



Preventing Child Deaths in Missouri

**The Missouri Child Fatality
Review Program**

Annual Report for 2009

This Report is Proudly Presented by the State Technical Assistance Team

Rodney W. Jones, STAT Chief
Maurine Hill, STAT Administrator

Cheryl Morgan, Child Fatality Review Program Specialist
Theresa Murrell, Child Fatality Review Program Data Specialist
Laura Schnoebelen, Kansas City Metro Case Coordinator
Brenda Record, Secretary
Heather Clemens, Prevention Specialist
Suzanne McCune, Child Fatality Review Program Consultant

Emerson "Skip" McGuire, Investigations Manager
Brian Bailey, Investigations Manager
Larry Bowling, Investigator
Tommy Capps, Investigator
Michael Gray, Investigator
Marion McMillan, Investigator
Stacy Minze, Investigator
Matthew Oller, Investigator
John Pehle, Investigator
Susan Stoltz, Investigator
Kathy Wyrick, Investigator

Douglas Beal, M.D., STAT Medical Consultant
Gus Kolilis, STAT Consultant

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





Jeremiah W. (Jay) Nixon, Governor
State of Missouri

Ronald J. Levy, Director
Missouri Department of Social Services



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Preventing Child Deaths in Missouri

The Missouri Child Fatality Review Program

Annual Report for 2009



Missouri Department of Social Services
State Technical Assistance Team
PO Box 208
Jefferson City, Missouri 65102-0208
(800) 487-1626
(573) 751-5980
<http://www.dss.mo.gov/stat/mcfrp.htm>

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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 multidisciplinary profession is represented by a recognized leader in the respective discipline.

Chairpersons

Wayne Munkel
Cardinal Glennon Hospital
(Retired)
St. Louis

Harold Bengsch
Greene County
Commissioner
Springfield

Prosecuting Attorneys

Teresa Hensley
Cass County Prosecutor
Harrisonville

Brian Keedy
Camden County Prosecutor
Camdenton

Jason Lamb
Missouri Office of
Prosecution Services
Jefferson City

Kathi Alizadeh
St. Louis County
Prosecutors Office
Clayton

Coroner

Dr. James Jungels
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Medical Examiner

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Law Enforcement

Sgt. Gary Guinn
St. Louis County Police
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Capt. Bill Carson
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Maryland Heights

Lt. Col. Richard Coffey
Missouri State Highway
Patrol
Jefferson City

Children's Division

Paula Neese
Jefferson City

Amy Martin
Jefferson City

Public Health Service

Doug Beal, M.D.
Forensic Pediatrician
Columbia

Patricia Schnitzer, Ph.D.,
RN
University of Missouri
Columbia

Karen Schenk, RN, BS
Department of Health and
Senior Services
Jefferson City

Juvenile Office

Jerry Conner
44th Judicial Circuit
Mountain Grove

Emergency Medical Services

Paula Adkison
Bureau of Emergency
Medical Services
Jefferson City

Optional Members

Kirk Schreiber
Missouri Children's Trust
Fund
Jefferson City

Steve Morrow
Office of Child Advocacy
Jefferson City

Dr. Keith Norton
Southwest Missouri
Forensics
Nixa

Joel Anderson
Missouri Division of Legal
Services
Jefferson City

Gus Kolilis
State Technical Assistance
Team
(Retired)
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 two decades 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 responding in ways that protect and improve their lives. Growing awareness, along with research in the late 1980's and early 1990's, showed that prevention or significant reductions of child abuse and neglect fatalities, as well as other serious and fatal injuries, could not be achieved without more complete information about how and why children are dying. It was widely acknowledged that many child abuse and neglect deaths were under-reported and/or misclassified. Scholars, professionals and other officials around the nation agreed that a system of comprehensive Child Death Review Teams could make a major difference.

In 1991, Missouri 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. While the program has evolved and adapted to meet new challenges, the objectives have remained the same. The program identifies potentially fatal risks to infants and children, and responds with multi-level prevention strategies.

In Missouri, fatality data is collected through standardized forms and entered into a database. What is learned can be readily used by the community where the death occurred. The sum of statewide data is used to identify trends and patterns requiring system solutions. The Missouri Child Fatality Review Program (CFRP) has succeeded in remaining effective, relevant and sustainable over the past 18 years. The success of the program is due in large part, to the support of panel members, administrators and other professionals who volunteer for this difficult work, because they understand its importance. This work is a true expression of advocacy for children and families in our state.

The 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 the average 1,100 child deaths annually in Missouri, 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, law enforcement agencies, 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: (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 is brought to a Missouri hospital, where he subsequently dies, would be considered 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.)

Missouri Incident Fatality refers to a fatal illness, injury or event, which occurs within the state of Missouri. (This is not necessarily the county of 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.

Multiple-Cause Deaths: Cause of death is a disease, abnormality, injury or poisoning that contributed directly or indirectly to the 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 crash. This death would be reported in the Motor Vehicle section; with a footnote indicating that the death certificate lists “drowning” as the immediate cause of death.)

- Every Missouri incident child fatality is required to be initially reviewed by the coroner/medical examiner and the chairperson for the county CFRP panel. The findings of this initial 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.
- 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 2009. Some of the cases reviewed may not have been brought before a county panel until the year 2010.
- In some cases, panels did not complete all of the information requested on the data form.

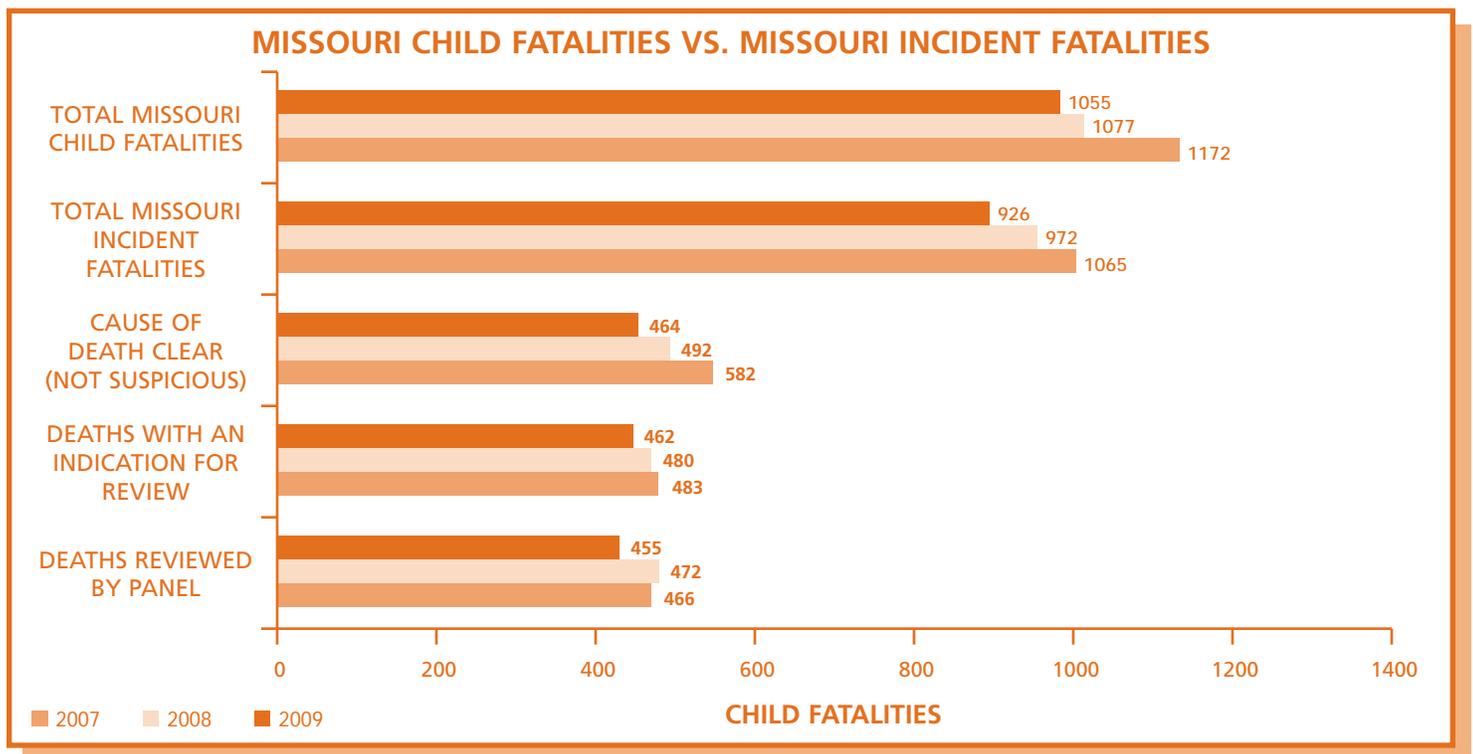
Summary of Findings

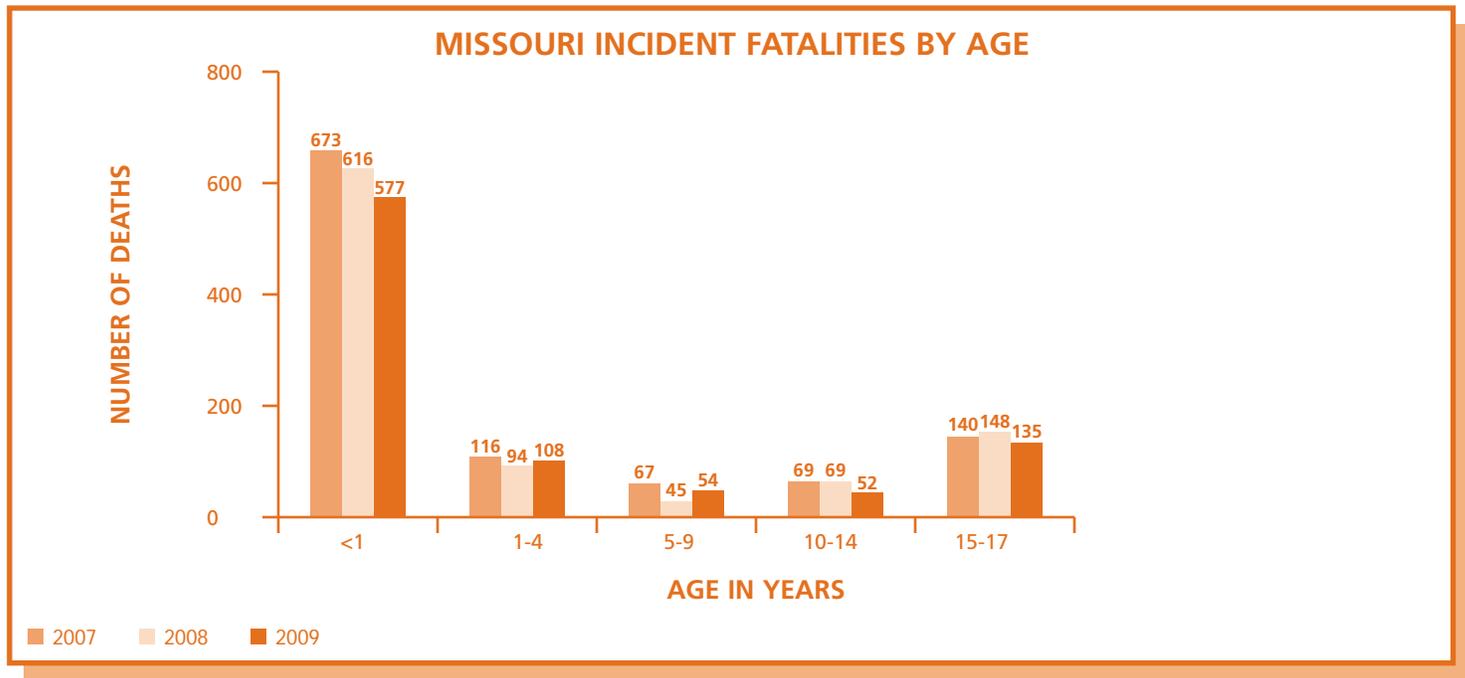
Missouri Incident Fatalities

In 2009, **1055** children age 17 and under died in Missouri. Of those deaths, **926** were determined to be “Missouri Incident Fatalities” and therefore, subject to review by the coroner or medical examiner and county CFRP chairperson.

Forty Missouri Incident Fatalities were not reported on either a Data Form 1 or Data Form 2, but were reported to the CFRP by death certificates from the Department of Health and Senior Service. From information provided by the death certificates, **seven** of those **40** fatalities (17%) had at least one indicator for review, including **four** motor vehicle fatalities, **one** poisoning, **one** delay in seeking medical care and **one** co-sleeping.

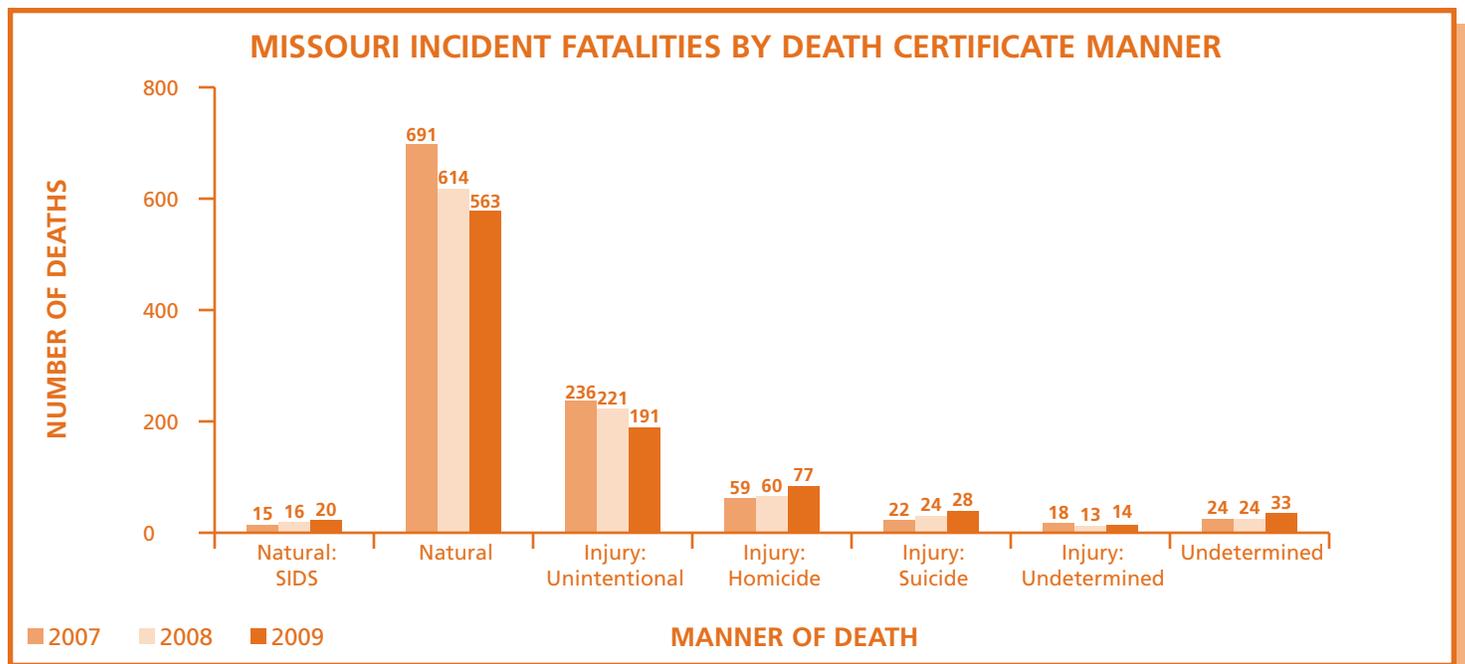
Of the **926** deaths subject to review, **464** (50%) were not suspicious and did not require detailed review. The remaining **462** (50%) had indicators for review by a county CFRP panel, and of those **455** (98%) were reviewed and a Data Form 2 completed. **Seven** did not receive required CFRP panel review, or panel findings were not submitted on Data Form 2. These **seven** fatalities are included in this 2009 CFRP Annual Report because the data, though incomplete, is useful and accurate within the limitations on the Data Form 1 information.

