	0	0	1	0	0
Carter	0	0	1	0	0	1	0	0	1
Cass	14	6	6	9	3	5	5	2	3
Cedar	3	5	4	3	1	3	1	3	3
Chariton	2	2	0	2	1	0	0	0	0
Christian	11	5	7	6	2	7	6	2	3
Clark	0	0	0	0	0	0	0	0	0
Clay	22	26	23	10	8	12	6	3	8
Clinton	2	3	1	2	2	1	1	1	1
Cole	7	12	9	2	4	5	2	3	5
Cooper	0	3	0	0	3	0	0	3	0
Crawford	4	0	1	0	0	0	1	0	0
Dade	1	1	2	1	1	2	1	1	2
Dallas	1	3	3	0	3	2	0	1	0
Davies	2	1	2	1	1	0	1	1	0
DeKalb	2	3	1	0	3	1	1	3	1
Dent	2	1	2	0	0	2	2	1	1
Douglas	4	5	3	1	4	2	3	4	3
Dunklin	7	6	2	0	4	2	1	1	1
Franklin	13	12	16	6	8	11	5	5	8
Gasconade	1	3	2	1	2	2	1	2	2
Gentry	0	0	0	0	0	0	0	0	0
Greene	26	55	42	12	17	11	10	14	9
Grundy	4	2	1	2	1	0	3	1	0
Harrison	0	0	2	0	0	2	0	0	1
Henry	4	4	6	3	4	5	2	2	4

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 2005-2007

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Hickory	1	1	0	0	1	0	0	1	0
Holt	0	0	1	0	0	1	0	0	1
Howard	0	1	2	0	0	2	0	1	2
Howell	7	8	8	3	4	5	2	2	4
Iron	1	2	3	1	1	2	0	0	1
Jackson	145	160	171	60	74	63	27	33	37
Jasper	13	15	13	5	12	11	4	6	6
Jefferson	25	25	19	13	9	18	10	10	16
Johnson	9	7	6	6	5	5	4	2	4
Knox	0	0	0	0	0	0	0	0	0
Laclede	14	2	9	3	1	5	3	1	5
Lafayette	3	3	2	1	3	2	2	2	2
Lawrence	5	2	4	1	0	3	3	0	0
Lewis	5	2	2	0	2	2	1	1	1
Lincoln	0	6	9	3	4	9	0	3	8
Linn	1	0	1	1	0	1	0	0	1
Livingston	2	4	1	1	1	1	1	1	1
McDonald	6	4	4	4	2	4	3	0	4
Macon	1	0	1	0	0	1	0	0	1
Madison	0	0	1	0	0	1	0	0	1
Maries	1	0	1	0	0	1	0	0	1
Marion	0	2	8	0	0	2	0	0	2
Mercer	0	1	0	0	1	0	0	1	0
Miller	1	4	5	0	2	4	0	4	5
Mississippi	1	1	0	0	1	0	0	0	0
Moniteau	0	0	1	0	0	1	0	0	1
Monroe	0	1	3	0	0	3	0	1	2
Montgomery	2	1	2	2	1	2	1	1	1
Morgan	1	5	1	0	0	1	0	3	1
New Madrid	3	3	4	0	1	4	0	2	3
Newton	23	3	17	10	3	8	8	2	7
Nodaway	3	2	4	1	2	2	1	1	1
Oregon	2	0	4	2	0	2	2	0	3
Osage	2	1	0	1	1	0	1	1	0
Ozark	2	1	0	1	1	0	1	1	0
Pemiscot	3	10	6	1	9	5	0	6	4
Perry	3	3	0	3	3	0	1	3	0
Pettis	10	3	2	1	2	1	1	1	2
Phelps	5	8	2	3	4	0	2	2	1
Pike	8	4	4	5	1	4	7	1	3
Platte	7	7	3	1	1	0	1	1	0