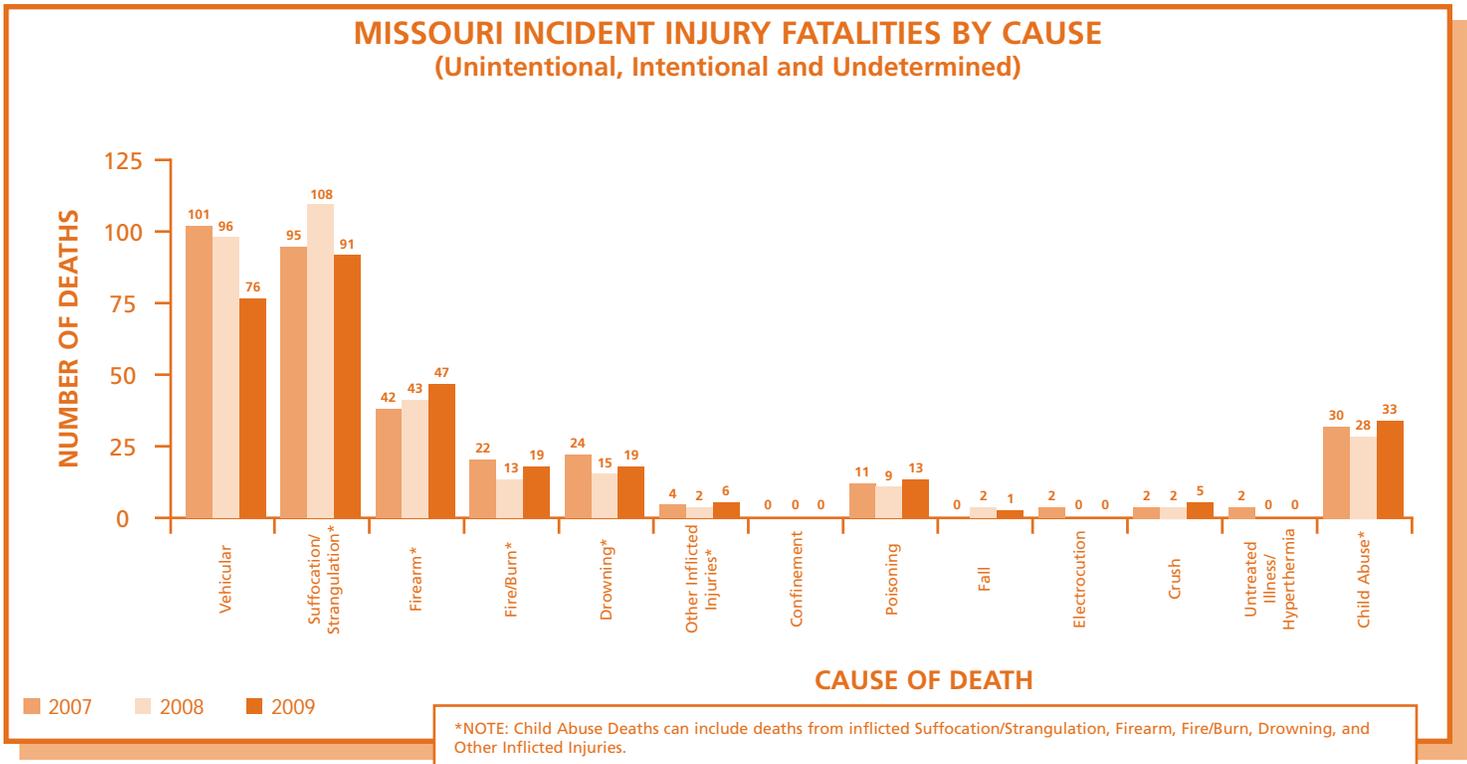




MISSOURI INCIDENT FATALITIES BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	446	405	384	WHITE	701	660	615
MALE	619	567	542	BLACK	323	278	268
				OTHER	41	34	43
	1065	972	926		1065	972	926





Manner and Cause of Death are different. *Manners of Death* on Missouri Death Certificates are defined as Natural, Accidental, Homicide, Suicide, Could Not Be Determined and Pending Investigation. For CFRP purposes, SIDS deaths are identified separately from other types of Natural deaths, as these deaths are of particular program interest; Accident, Suicide and Homicide are separated out into Injury: Intentional, Unintentional and Undetermined; Could Not Be Determined is changed to Undetermined; and Pending Investigation is excluded as what is gained from the review process will assist in determining the appropriate manner of death. The *Cause of Death*, on the other hand, is the actual mechanism by which the death occurred; i.e., firearm, vehicular, poisoning, suffocation, etc.

While Manner and Cause of Death are separate, it is the combination of the two that defines how the death occurred. For example, a child died from a firearm injury, but knowing if the injury was unintentional, intentional or undetermined will allow for a better understanding of how the child died. Most CFRP panel findings coincide with the Death Certificate Manner of Death, but there may be instances where they do not coincide. This can occur when other factors gleaned from the review process were not readily available at the time the death certificate was completed; i.e., the death certificate may indicate SIDS as the cause of death, but from panel concerns related to unsafe bedding and/or bedsharing, they might complete the data collection forms as the death being from Suffocation/Strangulation or even Undetermined. Panel findings may also result in getting the official manner of death amended.

Just as SIDS deaths are separated from natural cause, intentional injury deaths that are determined to be child abuse are also separated out from other intentional injury deaths. For example, if a child receives an intentional inflicted burn from a person who has care, custody and/or control of the child, the death would only be addressed in the Child Abuse section. In deaths where the panel felt that serious neglect may have contributed to, but did not cause the death, it will be only noted as *Fatal Child Neglect* in this section, but the death will still be counted in the appropriate manner and causal categories.

Natural Fatalities (Other than SIDS)

“In the United States--as in other industrialized countries--the infant mortality rate has declined dramatically during this century. Yet, despite the high quality and widespread availability of neonatal intensive care technology in this country, the infant mortality rate remains higher than that of many developed nations.”

Congressional Budget Office - *Factors Contributing to the Infant Mortality Ranking of the United States*

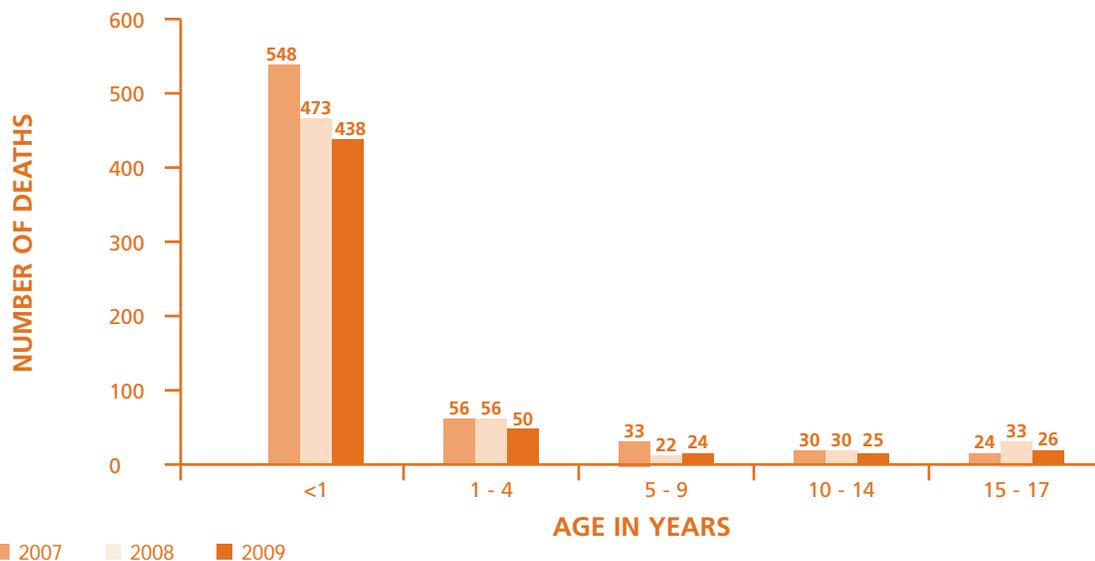
Natural fatalities, other than SIDS, were responsible for the deaths of 563 Missouri children in 2009, representing 61% of all Missouri incident fatalities.

Most child deaths are from natural causes. Natural deaths include illnesses, prematurity, congenital anomalies, cardiac conditions, cancer, infection and other conditions. The vast majorities of natural deaths occur before the first year of life and are often related to prematurity or birth defects. Although SIDS is considered a natural death of undetermined cause, Natural - SIDS deaths will be specifically addressed in a separate section.

NATURAL FATALITIES BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	317	273	257	WHITE	429	412	367
MALE	374	341	306	BLACK	232	180	163
				OTHER	30	22	33
	691	614	563		691	614	563

NATURAL FATALITIES BY AGE

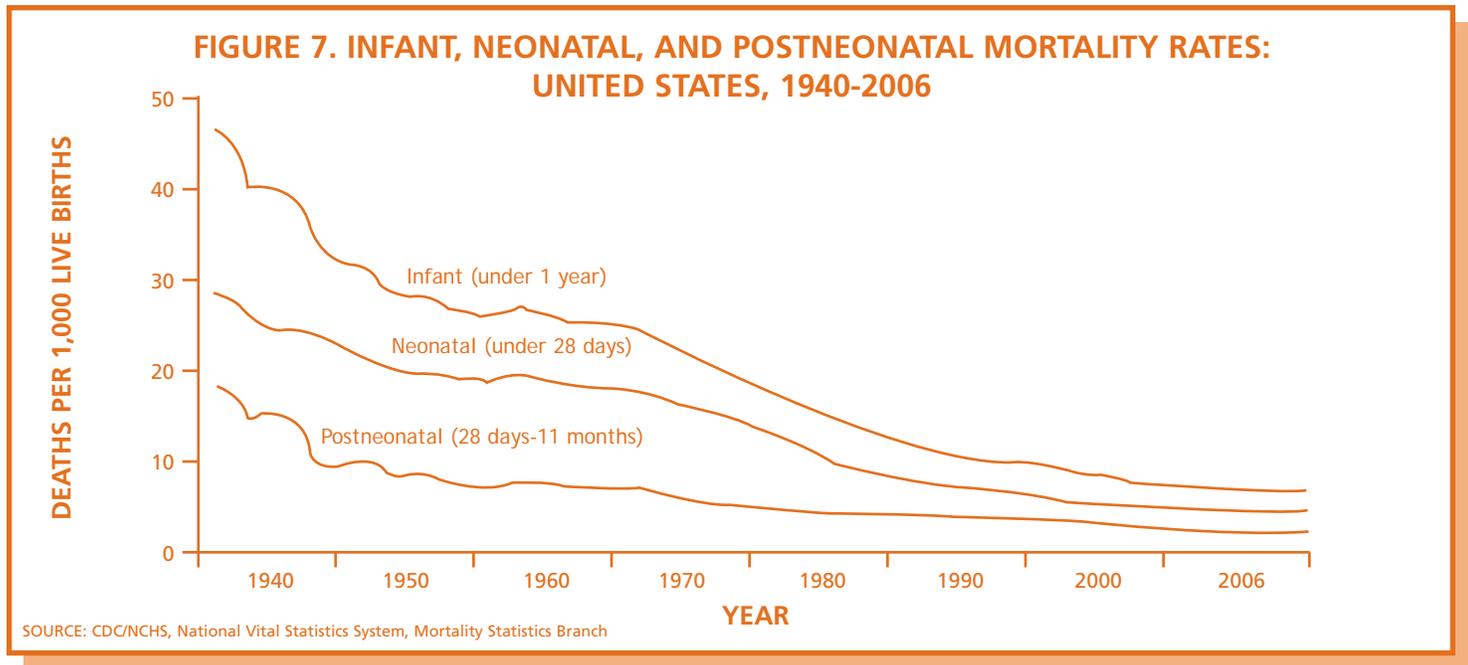


In 2009, prematurity was the death certificate cause of 248 deaths in Missouri, representing 44% of all natural cause deaths, other than SIDS. Of those 248, 187 (75%) were born at 25 weeks or less

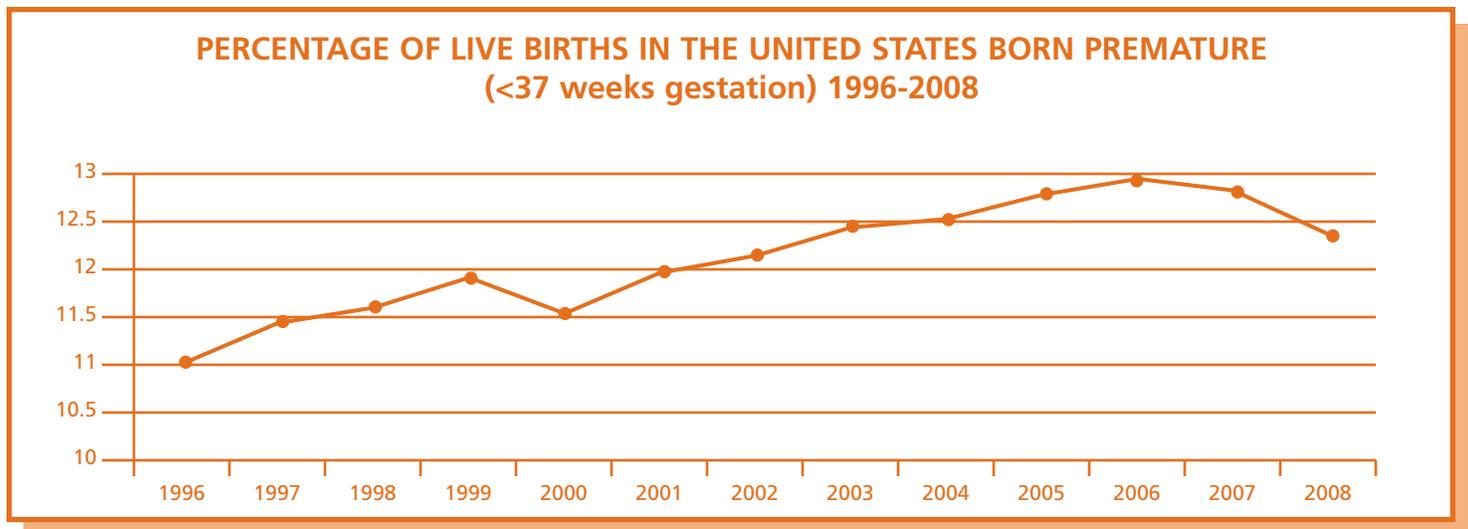
gestation, 31 (17%) were born at less than 20 weeks gestation. Congenital anomalies were the cause of 186 (33%) deaths.

Infant Mortality

Infant mortality is one of the most important indicators of the health of a nation and the United States is lagging behind much of the developed world. According to the Centers for Disease Control and Prevention (CDC), the U.S. ranks 30th in the world in infant mortality behind most European countries, Canada, Australia, New Zealand, Hong Kong, Singapore, Japan, and Israel.

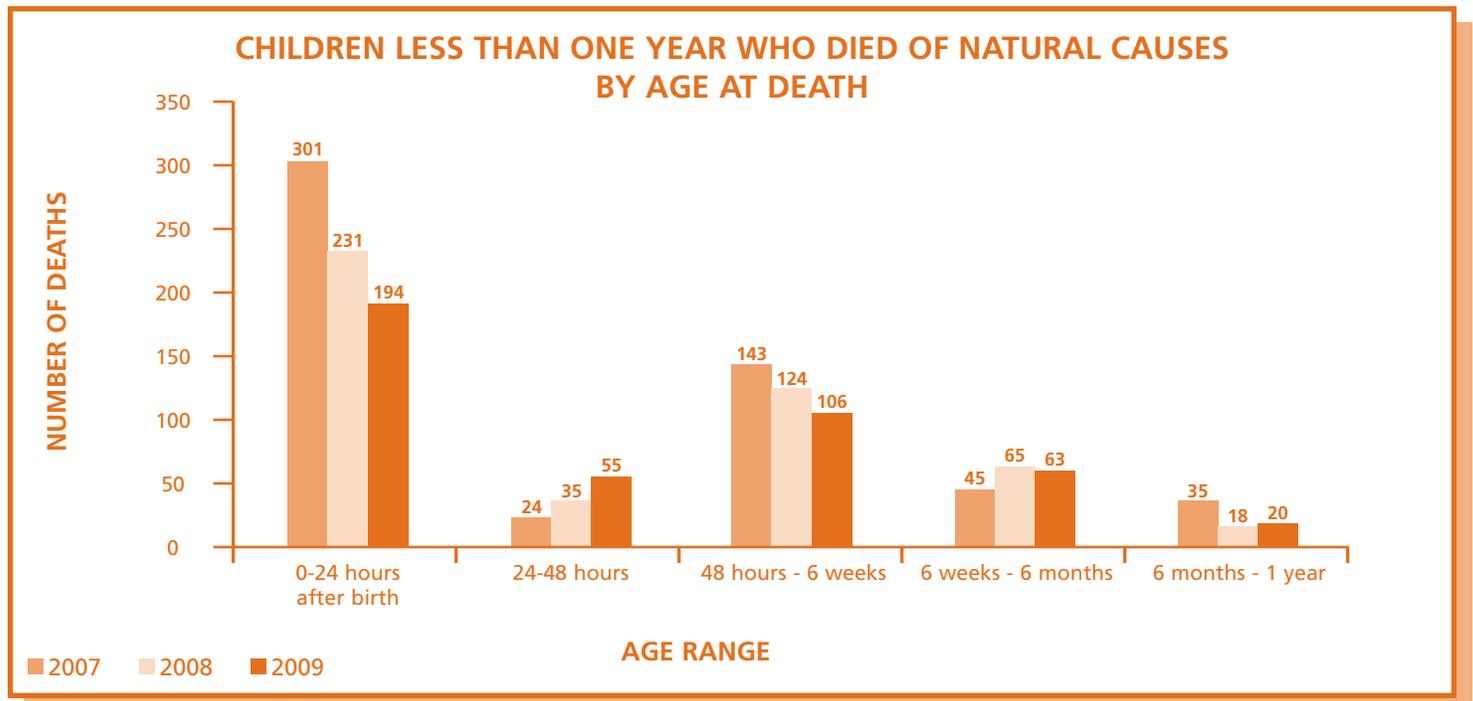


Data suggests that the main reason for the United State’s high infant mortality rate is the significant rate of preterm births in this country. The good news is that this rate has begun to drop over the last few years. In 2006, 12.8% of all live births were born at less than 37 weeks gestation; by 2008, that rate had dropped to 12.3%. In Missouri, in 2009, the infant mortality rate remained steady at 7.2 per 1000 live births.



The March of Dimes states that, “Preterm birth is the leading cause of death in the first month of life in the United States.” Those children who do survive being born prematurely could potentially face lifelong serious health issues. In 2009, a 17-year-old child died from causes directly linked back to her premature birth.

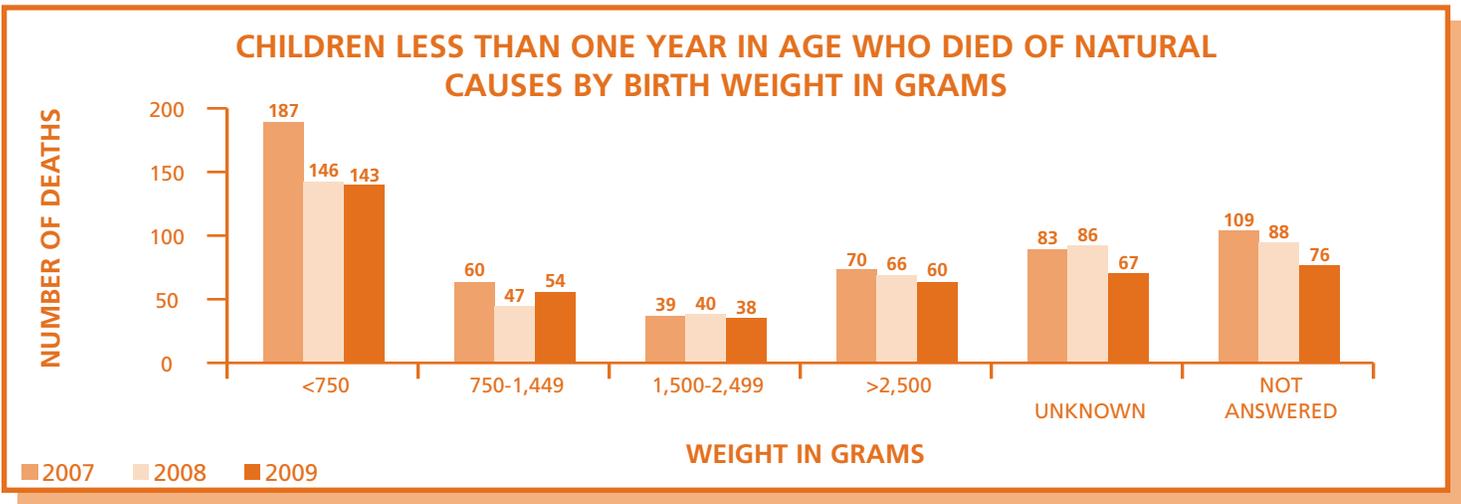
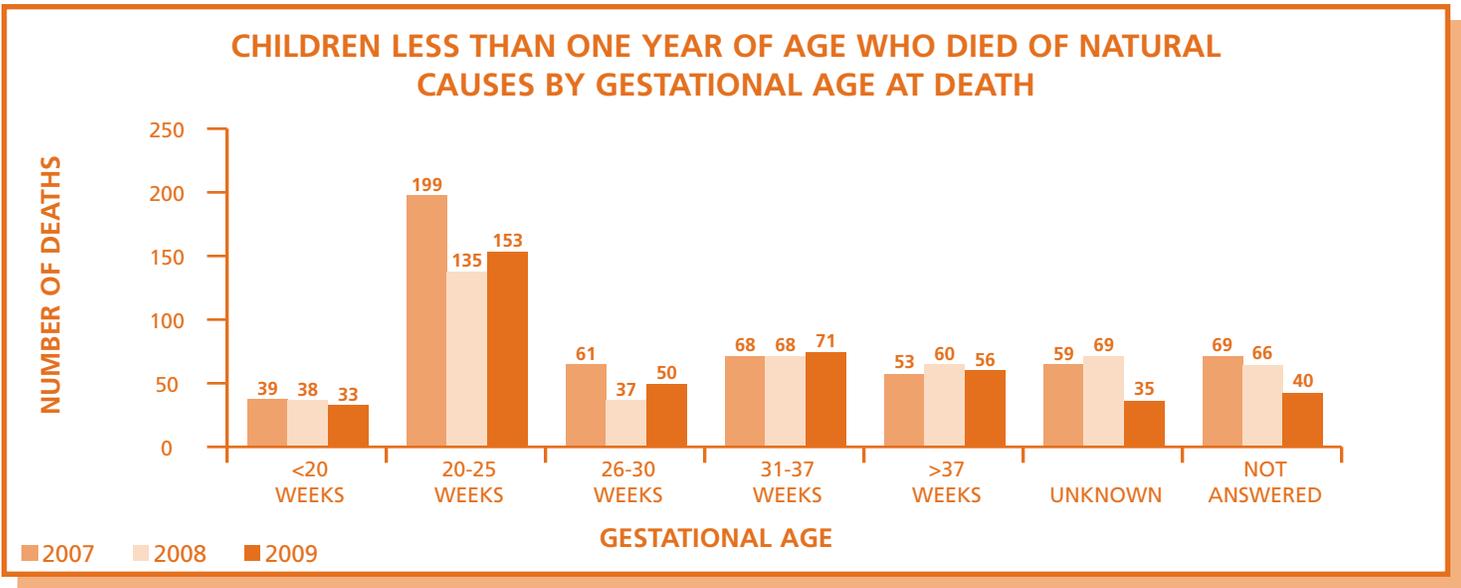
Infants less than one year of age comprised the majority of the natural cause deaths in 2009, with **438** (78%). Of the **249** (57%) deaths that occurred within the first 48 hours, **194** (78%) occurred within 24 hours after birth.



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

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	239	211	192	WHITE	324	311	283
MALE	309	262	246	BLACK	200	143	127
				OTHER	24	19	28
	548	473	438		548	473	438

Infants can be classified as premature for two different reasons. According to the CDC, they first can be born “preterm” because of a “curtailed gestation (gestational age of <37 completed weeks)” or they can be “premature by virtue of birth weight (2,500 grams or less at birth)”. Children in the second category are referred to as “Low Birth Weight” or LBW children. This differentiation is made because while the two can be linked, there are other factors besides prematurity which can result in a low birth weight pregnancy. In Missouri, in 2009, **307** infants were reported to be born preterm on the CFRP Data Forms 1 and 2, while **235** low weight births were reported during that same period.



Maternal health issues and the use of drugs, alcohol or tobacco during pregnancy are other factors of low birth weight. The following data was collected from natural deaths where the county panels completed a Data Form 2.

MEDICAL COMPLICATIONS DURING PREGNANCY	
Yes	5
No	12
Unknown	26
Not Answered	10

SMOKING DURING PREGNANCY	
Yes	8
No	8
Unknown	29
Not Answered	8

DRUG USE DURING PREGNANCY	
Yes	4
No	14
Unknown	27
Not Answered	8

ALCOHOL USE DURING PREGNANCY	
Yes	0
No	13
Unknown	32
Not Answered	8

Fetal and Infant Mortality Review (FIMR) in Missouri

According to the American Congress of Obstetricians and Gynecologists, 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. Since the 1990's, two forms of infant death review have been established, both having similarities, but slightly different approaches, Fetal and Infant Mortality Review (FIMR) and Child Death Review (CDR).

Fetal mortality: The death of an in utero fetus of 20 weeks or more gestation. Although such a death can result from developmental issues, the mother's health and inadequate prenatal care can also have an adverse effect.

Infant mortality: The death of child under one year of age, which can be from a variety of natural and unnatural causes.

Similar to CFRP, FIMR is a local area/community process, which has case review teams comprised of membership from professional health, welfare, education and advocacy organizations, as well as public and private agencies. The first stage of the process is for the review team to collect information from various available sources including, but limited to, medical, public health and community services records, WIC, family and mother interviews. The evaluation from these sources can help develop a better understanding of how the death occurred, what services and resources can be provided and how to potentially prevent future deaths. Upon completion, the team prepares a summary with de-identified information to protect the confidentiality of those associated the death and subsequent review.

The second stage of the process involves another team comprised of individuals who have the fiscal resources, political and/or community influence to make policy and systemic changes, as well as implement broad-based prevention strategies and best practices.

The FIMR process in Missouri conforms to the principals 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 Missouri's 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. Since its inception, the Greater Kansas City FIMR has abstracted and reviewed more than 130 infant and fetal 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.

While there are many similarities between CFRP and FIMR, including basic human concern and advocacy, there are distinct and important differences, such as the purpose and timing of the reviews. 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 aggregated findings, sharing recommendations with media and the public, and improving systems and resources for children, their mothers and families.

For additional information, refer to:

Missouri Department of Health and Senior Services, Fetal-Infant Mortality Review (FIMR)
<http://www.dhss.mo.gov/FIMR/>

National Fetal and Infant Mortality Review Program
http://www.acog.org/departments/dept_web.cfm?recno=10

FIMR: A tool communities can use to address issues related to health disparities in infant outcomes
[NFIMR Educational Bulletin]
http://www.acog.org/departments/dept_notice.cfm?recno=10&bulletin=1636

FIMR and Child Fatality Review: Opportunities for Local Collaboration
http://www.acog.org/departments/dept_notice.cfm?recno=10&bulletin=1139

State FIMR Coordinators Role and Responsibilities
http://www.acog.org/departments/dept_notice.cfm?recno=10&bulletin=692



Sudden Unexpected Infant Deaths

In 2009, there were 159 sudden, unexpected deaths of infants less than one year of age in Missouri.

Representative Cases:

- **Infants should be held while feeding.**

The father of a two-month-old baby girl propped a bottle for the child and left her unattended. The child's lungs filled with formula.

A one-month-old child was fed about 4 a.m. by a sibling, who propped the bottle up and left. Coming back at about 9 a.m., the baby was found unresponsive.

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

A one-month-old infant in the care of his grandmother was placed face down on a futon couch, with blankets placed around to keep him from moving. He was later found unresponsive; appearing to have rolled towards the back of the couch with his face against the cushion.

A two-month-old child was placed on top of soft pillows with a pacifier in his mouth. He was found later with his face completely covered.

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

A three-month-old boy was bedsharing with mom and dad on a full-sized bed. When mom awoke, she found dad's leg across the child's face and chest. There was a crib available, but was not used.

Mom fed the two-month-old baby at 2 a.m. and fell asleep on the couch, with the baby in the crook of her arm. When mom awoke, the baby was face down, wedged between her and the back of the couch.

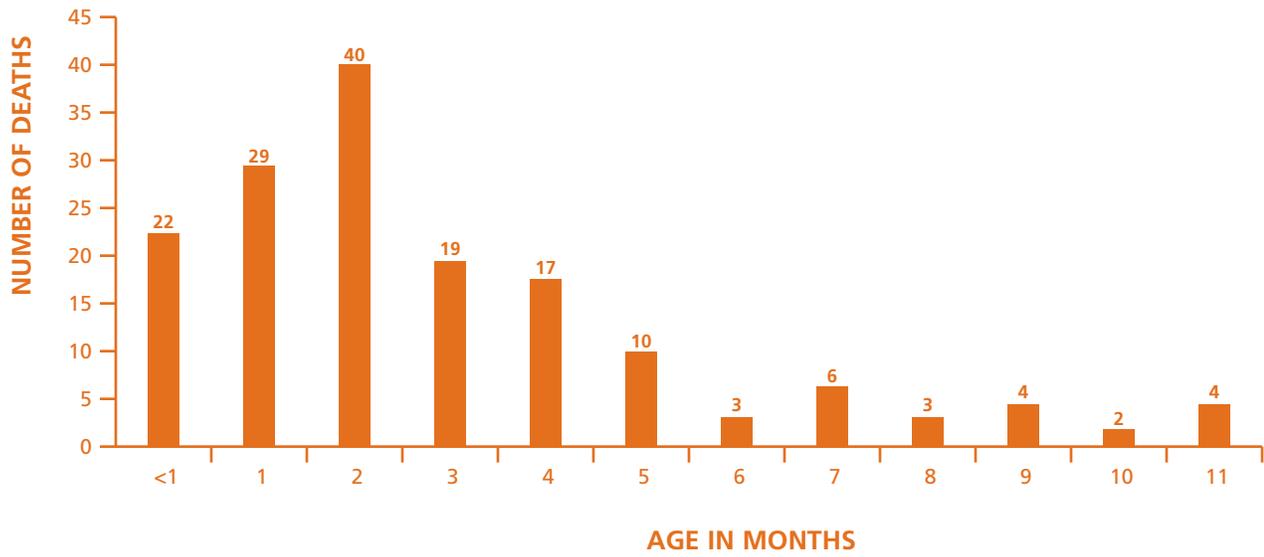
- **Sleeping arrangements should be considered in all situations.**

Mom, baby and two siblings spent the night at a friend's house. All four slept on a futon mattress on the floor. The baby became wedged between the futon mattress and the couch.

An out-of-state family visiting relatives in Missouri was bedsharing with their four-month-old, because there was no crib available. The baby was found unresponsive in the morning.

In 2009, there were **159** 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, **20** were diagnosed as Sudden Infant Death Syndrome, **71** Unintentional Injury (Suffocation), **32** Natural Causes, **26** Undetermined, and **10** infants were found to be victims of Intentional Injury (Homicide). Those ten deaths are discussed under the "Fatal Child Abuse and Neglect" section of this report.

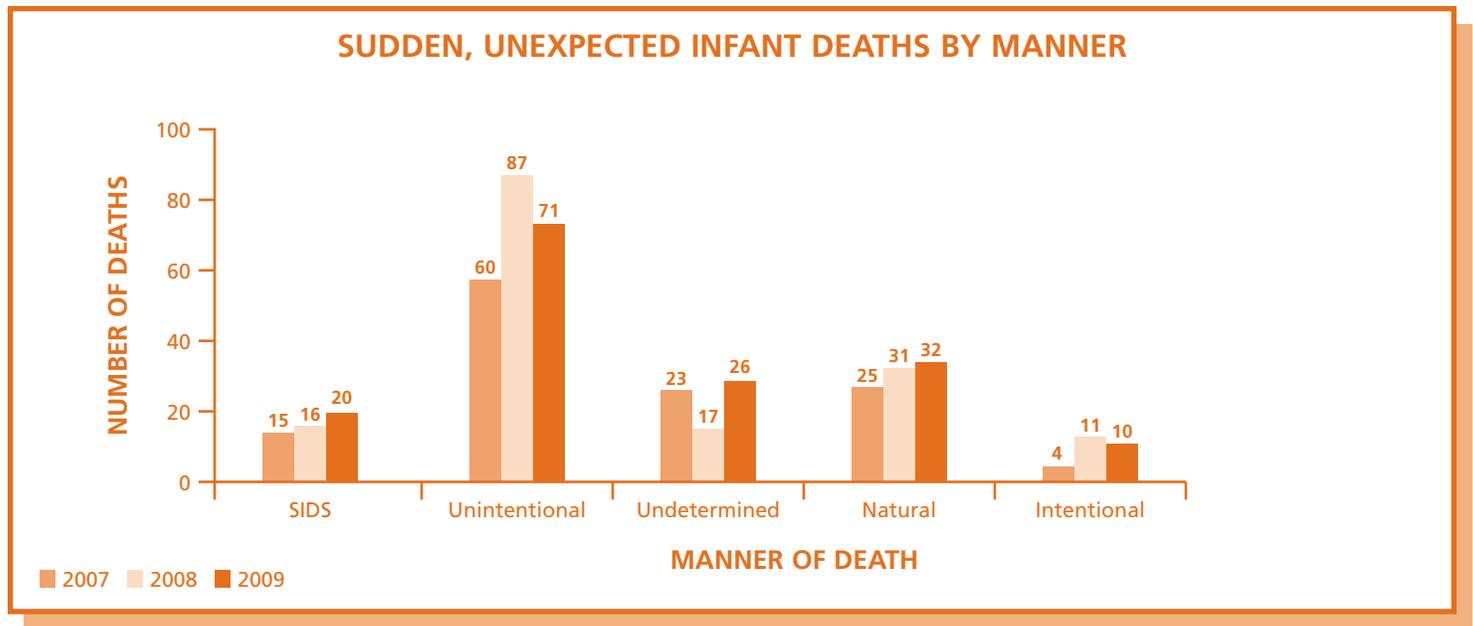
SUDDEN UNEXPECTED INFANT DEATHS BY AGE IN MONTHS



SUDDEN UNEXPECTED INFANT DEATHS BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	52	66	57	WHITE	75	108	104
MALE	75	96	102	BLACK	52	48	41
				OTHER	0	6	14
	127	162	159		127	162	159





Investigation of Sudden Unexpected Infant Deaths

According to the CDC in 2009, each year in the United States, more than 4,500 infants die suddenly of no obvious cause. Half of these Sudden Unexpected Infant Deaths (SUID) are due to Sudden Infant Death Syndrome (SIDS). SIDS rates declined starting in the 1990's in large part with the implementation of the National Back to Sleep Campaign, which encouraged placing the infant to sleep in non-prone positions. The endorsement of safe sleep practices by the American Academy of Pediatrics (AAP), which was reaffirmed in 2009, has also made a positive impact over the past decade. However, studies have shown that since 1999, some deaths previously classified as SIDS are now classified as accidental suffocation or undetermined. These findings suggest 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 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." (*Willinger et al, 1991*) Yet overtime, it became apparent that sudden unexpected infant deaths were often not being adequately investigated, and information on cause of death was neither consistently collected, nor accurately reported. To address these concerns, the CDC worked with other federal agencies and organizations representing medical examiners, coroners, death scene investigators, emergency medical personnel, law enforcement officials, forensic nurses, SIDS researchers, infant death review experts and parents who have experienced a death of an infant, to create a set of universal definitions and guidelines for the investigation of sudden unexpected infant deaths. As a result of these efforts, in 2006, the CDC introduced the Sudden, Unexplained Infant Death Investigation (SUIDI) Reporting Form for state and local use in infant death scene investigations, along with a comprehensive training curriculum and other related materials. The training highlights infant growth and development, interviewing and investigative skills, scene recreation using a doll, and how to fill out a death certificate. The SUIDI Report Form and other additional investigative resource information can be found at www.cdc.gov/sids/suid.htm.