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 2005-2007

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Polk	5	0	0	2	0	0	1	0	0
Pulaski	8	6	8	3	2	5	3	2	3
Putnam	0	1	0	0	0	0	0	0	0
Ralls	1	3	2	1	1	2	1	1	2
Randolph	1	4	3	0	2	1	0	2	1
Ray	4	2	2	3	0	0	2	1	0
Reynolds	2	4	2	2	4	1	1	2	1
Ripley	3	5	2	2	2	2	1	0	2
St. Charles	39	33	24	17	11	14	12	9	10
St. Clair	0	0	1	0	0	1	0	0	1
St. Francois	13	3	13	8	3	6	3	2	2
St. Louis County	174	168	191	55	50	54	33	36	30
Ste. Genevieve	2	1	4	2	1	2	1	1	1
Saline	5	5	2	1	0	2	1	0	1
Schuyler	1	0	0	0	0	0	0	0	0
Scotland	1	1	1	0	0	1	0	0	1
Scott	8	7	4	5	5	2	2	4	2
Shannon	1	3	1	1	3	1	1	3	1
Shelby	0	4	1	0	3	0	0	3	0
Stoddard	8	5	0	6	2	0	7	3	0
Stone	0	3	1	0	0	0	0	0	1
Sullivan	0	3	3	0	2	1	0	1	2
Taney	4	6	4	3	2	4	3	2	1
Texas	3	5	4	1	4	2	1	3	2
Vernon	2	3	2	2	0	0	2	0	1
Warren	1	4	5	0	3	4	0	2	4
Washington	3	3	2	1	2	2	1	2	1
Wayne	2	1	2	1	0	2	1	0	1
Webster	12	8	3	9	2	0	7	1	0
Worth	0	0	0	0	0	0	0	0	0
Wright	5	1	0	1	0	0	4	0	0
St. Louis City	107	139	216	46	46	58	27	32	39
STATE TOTAL	**990**	**1001**	**1065**	**425**	**427**	**466**	**301**	**303**	**335**

Appendix 5. Missouri Incident Child Fatalities (Age less than 18) by Age, Sex and Race 2005-2007

Age	All Deaths			Reviewed Deaths			Injury Deaths		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
0	601	617	673	156	162	184	62	61	87
1	29	39	48	18	22	27	9	17	14
2	24	25	30	17	20	23	15	14	21
3	22	13	23	15	11	17	9	8	15
4	15	8	15	10	5	9	9	4	9
5	11	15	13	6	10	8	5	6	6
6	11	10	18	8	6	11	6	6	8
7	10	12	11	6	7	8	4	7	6
8	10	14	10	3	7	6	5	6	5
9	10	12	15	8	7	12	6	4	9
10	11	12	12	7	7	8	6	5	5
11	7	14	12	6	7	7	6	7	7
12	12	15	11	9	7	7	6	7	6
13	17	19	20	11	11	14	10	10	10
14	31	19	14	21	14	11	17	12	11
15	37	36	34	26	26	25	20	24	23
16	71	43	57	50	35	46	54	38	47
17	61	78	49	48	63	43	52	67	46
TOTAL	**990**	**1001**	**1065**	**425**	**427**	**466**	**301**	**303**	**335**

Sex	All Deaths			Reviewed Deaths			Injury Deaths		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Female	399	419	446	160	162	180	101	104	117
Male	591	582	619	265	265	286	200	199	218
TOTAL	**990**	**1001**	**1065**	**425**	**427**	**466**	**301**	**303**	**335**

Race	All Deaths			Reviewed Deaths			Injury Deaths		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
White	699	666	701	303	270	323	225	208	246
Black	275	310	323	116	152	129	72	93	78
Other	14	19	41	6	3	14	4	1	11
Unknown	2	6	0	0	2	0	0	1	0
TOTAL	**990**	**1001**	**1065**	**425**	**427**	**466**	**301**	**303**	**335**

Appendix 6. Definitions of Important Terms and Variables

Certified Death:

Death included in the Department of Health and Senior Services, Missouri Center for Health Statistics (MCHS) mortality file, **reported by the death certificate.**

Missouri Incident Death:

Death within Missouri of a child younger than 18 years. On the basis of data from the CFRP Data Form 1 or Data Form 2, one of the following is true:

- The child died as a result of an injury which occurred in Missouri.
- The child died as a result of a natural (non-injury) cause which occurred, or is assumed to have occurred, within Missouri. (This excludes deaths due to illness or other natural cause which occurred outside Missouri; e.g., a non-Missouri residence.)
- The child was born in Missouri and died as a newborn (within ten days of birth) without having left the state.