Of the 159 sudden, unexpected infant deaths in Missouri in 2009, a scene investigation was completed in 143 cases (90%); 99 (69%) of those were completed by a medical examiner/coroner or their investigator. The State Technical Assistance Team *Death Scene Investigative Checklist for Child Fatalities* 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 1-800-487-1626.

Sudden Unexpected Infant Deaths in Child Care Settings

In the United States, two thirds of U.S. infants younger than one year are in non-parental child care, with thirty-two percent in full-time child care. (Ehrle J, Adams G, Tout K; 2001) Approximately 20% of SIDS deaths occur while the infant is in the care of a non-parental caregiver. (Moon, Patel and Shaefer, 2000) According to the American Academy of Pediatrics, less than 9% of SIDS deaths should occur in child care. One of the possible reasons for this discrepancy is that even though media campaigns and brochures have been largely effective in communicating *Back to Sleep* information, non-prone positioning and other risk reduction measures are not universally being practiced among child care providers. (Moon and Billiter, 2000) In Missouri, 16 sudden, unexpected infant deaths occurred in child care settings in 2009. Of those, five were diagnosed as unintentional suffocation, two were found to have an undiagnosed illness, five were SIDS, three were intentional child abuse and one was undetermined.

Sudden Infant Death Syndrome (SIDS)

In 2009, Sudden Infant Death Syndrome (SIDS) was the cause of death of 20 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. At this time, SIDS is still a diagnosis of exclusion; even though current research may be finding the mechanism of SIDS. There are still no agreed upon pathological markers that distinguish SIDS from other causes of sudden unexpected infant death. There are no 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 specific cause or causes of SIDS are not yet defined.

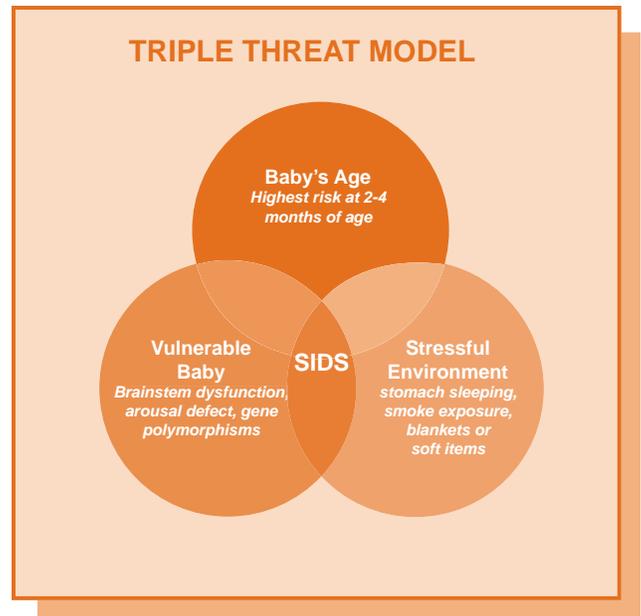
Current Research Findings and Theories

The National Institutes of Health states that scientists have found that the brains of infants who die of sudden infant death syndrome (SIDS) produce low levels of serotonin, a brain chemical that plays a vital role in regulating breathing, heart rate, and sleep. This goes along with earlier findings that the brains of infants who died of SIDS had higher concentrations of cells that used serotonin in the medulla oblongata, a region of the brain stem. Studies show that while a child who dies of SIDS may look normal, many of them may have an underlying genetic abnormality which made them more susceptible and it

is hoped that these findings will eventually lead to a blood test that can determine which children are at greatest risk.

Greater risk does not necessarily mean that a child with this abnormality will die from SIDS. Brain abnormalities are only one of three components of what *First Candle* calls the “Triple Risk Model”. The model describes the confluence of events that may lead to the sudden death of an infant. This model involves a vulnerable infant (one with an underlying genetic abnormality, as state above). The next component is the infant’s age and developmental factors. The rapid growth of an infant with the brain abnormalities, especially during the first six months, causes their system to become unstable. This instability is thought to make an infant less able to deal with the final component - environmental challenges. It is the interaction of these three components, when the risk for sudden infant death is at its greatest.

Continued research and thorough investigations will allow for better identification of the intricate causes behind sudden infant death. Subsequently, identified risk reduction efforts and implementation of best prevention practices, based upon what has been learned, will have an even greater impact in saving infant lives.



Other Risk Factors

Other risk factors, many associated with the mother’s health and behavior, place the infant at a 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

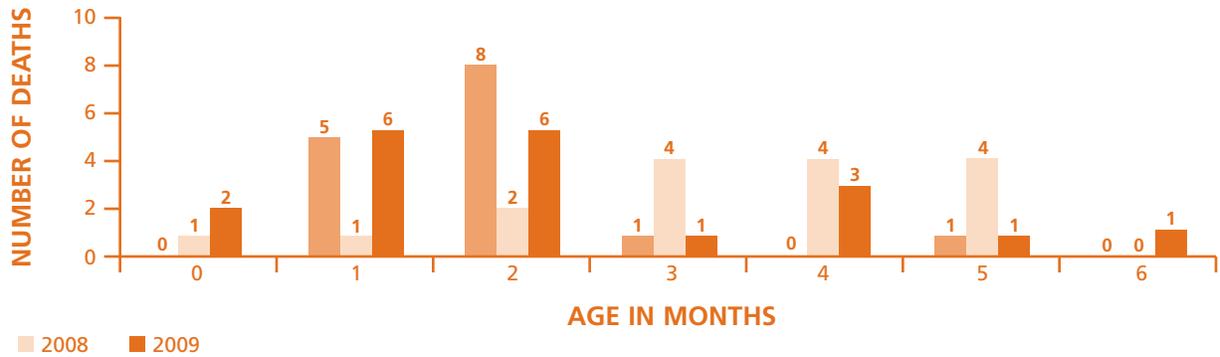
Certain environmental stressors have been shown to be highly significant risk factors. Environmental stressors are modifiable and the reduction of these risk factors through parent/caretaker education has great potential to save infant lives.

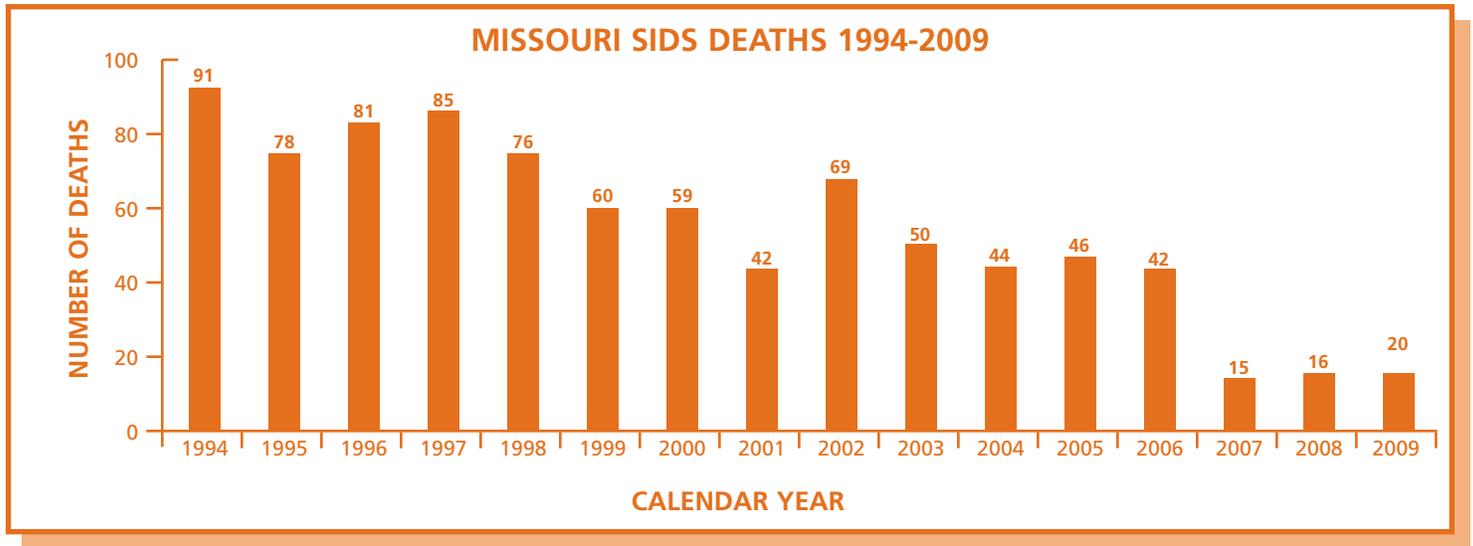
- Prone or side sleeping
- Soft sleep surfaces
- Loose bedding
- Bedsharing
- Overheating
- Exposure to tobacco smoke

SIDS FATALITIES BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	5	5	7	WHITE	11	12	17
MALE	10	11	13	BLACK	4	4	2
				OTHER	0	0	1
	15	16	20		15	16	20

SIDS BY AGE IN MONTHS

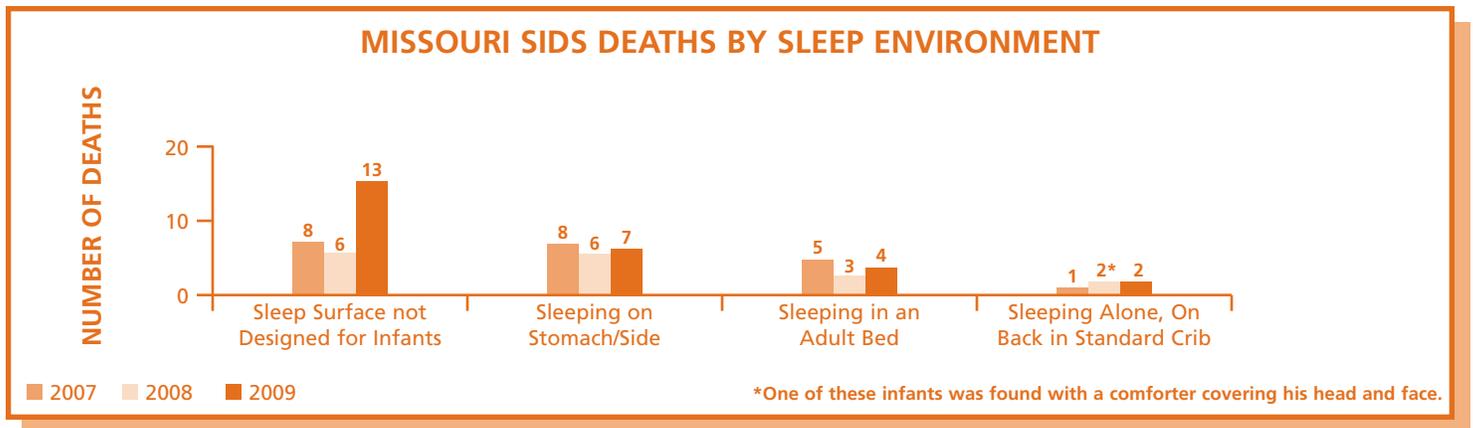




Nationally, of those infants whose deaths are attributed to Sudden Infant Death Syndrome (SIDS) each year, many are found in potential suffocation environments, frequently on their stomachs, with their noses and mouths covered by soft bedding.

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, inappropriate bedding, sleeping with head or face covered, and sharing a sleep surface.

In Missouri in 2009, of the **20** sudden, unexpected infant deaths reviewed by county CFRP panels and diagnosed as SIDS, **seven** (35%) were known to be sleeping on their stomach or side. **Thirteen** of those infants were not sleeping in a standard crib on a firm mattress, and four were known to be sleeping in an adult bed. Only **two** infants who died suddenly and unexpectedly, whose deaths were diagnosed as SIDS, were known to be sleeping alone on their backs, in a standard crib. 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.



Unintentional Suffocation in Infants

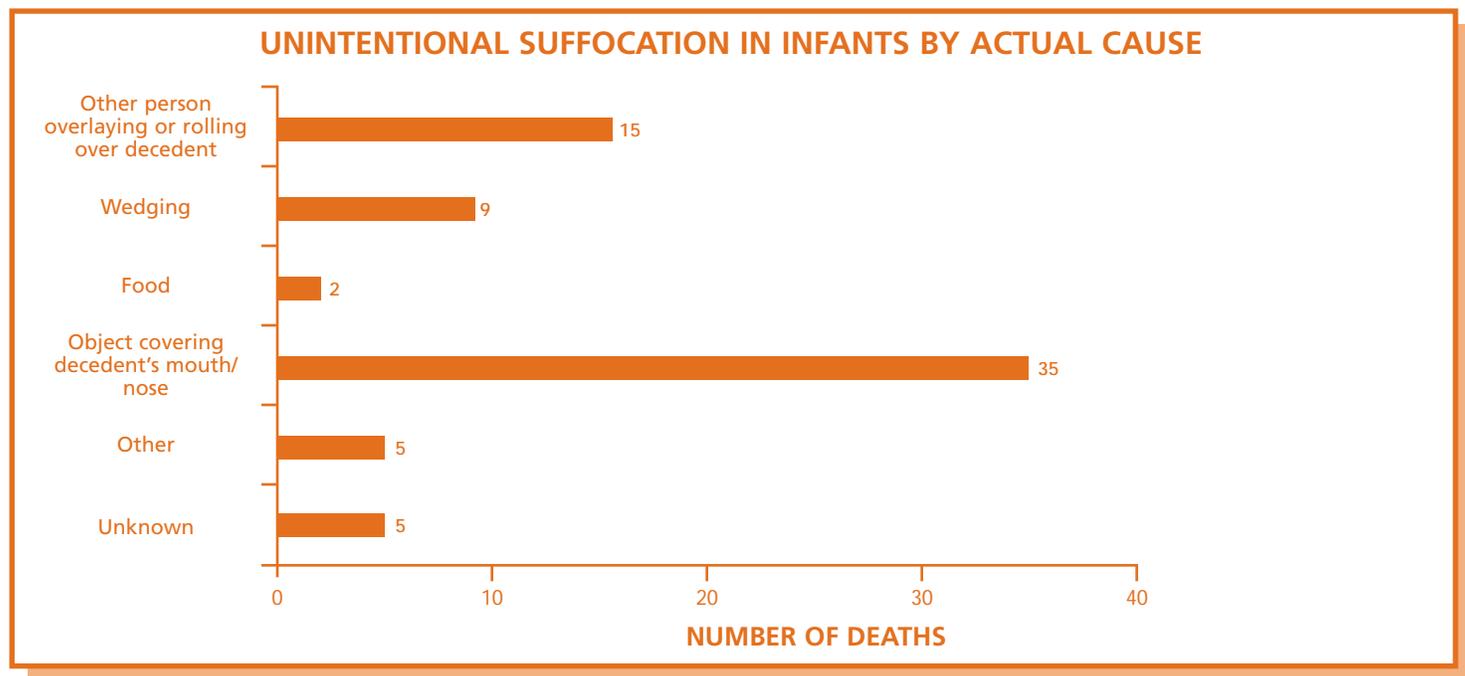
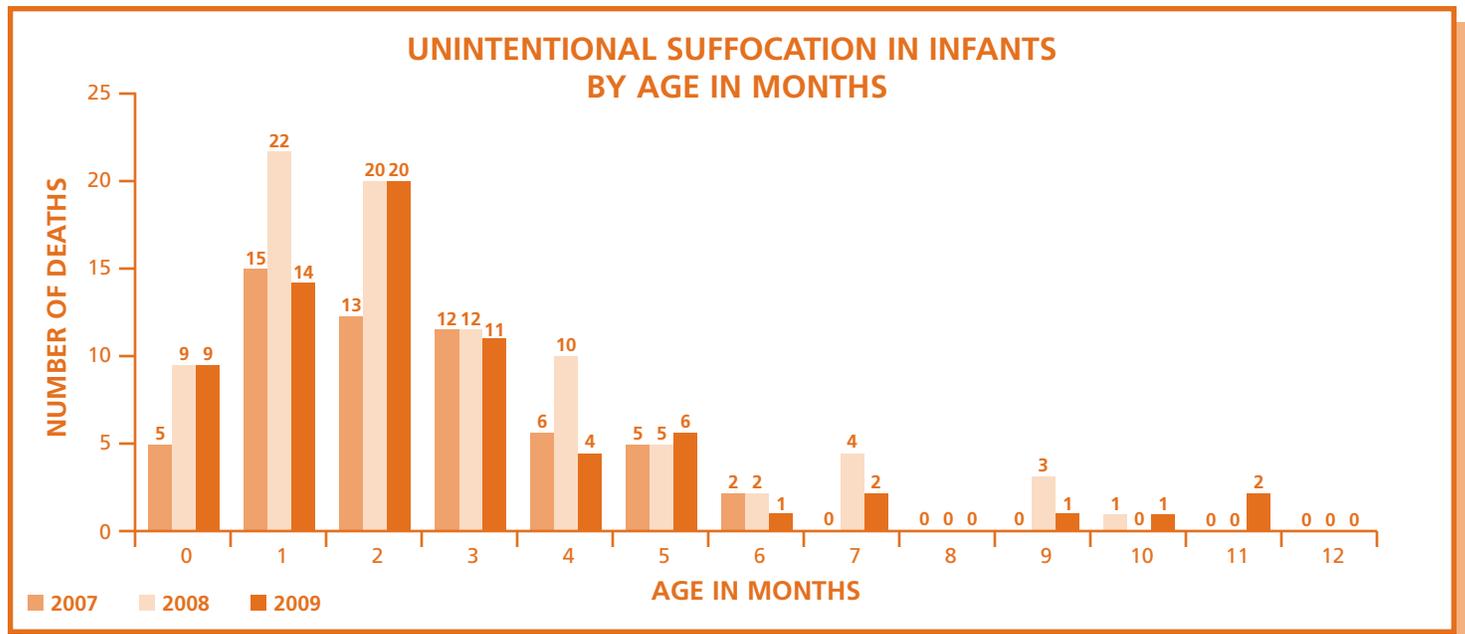
Unintentional Suffocation was the cause of death of 71 Missouri infants in 2008.

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 being placed in compromising positions such as buried in a soft 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. Of the 71 Missouri infants deaths diagnosed as unintentional suffocation in 2009, **45** were bedsharing with one or more individuals. Of those, **33** were sleeping in an adult bed. CFRP panels reported indications of improper use of bedding involved in **31** infant deaths.

An **overlay** is a type of unintentional suffocation that occurs when an infant is sleeping with one or more persons (bedsharing with adults or other children) and someone rolls over on them. Suffocation due to overlay can be verified by one of the following means: (1) the admission of someone who was sharing the bed, that they were overlying the infant when they awoke; or (2) the observations of another person. Most infant deaths involving possible or suspected overlay are classified as **undetermined** cause, because the actual position of the infant and other person at the time of death were not witnessed.

UNINTENTIONAL SUFFOCATION BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	27	37	27	WHITE	43	50	43
MALE	32	50	44	BLACK	11	34	23
				OTHER	5	3	5
	59	87	71		59	87	71



Undetermined in Infants

In 2009, the cause of death of 26 Missouri Infants could not be determined.

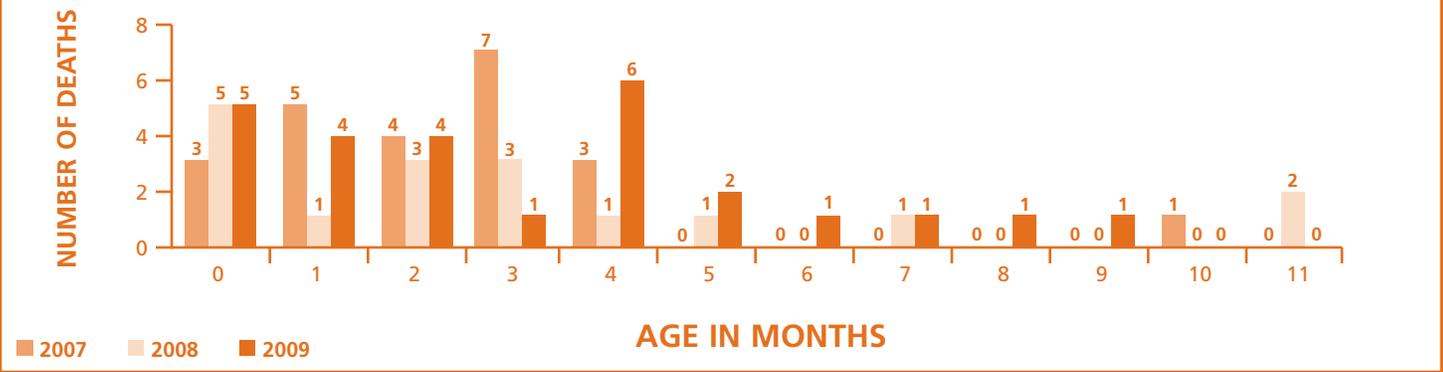
In some cases, even the most thorough autopsy and scene investigation do not produce a definitive cause of death, yet the risk factors are present that are significant enough to have possibly contributed to the death. Such risk factors include unsafe or challenged sleep environment, possible medical neglect and the possibility of undiscovered inflicted injury.

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 IN INFANTS BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	6	6	8	WHITE	14	10	15
MALE	17	11	18	BLACK	9	6	9
				OTHER	0	1	2
	23	17	26		23	17	26

UNDETERMINED IN INFANTS BY AGE IN MONTHS

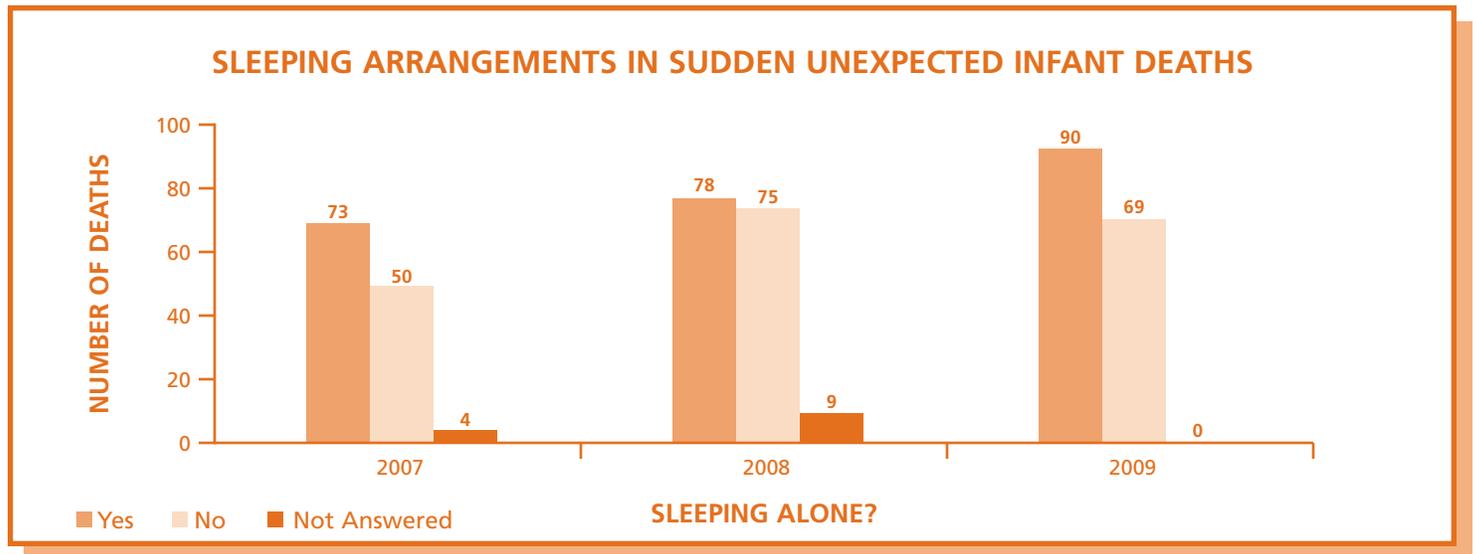


Reducing the Risk of Sudden Unexpected Infant Deaths and SIDS

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

- Back to sleep position 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. The importance of this needs to be stressed not only to parents, but also secondary care givers such as day care workers and grandparents.
- Bed sharing is not recommended. Infants may be brought to 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 American Academy of Pediatrics recommends a separate, but proximate, sleeping environment.

- Research now indicates an association between pacifier use and a reduced risk of SIDS. The American Academy of Pediatrics recommends 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 for Infants

Physicians are the number one 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. 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.



For parents and parents to be:

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

For professionals:

- All pediatric health care professionals should be informed about current recommendations for infant safe sleep, and when working with parents, talk about and model safe sleep practices.
- All child care professionals should be informed and practice current recommendations for infant safe sleep.

For community leaders and policy makers:

- Implement and support safe sleep campaigns and current safe sleep practices.
- Require safe sleep education for all licensed child care providers. The American Academy of Pediatrics offers a free “Reducing the Risk of SIDS in Child Care” online course. Instructions on how to access the course can be found at:
<http://www.healthychildcare.org/pdf/SIDSmoduleflyerINSTRUCTIONS.pdf>

For child fatality review panels:

- All sudden unexplained deaths of infants one week to one year of age require autopsy by a child death pathologist and review by county CFRP panels.
- Encourage proper scene investigations in all sudden unexpected infant deaths, with use of a death scene investigative checklist, which can be obtained either from STAT’s website at:
<http://dss.missouri.gov/stat/forms.htm>, or from the CDC at:
<http://www.cdc.gov/sids/SUIDHowtoUseForm.htm>.
- Remember that a thorough death scene investigation, autopsy, and medical and social review of all available data and information pertaining to any sudden unexpected infant death is of critical importance in identifying risk factors and developing effective prevention strategies.

Something We Can Do: Safe Cribs for Missouri

According to the American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development, 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. Unfortunately, many parents have not received this information and, for a variety of reasons, are unable to provide a safe crib for their infant.

Safe Cribs for Missouri is a program co-funded by the Department of Health and Senior Services and Children's Trust Fund. This program provides portable cribs for low-income families. The mother has to be at least 35 weeks gestation or no more than three months postpartum and WIC eligible. Each county is limited to five cribs per month. As part of the process, parents must agree to prevention education and instruction when receiving the crib. The first visit will be held at time of delivery of the crib and the second visit will be at the home four to six weeks either post partum or after receipt of the crib, to ensure appropriate use. The overall goal of this project is to save infant lives and support families. For additional information, contact your local health care agency.

Resources and Links:

- Missouri Fetal and Infant Mortality Review <http://www.dhss.mo.gov/FIMR/>
- American Academy of Pediatrics' Healthy Child Care America Back to Sleep Campaign <http://www.healthychildcare.org/sids.html>
- National SIDS/Infant Death Resources Center <http://www.sidscenter.org>
- St. Louis Safe Sleep Task Force <http://www.stlsafesleepforbabies.com>
- SIDS Resources, Inc. 135 West Monroe, St. Louis, MO 63122
Counseling and support, research, training and education <http://www.sidsresources.org/>



Motor Vehicle Fatalities

There were 80 motor vehicle fatalities among Missouri children in 2009. Of those, 72 were reviewed by CFRP panels.

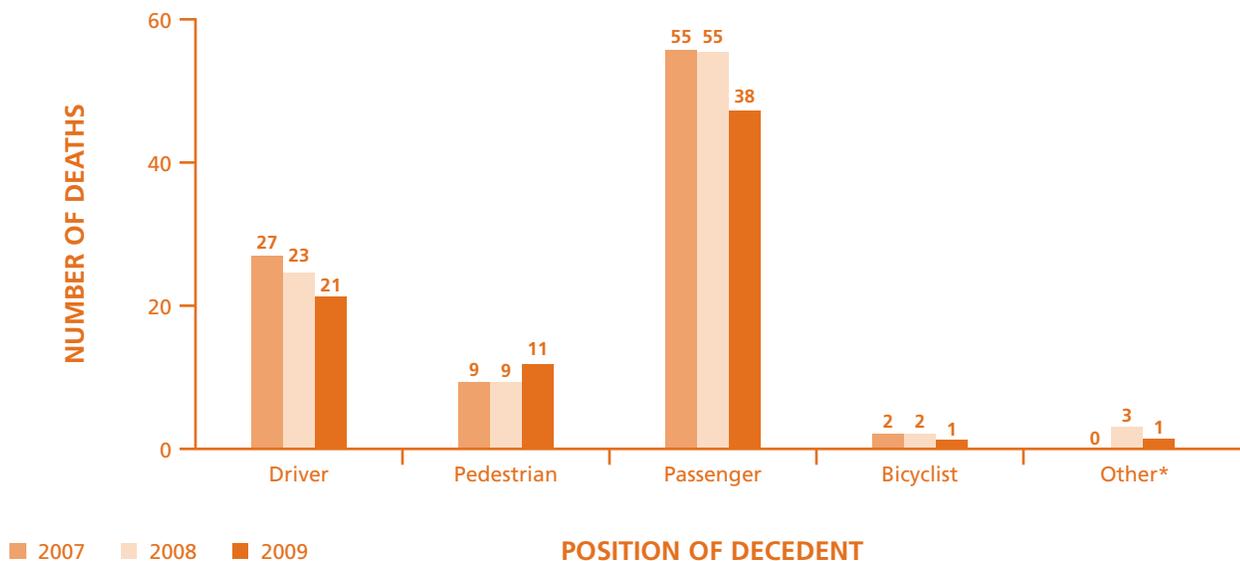
In the United States, motor vehicle crashes are the leading cause of injury deaths for children and adults and the second leading cause of injury death for children ages birth to one. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles,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

Of the 80 motor vehicle deaths among Missouri children in 2009, 76 were reported to the Child Fatality Review Program; 72 of those were reviewed by a local CFRP panel.

MOTOR VEHICLE FATALITIES BY SEX AND RACE (AS REPORTED BY CFRP)

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	38	40	29	WHITE	88	81	64
MALE	63	56	47	BLACK	10	12	12
				OTHER	3	3	0
	101	96	76		101	96	76

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



*In 2008, one child died when the motor vehicle in which she was riding was struck by a tornado, one child died when a car crashed into his house and came to rest on top of him; and a toddler died when she was run over by her mother’s vehicle, which had been knocked out of gear by three-year-old sibling. In 2009, a six-year-old autistic child was run over when he jumped from a vehicle that he had put in neutral, while waiting for his mother in the vehicle.

Motor Vehicle Fatalities (As Reviewed by CFRP)

TYPE OF VEHICLE			
Car	38	All-Terrain Vehicle	4
Truck/RV/Van/SUV	14	Other Farm Vehicle	1
Motorcycle	3	Other (Boat)	1
Bicycle	1	Not Applicable	10

CONDITION OF ROAD	
Normal	45
Loose Gravel	8
Wet	10
Ice or Snow	2
Other	3
Unknown	4

RESTRAINT USED	
Present, Not Used	26
None in Vehicle	1
Used Correctly	17
Used Incorrectly	0
Unknown	8
Not Applicable	20

PRIMARY CAUSE OF ACCIDENT	
Speeding	13
Carelessness	14
Weather Conditions	7
Driver Error	20
Other	11
Unknown	4
Not Answered	3

ALCOHOL AND/OR OTHER DRUG USE	
Decedent Driver Impaired	5
Decedent Passenger in Vehicle Where Driver Impaired	4
Driver of Other Vehicle Impaired	2
Not Applicable	50
Not Answered	11

HELMET USE			
Helmet Worn	3	Not Applicable	63
Helmet Not Worn	4	Not Answered	2

Driver and Passenger Fatalities

Of the **72** reviewed motor vehicle deaths in Missouri in 2009, **58** (81%) involved drivers and passengers.

Representative Cases:

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

A father was driving too fast, lost control and collided with a water truck. The one-month old was in a car seat that was improperly restrained. The juvenile mother and child died at the scene. The dad survived.

A one-year-old child who had been left in the care of her grandmother, who then left her with two teens. The teens took the child with them, but left the safety seat in the trunk. Passing other vehicles on the right, on a one-lane road at a high rate of speed, they struck a utility pole and then a parked truck. The passenger and child were killed. The driver was charged with involuntary manslaughter.

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

An unlicensed fifteen-year-old child, along with five other kids, went for a ride in his mother's vehicle, without permission. He lost control of the vehicle, struck a sewer cover and the vehicle overturned. One passenger also died in the accident.

A fifteen-year-old girl was a passenger in a vehicle being driven by her 16-year-old boyfriend. Both had been drinking. The boyfriend failed to negotiate a curve, ran off roadway, struck a tree and the vehicle burst into flames. The boyfriend escaped with minor injuries.

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 refer 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 restrained in child safety seats have an 80 percent lower risk of fatal injury than those who are unrestrained. Public education and child restraint laws have led to an increase in the use of child restraints; however, much work needs to be done. In 2009, **14** 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 **72** reviewed motor vehicle fatalities, **11** involved either a victim or a driver who was impaired. In 2009, CFRP panels determined that **five** of these deaths involved a teen victim who was impaired; all **five** of those were drivers of a vehicle that crashed. There were **four** deaths in which the driver of the vehicle in which the victim was a passenger was impaired; **two** of those fatalities involved a teen riding with an impaired teen, **one** was an infant riding with an impaired teen and the last **one** was a young child riding with a drunken parent. The other **two** of these 11 deaths involved collisions with other vehicles driven by an impaired driver.