CFRP Cause of Death:

Cause of death as reported on CFRP Data Forms 1 and 2. The forms include a category for natural cause which includes congenital anomalies, perinatal conditions, and Sudden Infant Death Syndrome (SIDS), sudden unexplained death and injuries classified by the type of agent or force which caused the injury (i.e., vehicular, drowning, firearm, fall, poisoning). The CFRP provides for an indication of whether or not the injury was inflicted, that is, whether it occurred as a result of the action of another person, without regard to intent or purpose of the action. If the case is referred to the CFRP panel for review, Data Form 2 is completed to report the findings of the panel. The Data Form 2 report includes information relevant to possible child abuse and neglect and information related to criminal proceedings.

Mortality File Cause of Death:

The Department of Health and Senior Services Mortality File lists cause of death as reported by the ICD-10 code on Missouri death certificates. The ICD-10 coding classification system includes natural causes such as various diseases, congenital anomalies, perinatal conditions and certain ill-defined conditions (which includes SIDS). The injury classification includes those identified as “accidents” (unintentional), those considered intentional (homicide, suicide) and those with undetermined intent. Injury deaths are further classified by the type of agent or force which caused the injury (i.e., motor vehicle crash, firearm, poisoning, burn, fall, drowning).

Mortality File Manner of Death:

Cause of death reported in the mortality file was formatted to conform to “Manner of Death” variable in death certificate. This includes six categories based on the ICD-10 code: Natural; Accident; Suicide; Homicide; Undetermined; and Pending Investigation.

Appendix 6. Definitions of Important Terms and Variables

Sudden Infant Death Syndrome (SIDS):

Sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of death scene and review of clinical and social history.

- Morality File SIDS: Death by SIDS, as defined operationally by being reported in the mortality file associated with the ICD-10 code 7980.
- CFRP SIDS: Death by SIDS, as defined operationally by being reported in the CFRP file, from Data Form 1 and Data Form 2, as due to SIDS.

Sudden, Unexplained Infant Death:

Sudden death of an infant less than one year of age due to unexplained cause, requiring the postmortem examination, scene investigation or review of social and medical history. Defined operationally by being reported as sudden, unexplained death on Data Form 1.

Reviewable Death:

Death which has been reported by Data Form 1 as requiring review by the CFRP panel, whether or not the review has yet been completed and reported. The Data Form 1 report is required for all child deaths that occur in Missouri, and includes an indication of whether a review of that death will be required. If Data Form 1 indicates a reviewable death, Data Form 2 should be completed after the review.

Reviewed Death:

Death that has been reviewed by a local CFRP panel and reported on Data Form 2.

Mortality File County of Death:

The county, reported in the mortality file, in which the death was officially recorded. May be a Missouri or non-Missouri county.

CFRP County of Death:

The county, reported by the Data Form 1 and Data Form 2, in which the death occurred. Only deaths in Missouri are included in the CFRP database.

CFRP County of Incident:

The county, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred. If the county of incident is a Missouri county, the death is by definition a Missouri incident death. If the county of the incident is outside the state of Missouri, the death is by definition not a Missouri incident death. If the county is in Missouri, but the county of incident is not, only identifying information (Section A of Data Form 1) is requested.

Appendix 6. Definitions of Important Terms and Variables

CFRP County of Residence:

The county, reported by Data Form 1 and Data Form 2, as the county of decedent's residence may be a Missouri or non-Missouri county. If the child is a newborn, the newborn's county of residence is the mother's county of residence.

CFRP Region:

Location, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred, formatted to conform to the seven geographic regions defined for the CFRP program.

Children's Division Child Abuse/Neglect (CA/N):

Death for which the Children's Division reports preponderance of evidence finding for child abuse or neglect. Preponderance of evidence may result from Children's Division investigation or court adjudication. Abuse refers to physical, sexual or emotional maltreatment or injury inflicted on a child, other than accidentally, by those responsible for the child's care, custody and control. Neglect refers to failure by those responsible for the child's care, custody and control to provide the proper or necessary support, education, nutrition, medical care or other care necessary for the child's well-being.