The highest fatality rates are found among teenage drivers. Teenagers are three or 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 rate of seatbelt use and alcohol. Inexperienced drivers lack the perception, judgment and decision-making skills that take practice to acquire.

Graduated licensing for teen drivers 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 2009, **39** (54%) of the reviewed motor vehicle fatalities among children in Missouri, were teenagers age 15-17, **22** were passengers and **17** were drivers. Of those, **24** (62%) were known to be unrestrained at the time of the crash. In 2009, **three** of the teenage drivers involved in fatal crashes were inexperienced and unlicensed, **two** were 14-years old and one was 15-years old.

Pedestrian Fatalities

Of the **72** reviewed motor vehicle fatalities among Missouri children in 2009, **eleven** were pedestrians; **five** of those were age four and under; the other **six** were between the ages of five and nine.

Representative Cases:

- **Young children require constant supervision.**

The family dog was across on the other side of the state highway. When the caregiver crossed the highway to get the dog, the two-year-old child followed and was struck by a car.

The father was dropping off a five-year-old child at the mother's house, when he pulled to the left curb and dropped the child off. He thought the child had gone to the door, but instead the child had gone in front of his vehicle and was run over by the left tire of the van.

According to the National SAFE KIDS Campaign:

- 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 to two) sustain the highest number of pedestrian injuries, primarily due to their small size and limited traffic experience. More than half of all toddler pedestrian injuries 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 ages 14 and under are more likely to suffer pedestrian injuries in areas with high traffic volume, a higher number of parked vehicles on the street, higher posted speed limits, no divided highways, 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 traffic-related pedestrian incidents.

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 72 reviewed motor vehicle fatalities among Missouri children in 2009, one was a bicyclist who was not wearing a helmet.

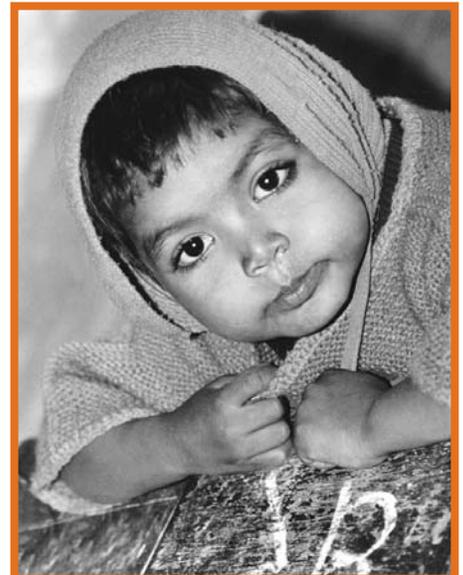
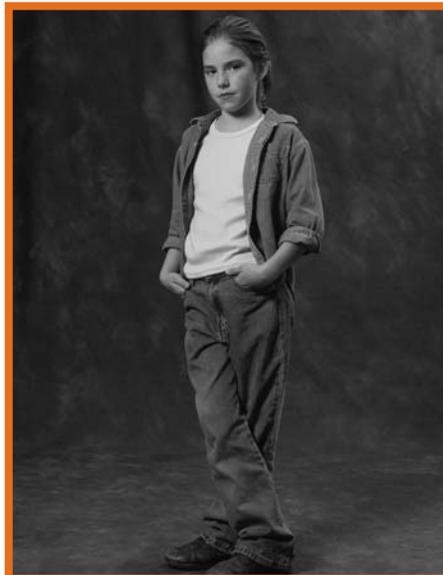
Representative Cases:

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

A fourteen-year old was riding a bicycle and collided with a pickup truck, which was starting out from a stop sign.

The National SAFE KIDS Campaign states, with the exception of the automobile, bicycles are associated with more childhood injuries than any other consumer product. 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. In the event of a crash, wearing a bicycle helmet reduces the risk of head injury by as much as 85% and the risk of brain injury by as much as 88%.

Children ages 10 to 14 are at greater risk for traumatic brain injury from a bicycle-related crash compared with younger children, most likely because helmet use declines as children age. More than 80% of bicycle-related deaths are directly connected to the bicyclist's actions. Such actions as riding into a street without stopping, turning left or swerving into traffic that is coming from behind, running a stop sign and riding against the flow of traffic are all-too common, and are often fatal. Children should be taught the rules of the road and to obey all traffic laws.



Motorcycle Fatalities

Three Missouri children died in motorcycle accidents in 2009. **Two** were operating the motorcycles, and **one** was a passenger. **Two** of these children were wearing helmets.

Representative Cases:

- **Everyone should wear helmets when operating or riding on a motorcycle or other motorized bike.**

A nine-year-old boy was riding a mini-bike without a helmet. He rode out of the driveway and into the side of a stock trailer. His grandparents were unaware he was injured, until they heard sirens.

- **The combination of inexperienced and motorcycles can be deadly.**

A fifteen-year-old child was the operator of a motorcycle, when he crossed the center line of a rural road while negotiating a curve, and was struck by a pickup truck, which had also crossed the center line. The child had been wearing a helmet, but died of injuries he sustained in the crash.

The dangers of inexperience and inattention are of a higher degree of risk when involving motorcycles and other smaller motorized vehicles, such as ATVs. Such vehicles generally have a short and relatively unstable wheelbase, small tires, slow acceleration, borderline brakes, and poor visibility in traffic (both of the cycle and by the cycle operator). The American Academy of Pediatrics states that typically injuries on these types of vehicles are the result of loss of control of the cycle after striking rocks, bumps, holes, or from illegal on-road use. Parents and other caregivers need to realize that even a small 50cc mini-bike can have a top speed of 50-90 mph. Missouri requires the use of motorcycle-style helmets for both off and on-road use.

The National Highway Traffic Safety Administration (NHTSA) advocates graduated licensing for motorcycle operators, because it compels novice operators to successfully demonstrate proficiency at several intermediate steps before being granted full riding privileges. They also recommend that motorcycle riders under the age of 21 complete a rider education course before receiving a license.



Fatalities Involving All-Terrain Vehicles

Four of the 72 motor vehicle fatalities reviewed by CFRP panels in 2009, involved all-terrain vehicles (ATV's).

Representative Cases:

- **Children under 16 should not ride ATVs.**

While riding an ATV unsupervised, a five-year-old child lost control and the ATV rolled over on top of him. He was later found by his parents. The cause of death was determined to be compression suffocation.

An eleven-year-old boy was riding an ATV without a helmet, when he ran off the side of a wooden plank bridge. The ATV overturned and dropped about eight feet, before coming to rest on the child. He died of thoracic and abdominal injuries.

ATVs are motorized cycles, with 3 or 4 balloon-style tires, designed for off-road use on a variety of terrains. By the nature of their design, ATVs can be unstable due to their high center of gravity, inadequate suspension system, no rear-wheel differential, and of further hazard due to their weight and ability to reach higher speeds. According to the Consumer Product Safety Commission, in the United States, children account for nearly one-third of all ATV-related injuries. The American Academy of Pediatrics states that most injuries associated with ATVs occur when the driver loses control, 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. Only **one** of the four Missouri children, who died in ATV-related accidents in 2009, was wearing a helmet.

It is recognized by many safety organizations that children do not have the cognitive and physical abilities to drive or ride these vehicles safely. National SAFE KIDS Campaign states that currently, 27 states have a minimum age requirement for operation of an ATV. Missouri is only one of three states that require ATV operators to be 16 years of age or older. Yet of the Missouri children who died from ATV deaths in 2009, **one** was age two, **one** was age five, **one** was age 11 and **one** was age 14.

Other Vehicular Fatalities

Motor vehicle fatalities include drivers, passengers and pedestrians fatally injured in or by any form of transportation. In 2009, **one** Missouri child died as a result of injuries involving vehicles listed as "Other." An eleven-year-old boy was a passenger in a boat that was struck by another boat. The child was thrown from the boat into the river. He had not been wearing a flotation device. His body was found the next day, approximately a half mile from the scene of the accident. In Missouri, every personal watercraft (PWC) should have US Coast Guard—approved Type I, II, III, or V Personal Flotation Device (PFD) for each person onboard. Children age seven years and under must wear an appropriate and approved PFD at all times while aboard any vessel, unless confined in a totally enclosed cabin area of the vessel.

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 ATVs of any size, including youth-sized ATVs.
- Never leave children alone in a motor vehicle, even when they are asleep or restrained.
- Each person riding on a personal watercraft (PWC) must wear a US Coast Guard—approved Type I, II, III, or V Personal Flotation Device (PFD).

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 do not have them. Child safety seat checkup events are a good place to start.
- Facilitate and implement programs that educate parents on helmet use, instructions on fitting helmets properly and events that provide checkups and helmets at little or no cost.

For Child Fatality Review Panels:

- Review all vehicle-related deaths looking for prevention messages for your community.
- Ensure that speed limits, and laws that prohibit driving while intoxicated, along with other traffic safety laws, are strictly enforced.

Resources and Links:

- American Academy of Pediatrics <http://www.aap.org/>
Children’s Safety Network <http://www.childrenssafetynetwork.org>
National SAFE KIDS Campaign <http://www.safekids.org/>
National Center for Injury Prevention and Control <http://www.cdc.gov/injury/index.html>
Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc/>
National Highway Transportation Safety Administration <http://www.nhtsa.gov/>
Missouri Coalition for Roadway Safety <http://www.savemolives.org/>
The Think First Injury Prevention Foundation <http://www.thinkfirst.org/>
Harrison’s Hope <http://www.harrisonshope.org/>
Missouri State Water Patrol <http://www.mswp.dps.mo.gov/>

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, 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 through June 2001, and documented 78 fatal injuries. Of the fatally injured children, 42% were less than four years of age. 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 into motion.

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

Harrison's Hope maintains a national database to evaluate the circumstances and consequences of leaving children unattended in or around motor vehicles. Go to <http://www.harrisonhope.org> for more information.

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



The Children's Trust Fund (CTF) 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 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 2009, there were four unintentional suffocation/strangulation deaths among Missouri children age one year and older.

Representative Cases:

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

Father left a four-year-old child asleep in car seat in the vehicle, while the father went into a store. The child awoke, stuck his head out of the window, when his feet slipped from the seat catching the window control and the window rolled up. He was found dangling from the window.

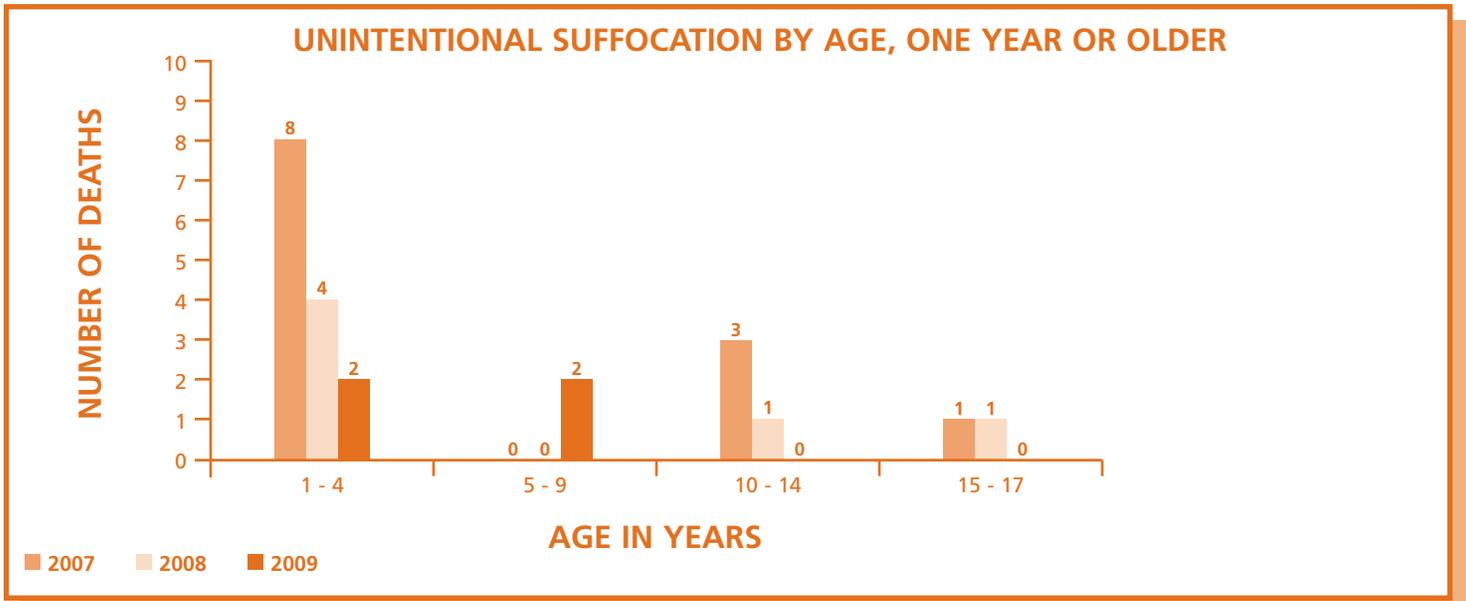
Note: The suffocation/strangulation deaths as reported in this section are unintentional. Suffocation/strangulation deaths may also be intentional, inflicted by others (homicide), self-inflicted (suicide) or of an undetermined manner.

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

According to the National SAFE KIDS Campaign, airway obstruction occurs 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 necks or exert pressure on neck and interfere with breathing (strangulation). Children, especially those under age three, are particularly vulnerable to airway obstruction death and injury due to their small upper airways, their relative inexperience with chewing and their natural tendency to put objects in their mouths.

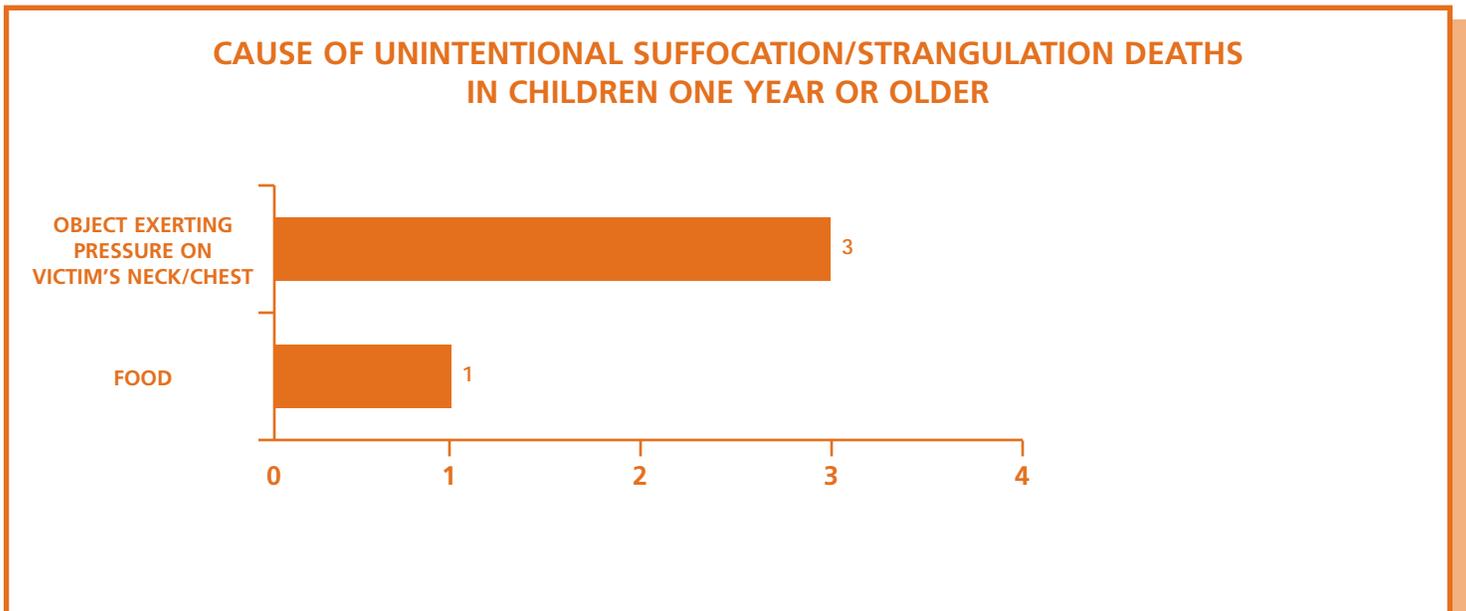
In Missouri in 2009, **four** children age one year and older died of unintentional airway obstruction injuries. Of those, **two** were ages four or younger. The majority of childhood choking injuries are associated with food items. Children are at risk from choking on small, round foods such as hot dogs, candies, nuts, grapes, carrots and popcorn. Children can easily choke or aspirate small objects, most often toys, beads, balloons and coins.

Airway obstruction injuries can also result from entanglement or entrapment. Children strangle in openings that permit the passage of their bodies, yet are too small for and entrap their heads. These include spaces in bunk beds, cribs, playground equipment, baby strollers, carriages and high chairs. 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. They can also become entrapped in airtight spaces such as a cedar chest, unused refrigerator or freezer.



UNINTENTIONAL SUFFOCATIONS ONE YEAR OR OLDER BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	1	2	2	WHITE	10	6	4
MALE	11	4	2	BLACK	2	0	0
	12	6	4		12	6	4



The Child Safety Protection Act bans any toy intended for use by children under age three 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. To address such hazards, the Consumer Product Safety Commission (CPSC) has issued mandatory standards for bunk beds, as well as 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 the Consumer Product Safety Commission. The CPSC can also be accessed for product safety research assistance

Resources and Links:

Consumer Product Safety Commission	http://www.cpsc.gov
National SAFE KIDS Campaign	http://www.safekids.org
American Academy of Pediatrics	http://www.aap.org
Missouri Children’s Trust Fund, “Safe Crib-Safe Sleep” Campaign	http://www.ctf4kids.org

Unintentional Fire/Burn Fatalities

In 2009, 18 Missouri children died of unintentional fire/burn fatalities.*

*Note: One additional child died of fire/burn injuries, but the manner of death could not be determined in that fatality, so information on that death is not included in this section.

Representative Cases:

- All fire sources should be kept out of the hands of children.

Child pulled burning wood out of wood stove and placed it in the kindling box when mom told her to put it back. Fire started in box, mom told the five-year-old and three-year-old to stand by the door, while she ineffectively tried to put out fire. The smoke was so dense that she could not see the children. Both of them died.

- The leading cause of kitchen fires is unattended cooking.

Three children, ages one, four and six, were staying with dad and grandmother. Something on stove from dinner caught fire. All three children died, while the adults survived.

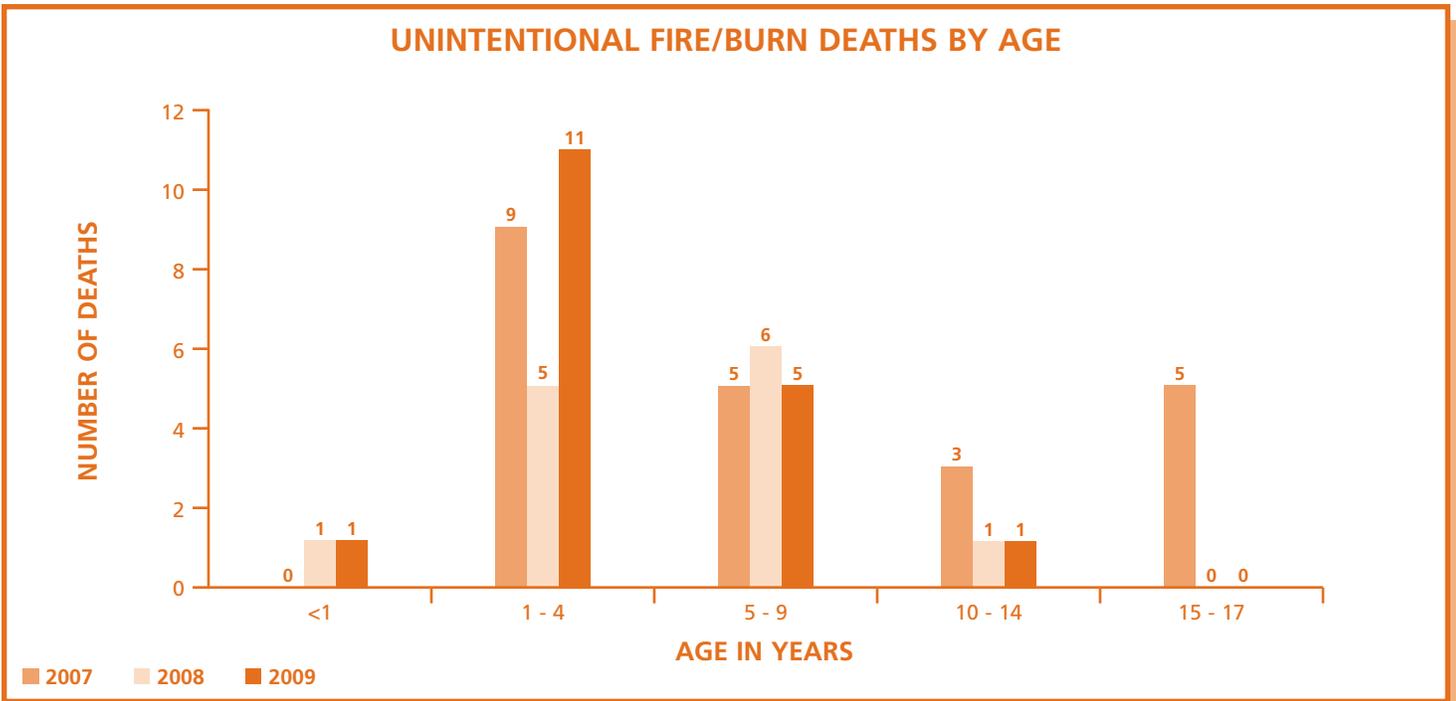
- Aging buildings with inadequate wiring pose a safety risk.

A fire of unknown origin started at night in an older trailer, quickly consuming it. All the occupants, including three children, ages less than one, two and three died. The source of the fire is unknown, but there was a previous electrical fire at the trailer within the past year.

Each year in the United States, over 475 children ages 14 and under die and nearly 117,000 are injured in fires. Fires and burns are the third leading cause of unintentional death among children aged one -14 years, as reported by the National SAFE KIDS Campaign.

Fire/Burn Deaths Among Children

U.S. Fire Administration states that based on 2003-2007 experience data, children under age five are at highest risk of death from home fires, with males being at greater risk of death and injury than females. Of the 18 fire/burn fatalities among children in Missouri, twelve were under the age of five. Young children have a less acute sense of danger or understanding of how to quickly and properly react to a fire or life-threatening burn situation. It is often more instinctual for a child to "hide" from a fire, than try to escape. They are also less physically able to tolerate toxic combustion, rendering them more susceptible to fire-related asphyxiation. Additionally, younger children have thinner skin, causing them to be more susceptible to severe burns and scalding at lower temperatures, than what would still be considered tolerable by many adults.



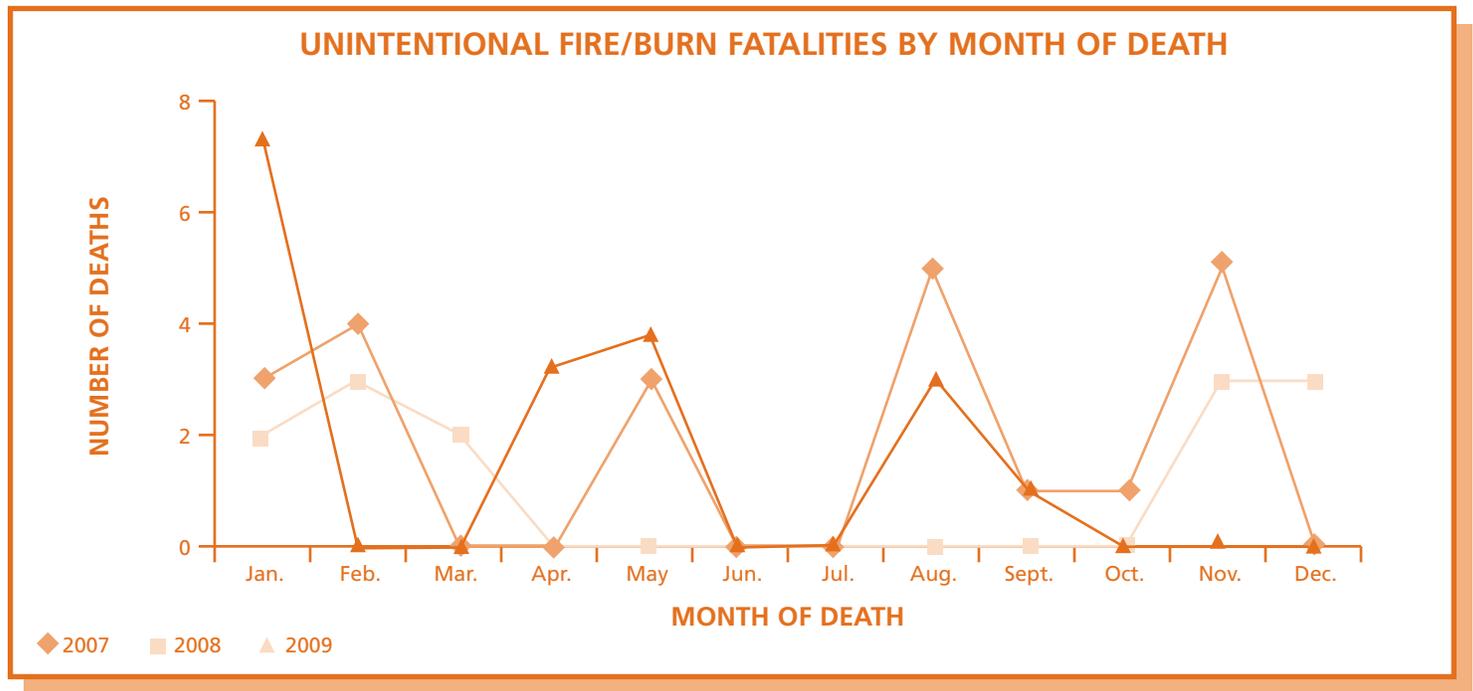
UNINTENTIONAL FIRE/BURN DEATHS BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	8	6	8	WHITE	17	10	13
MALE	14	7	10	BLACK	5	3	5
	22	13	18		22	13	18

Children from low-income families are at greater risk for fire-related death and injury, due to factors such as a 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, primarily due to the types of winter heating used. Death rates in rural communities are more than twice the rates in large cities, and more than three times higher than rates in large towns and small cities.

Although 90% of all residences have smoke alarms today, no smoke alarms were present in 42% of residential structure fires where fatalities occurred. Smoke alarms were reported to be present in only **six** of the **18** fatal Missouri fires reviewed by county CFRP panels in 2009, of those only **three** were known to be in working order. Smoke alarms have been 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 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 of various fire and burn-related products, and enforcement of standards through the Flammable Fabrics Act by the CPSC, have had a significant impact on child safety.



Juvenile Firesetting

“The first step in solving the problem is to understand better which children set fires and why they do it.” U.S. Fire Administration

Children playing with fire caused 40% of the residential fire-related deaths among children. Almost half (42%) of child-playing home structure fires begin in the bedroom, where children are often left alone to play. In Missouri in 2009, **two** children are known to have died in fires started by other children playing with fire. In a typical year, fires set by children and youth claim the lives of approximately 300 people and destroy more than \$300 million worth of property, nationwide. Children are the predominant victims of these fires, accounting for 85 of every 100 lives lost.

The United States Fire Administration identifies four categories of juvenile firesetters: Curiosity/Experimental, Troubled/Crisis, Diligent/Criminal and Pathological/Emotionally Disturbed. Curiosity/Experimental firesetters usually consist of boys and girls ages two to 10, who lack understanding of the destructive nature of fire. The Troubled/Crisis firesetters are mostly boys of all ages who have set two or more fires. These firesetters use fire as a way to express emotion - anger, sadness, frustration, or powerless feelings concerning stress or major changes in their life. They may not understand the consequences of uncontrolled fire and most of them will likely continue to set fires until their needs are met or identified. These firesetters are also known as “cry for help” firesetters.

The Delinquent/Criminal firesetter is usually a teen with a history of firesetting, gangs, truancy, antisocial behavior, or drug/alcohol abuse. These firesetters usually set fires with the intent to destroy, or as acts of vandalism and malicious mischief. For a child to be categorized as a Pathological/Emotionally Disturbed firesetter, involves a psychiatric diagnosis. The fires they set may be random, ritualized, or with specific intent to destroy property. These firesetters can be of any age, and usually have a chronic history of school, behavioral, and social emotional problems.

Regardless of motivation, firesetting behavior must always be taken very seriously. The U.S. Fire Administration recommends that parents contact their local fire department or state fire marshal 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	6
No	1
Unknown	10
Not Applicable	1
Not Answered	0

SMOKE ALARM IN WORKING ORDER	
Yes	3
No	0
Unknown	13
Not Applicable	2
Not Answered	0

FIRE STARTED BY	
Decedent	1
Other Person	3
No One	8
Unknown	5
Not Answered	1

ACTIVITY OF PERSON STARTING FIRE	
Playing	2
Not Applicable	10
Not Answered	6

SOURCE OF FIRE	
Combustibles	3
Faulty Wiring	1
Cooking	3
Other	2
Unknown	7
Not Answered	2

MULTIPLE FIRE DEATHS	
Yes	17
No	1

FOR A STRUCTURE FIRE, WHERE WAS THE DECEDENT FOUND?	
In Bed	5
Close to Exit	3
Other	5
Not Answered	5

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 providing appropriated prevention response to those tragic deaths. Smoke detectors, properly installed, and maintained, have proven extremely effective in preventing fatalities. For over 15 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 to 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 the batteries at least once a year.
- Plan and practice fire escape routes from each room of your 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 programs 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 resulting from a residential fire, determine if the local building code requires smoke detectors in residence, and if a working smoke detector was present in the home. Use that information to develop an action plan; i.e., work to establish or change building codes or pursue prosecution, if negligence or lack of appropriate supervision occurred.

Resources and Links:

Missouri Division of Fire Safety	http://www.dfs.dps.mo.gov/
United States Fire Administration	http://www.usfa.dhs.gov/
National SAFE KIDS Campaign	http://www.safekids.org/
Harborview Injury Prevention and Research Center	http://depts.washington.edu/hiprc/

Unintentional Drownings

In 2009, 21 total children drowned in Missouri*

*Note two of these cases were determined to be caused by child abuse and will be discussed in a different section.

Representative Cases:

- **Small children need constant supervision.**

Mom put a one-year-old child in front of television playing a video and went back to bed. When dad got up 20 minutes later, he found the child floating in pool.

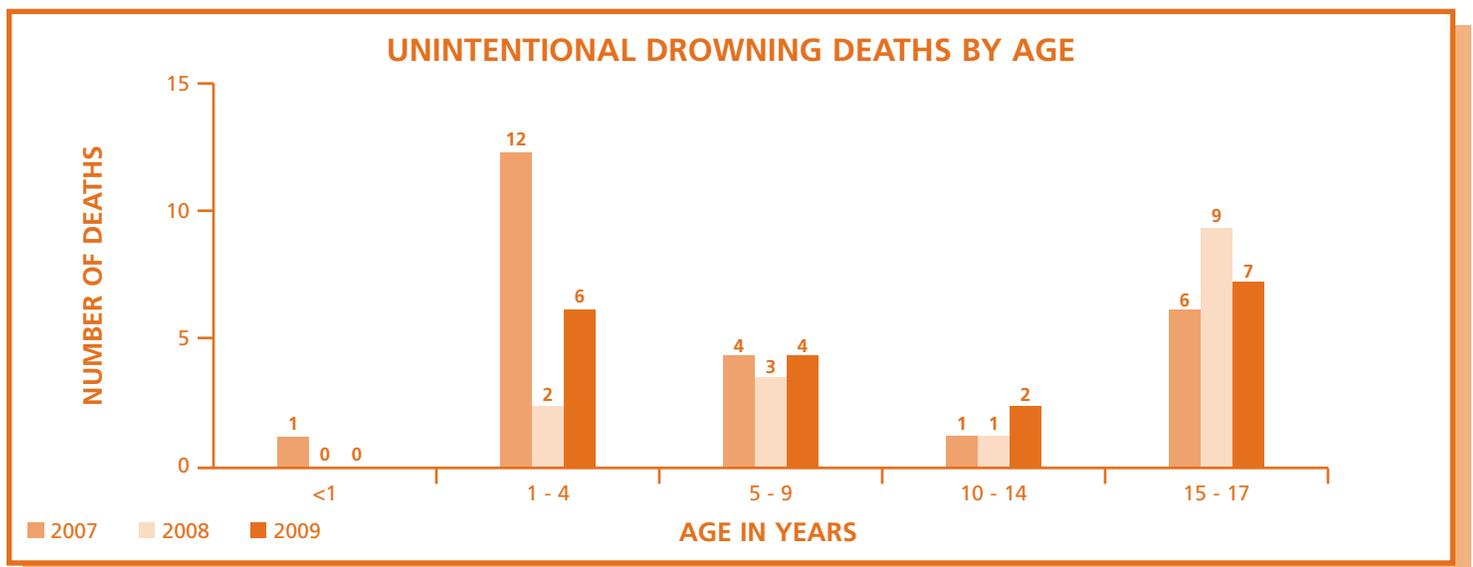
Two children, ages four and seven years, drown in the river behind their home. Mom last saw them about an hour and a half before contacting law enforcement. They were found submerged in the river.

- **U.S. Coast Guard approved personal flotation devices should be worn at all times in and around open water.**

A 17-year-old boy was swimming, fully clothed, at a lake and had been drinking. He swam out into the lake, but could not make it back to shore before going under. Friends tried to find him, without success.

A 15-year-old boy was swimming at a river sand bar, and saw a younger boy get caught up in the current. The boy was able to push the child out of the current, but got caught in it and could not get out. He was not wearing a life jacket.