CFRP Fatal Child Abuse and Neglect:

Child death resulting directly from inflicted physical injury and/or negligent treatment by parent or caretaker, regardless of motive or intent.

Mortality File Child Abuse/Neglect:

Death for which the ICD-10 code in the mortality file indicates abuse or neglect. These abuse/neglect deaths are usually under-reported relative to those by the Children's Division as substantiated child abuse or neglect.

Mortality File Homicide Death:

Manner of death due to homicide, as reported by ICD-10 codes X85-Y09.

Mortality File Suicide Death:

Manner of death due to suicide, as reported by ICD-10 codes X60-X84.

Mortality File Autopsy:

Indication from mortality file that decedent was autopsied.

CFRP Autopsy:

Indication from CFRP file that decedent was autopsied and how the autopsy was paid for.

Appendix 7. Death Certificate Manner of Death

(Summarized from: *A Guide for Manner of Death Classification,* draft presented to the National Association of Medical Examiners, September 24, 2001, prepared by Randy Hanzlick, M.D., John Hunsaker III, M.D., and Gregory J. Davis, M.D.)

All states have a standard death certificate that is based upon a model certificate called the US Standard Certificate of Death. The *certifier of death* is the physician, medical examiner or coroner who completes the cause of death section of the certificate that also includes details about the circumstances surrounding the death. Manner of death is one of the items that must be reported on the death certificate and a classification of death based on the circumstances surrounding a particular cause of death and how that cause came into play. In most states, the acceptable options for manner of death classification are: Natural, Accident, Suicide, Homicide and Undetermined.

The death certificate is used for two major purposes. One is to serve as legal documentation that a specific individual has died. In general, the death certificate serves as legal proof that the death has occurred, but **not** as legal proof of the cause of death. The second major purpose of the death certificate is to provide information for mortality statistics that may be used to assess the nation's health, cause of morbidity and mortality and developing priorities for funding and programs that involve public health and safety issues.

Manner of death is an American invention. A place to classify manner of death was added to the US Standard Certificate of Death in 1910. It was added to the death certificate by public health officials to assist in clarifying the circumstances of death and how an injury was sustained - not as a legally binding opinion. In general, the certifier of death completes the cause of death section and attest that, *to the best of the certifier's knowledge,* the person stated died of the cause(s) and circumstances reported on the death certificate. Information on the death certificate may be changed, if needed.

There are basic, general "rules of thumb" for classifying manner of death.

- Natural deaths are due solely or nearly totally to disease and/or the aging process.
- Accident applies when an injury or poisoning occurred without intent to harm or cause death. In essence, the fatal outcome was unintentional.
- Suicide results from an injury or poisoning as a result of an intentional, self-inflicted act committed to do self-harm or cause the death of one's self.
- Homicide occurs when death results from a volitional act committed by another person to cause fear, harm or death. Intent to kill is a common element but is **not** required for classification as homicide.
- Undetermined is used when the information pointing to one manner of death is no more compelling than one or more other competing manners of death when all available information is considered.

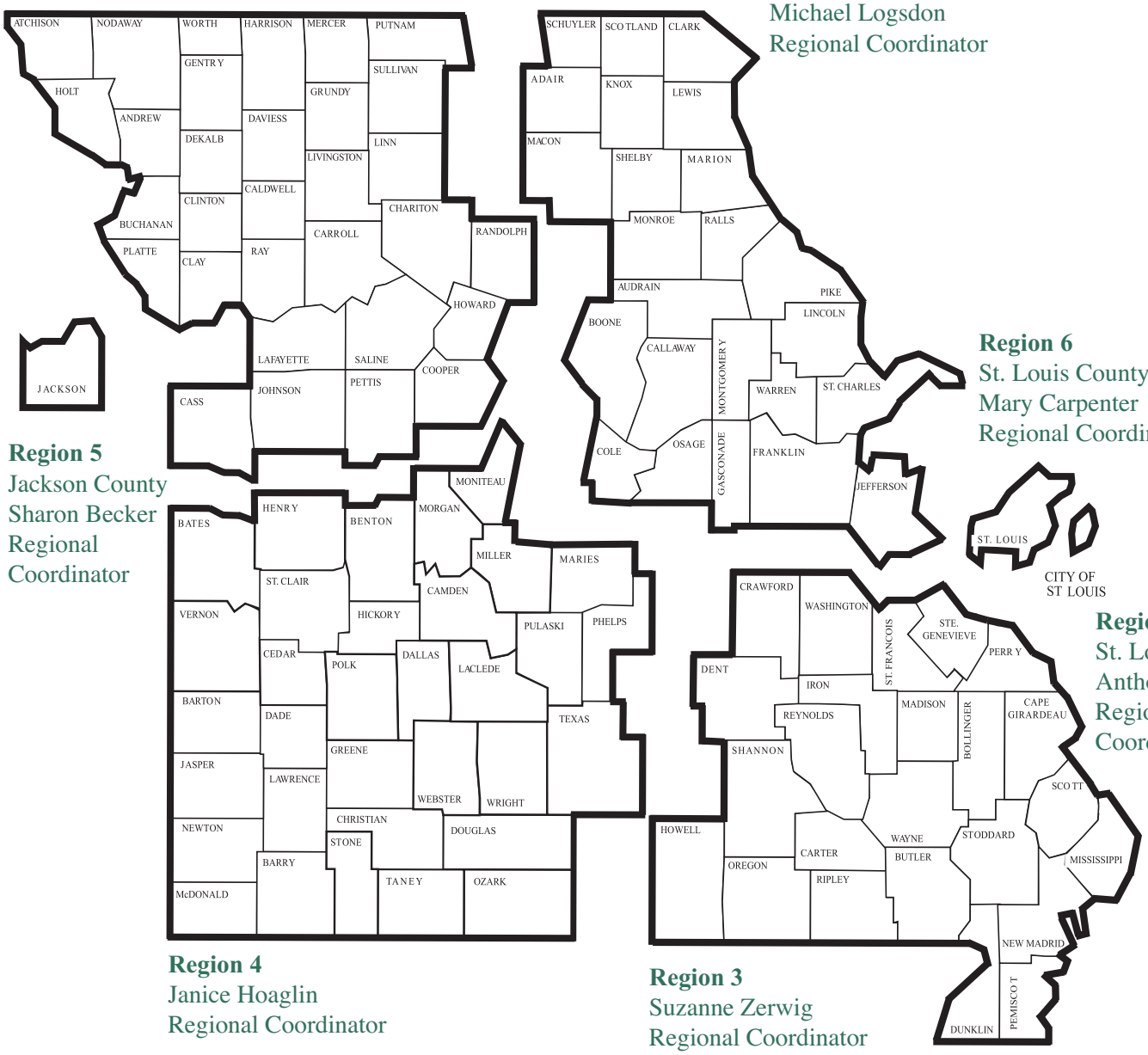
In evaluating the manner of death in cases involving external causes or factors (such as injury or poisoning), injuries are often categorized as "intentional" (such as inflicted injury in child abuse) or "unintentional" (such as falling from a building). Intent is much more apparent in some cases than others and it is often difficult to assess a victim's or perpetrator's intent. The concept of "voluntary acts" or volition is helpful. In general, if a person's death results at the "hands of another" who committed a harmful volitional act directed at the victim, the death may be considered a homicide from the death investigation standpoint.

State Technical Assistance Team
Child Fatality Review Program

PO Box 208
Jefferson City MO 65102-0208
(573) 751-5980
800-487-1626

Region 1
Wendy Austin
Regional Coordinator

Region 2
Michael Logsdon
Regional Coordinator



Region 5
Jackson County
Sharon Becker
Regional
Coordinator

Region 6
St. Louis County
Mary Carpenter
Regional Coordinator

Region 7
St. Louis City
Anthony Harper
Regional
Coordinator

Region 4
Janice Hoaglin
Regional Coordinator

Region 3
Suzanne Zerwig
Regional Coordinator