In the United States, drowning is the second leading cause of unintentional injury-related death among children ages one to 14 and the leading cause of unintentional injury-related death among children ages one to four, according to the National SAFEKID Campaign. Of the 19 Missouri children who drowned in 2009, six (32%) were age four and under.



UNINTENTIONAL DROWNINGS BY SEX AND RACE

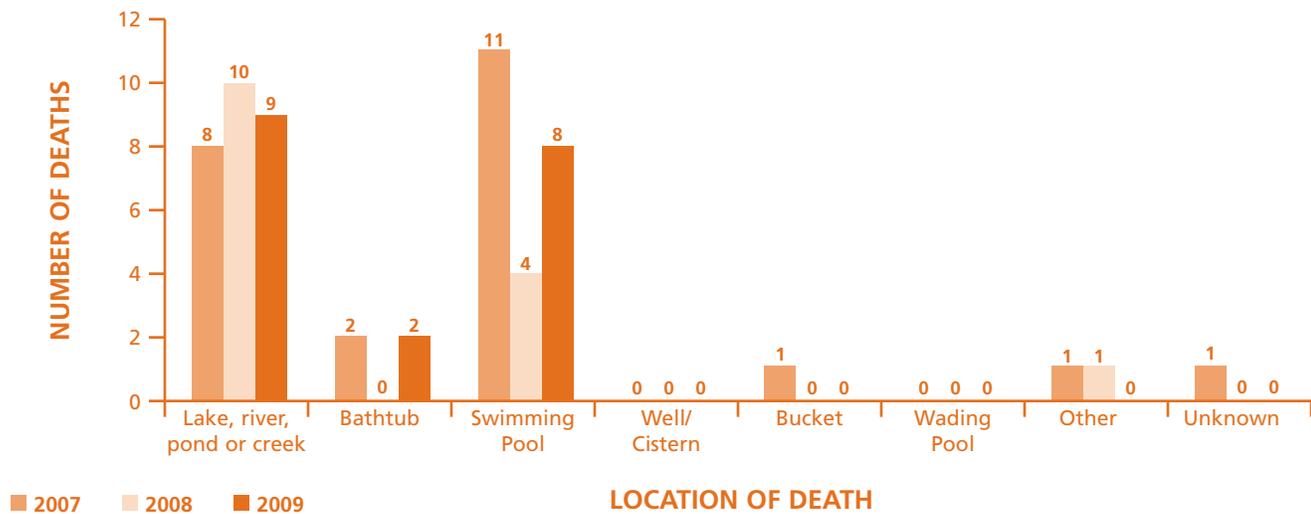
SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	3	2	7	WHITE	19	11	15
MALE	21	13	12	BLACK	5	4	4
	24	15	19		24	15	19

Most drownings among infants under the age of one occur in bathtubs, while most drownings among children ages one to four occur at pools. Young children can drown in as little as one inch of water; therefore, they are at risk of drowning in wading pools, bath and hot tubs, buckets, diaper pails, and toilets. 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 locations such as creeks, lakes and rivers. Of the 19 Missouri children who drown in 2009, eight (42%) occurred in swimming pools, nine (47%) occurred in open water locations, and two (11%) occurred in bathtubs.

A child drowning can occur quickly and silently in a matter of seconds, and typically occurs when a child is left unattended or there is a brief lapse in supervision. Even the belief that a drowning victim will make lots of noise, while thrashing around in the water before actually drowning, is not accurate.

UNINTENTIONAL DROWNINGS BY LOCATION

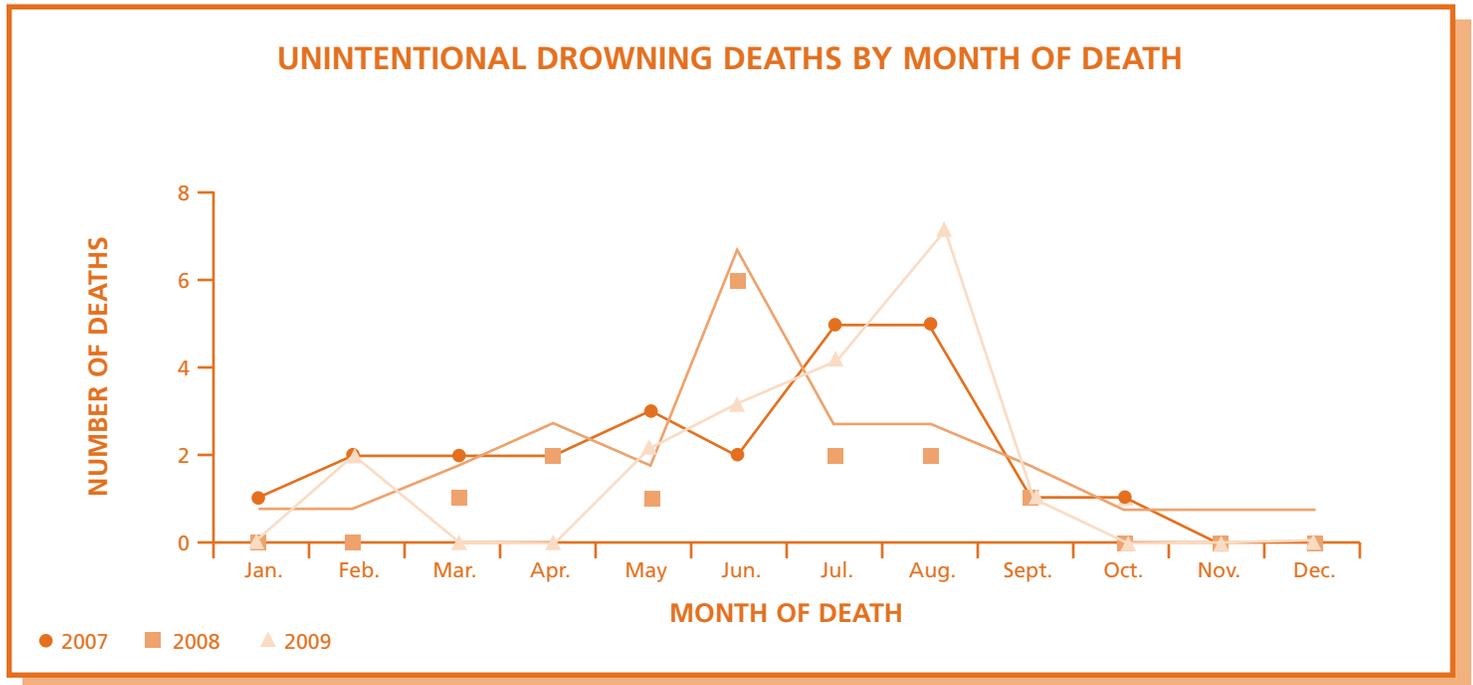


Drowning Deaths Among Children

Supervision of children in and around water is critical. Of the 19 drowning fatalities in 2009, in which supervision of the child was a consideration, panels found that 12 (63%) had entered the water unattended.

Use of a personal floatation device is well established as an effective means to prevent drowning deaths. Only **two** of the Missouri children who drowned in 2009, were wearing a personal floatation device.

The warm weather months of May, June, July and August are peak months for drowning, coinciding with increased activity in swimming pools and open water locations.



Prevention Recommendations:

For parents:

- Never leave a child unsupervised, even for a minute, in or around water in the home or outdoors.
- 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 separates the pool from the house and play area of the yard.
- Ensure that children always wear U.S. Coast Guard approved personal floatation devices when near or around open water locations.
- Learn CPR.

For community leaders and policy makers:

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

For professionals:

- Parents, as well as children, should receive water safety education, to include discussion of in-home water hazards to children (including buckets, toilets, etc.) 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 <http://www.safekids.org/>
National Center for Injury Prevention and Control <http://www.cdc.gov/injury/index.html>
Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc/>
Consumer Product Safety Commission <http://www.cpsc.gov/>
Red Cross <http://www.redcross.org/>
The United States Lifesaving Association (USLA) <http://www.usla.org/>

Unintentional Poisoning

In 2009, 10 Missouri children died of unintentional poisoning.

Representative Cases:

- Parents and caregivers must ensure that all medications are properly stored out of the reach of children.

A three-year-old child co-sleeping with a twin and mom, was found to have breathing difficulty in the middle of the night, and had vomited on pillow and sheets. A short time later, the child stopped breathing. The twins had gotten into mother's unsecured drugs and both tested positive for substances including PCP, Cocaine, Oxycodone, Alprazolam, and Cyclobenzaprine. The twin survived.

A one-year-old child was found unresponsive in his crib, which contained blankets, pillows and stuffed animals. It was originally believed that he had suffocated, but autopsy results found that the child had died of an accidental overdose of morphine. The grandfather in the home was taking morphine for Stage-4 cancer.

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

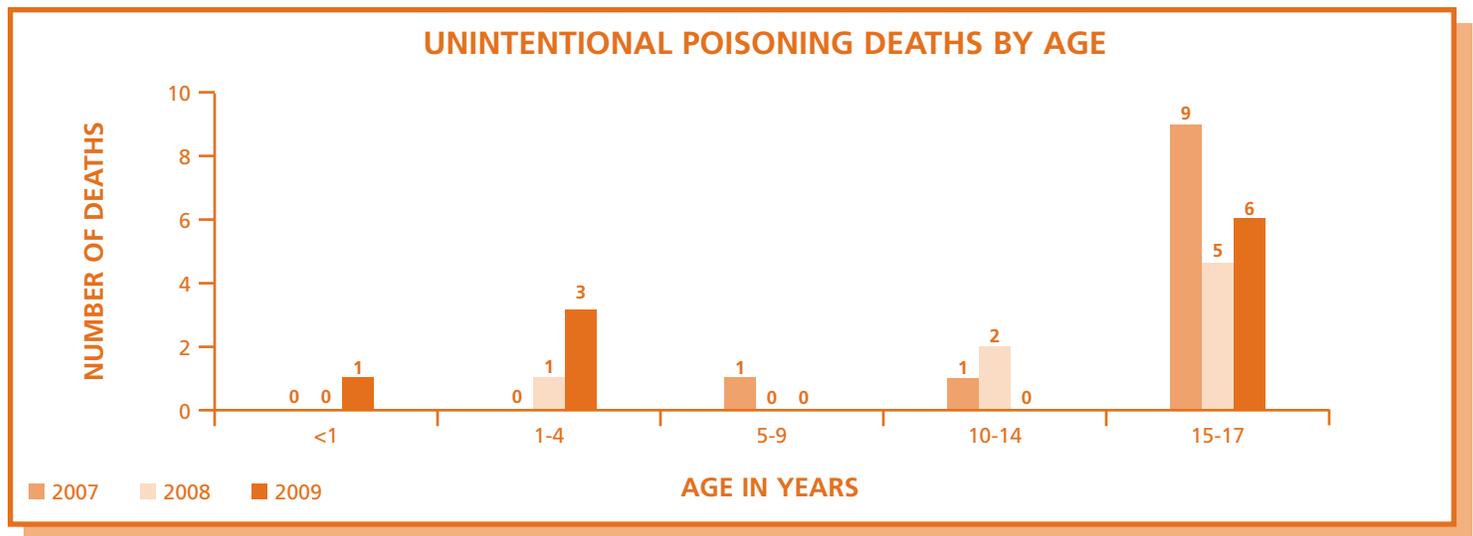
A sixteen-year-old boy had been drinking with his friends and passed out. They placed him face down on the bed with his head to the side and a trash can near the bed, where he vomited. He was found the next day, appearing to have been deceased for a few hours. It is unknown who provided the alcohol.

A seventeen-year-old boy was possibly selling and/or using his mother's methadone pills. He had been up all night, going to sleep the next morning. He was found deceased that evening, having died of methadone overdose.

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.

In 2009, **ten** Missouri children died of unintentional poisoning. **One** newborn died due to maternal cocaine usage. **Three** children, ages one through four died from getting into unsecured medications. According to the National SAFE KIDS Campaign, 60 percent of poisoning exposures to children under the age of five are by non-pharmaceutical products such as cosmetics, cleaning substances, plants, foreign bodies and toys, pesticides, art supplies and alcohol; with the remaining 40 percent by pharmaceuticals.

Unintentional childhood poisoning deaths have declined over the past decade, largely due to child-resistant packaging, heightened parental awareness, Consumer Product Safety Commission regulations concerning lead-free products and appropriate interventions by poison control centers and health professionals.



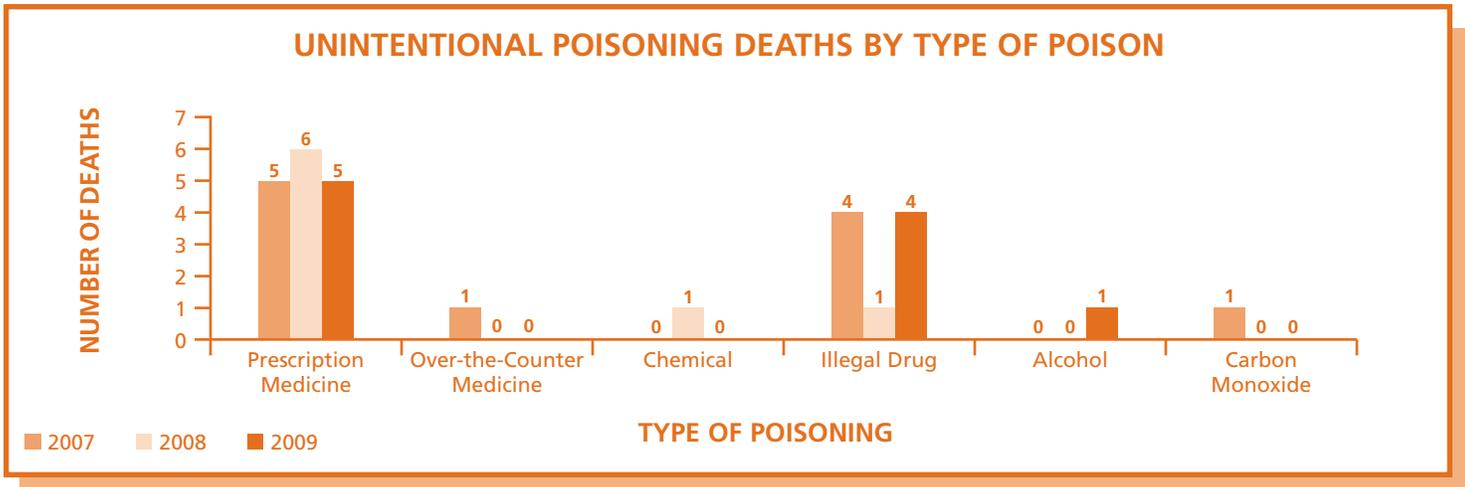
UNINTENTIONAL POISONING DEATHS BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	6	4	0	WHITE	10	8	6
MALE	5	4	10	BLACK	0	0	3
				OTHER	1	0	1
	11	8	10		11	8	10

Six Missouri teens, ages 15-17, died of unintentional poisoning in 2009, **four** overdosed from prescription medications from various sources, one died from illegal drugs and **one** died of alcohol poisoning.

According to the Office of National Drug Control Policy (ONDCP), any illicit drug use more than doubles between 8th and 10th grade, from 8.1 percent to 17.8 percent. By the time students are seniors; this rate of illicit drug use has climbed to 23.3 percent. The pattern for alcohol use is similar. Rising from 14.9 percent to 30.4 percent between 8th and 10th grade, and by the time students are seniors, the rate of current alcohol use has reached an alarming 43.5 percent. Research tells us that the brain is still developing during adolescence, particularly those areas that control decision making. Parents and other adults need to know that these are vulnerable years for their children. Be aware of the warning signs of substance use and know what can be done to help prevent children from ever starting to use these substances.

A number of national studies and published reports indicate that the intentional abuse of prescription drugs to get high is a growing concern. Among teens, prescription drugs have become the second most abused illegal drug, behind marijuana. According to Substance Abuse and Mental Health Services Administration (SAMSHA), emergency room visits related to nonmedical use of pharmaceuticals, increased 60 percent in the period from 2004 to 2007.



Prevention Recommendations:

For parents:

- Parents should educate themselves and their teens about the risks associated with prescription and over-the-counter drug abuse.
- When using prescription medications, parents and children should follow directions carefully and properly 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 about the hazards to children regarding prescription and over the counter medications.

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 <http://www.safekids.org/>
- National Center for Injury Prevention and Control <http://www.cdc.gov/injury/index.html>
- Parents, the Anti-Drug. <http://www.theantidrug.com/>
- Teens and Prescription Drugs an Analysis of Recent Trends on the Emerging Drug Threat
. http://www.theantidrug.com/pdfs/TEENS_AND_PRESCRIPTION_DRUGS.pdf

Unintentional Firearm Fatalities

In 2009, two Missouri children died of unintentional firearm injuries.

Representative Cases:

- Teens, drugs, alcohol and guns do not mix.

A 17-year-old boy and a friend were smoking marijuana in the car. They were taking pictures with a cell phone, of holding a gun to their heads. The gun went off killing the boy.

A 16-year-old boy was hanging out with friends at home. They were taking pictures of themselves holding various weapons. The boy's friend was reported to have accidentally pulled the trigger as he "collapsed" from consuming too much alcohol.

According to the CDC, 112 children died and another 2,130 children were injured through the accidental discharge of firearms in 2007. In 2009, **two** Missouri children died of unintentional firearm injuries.

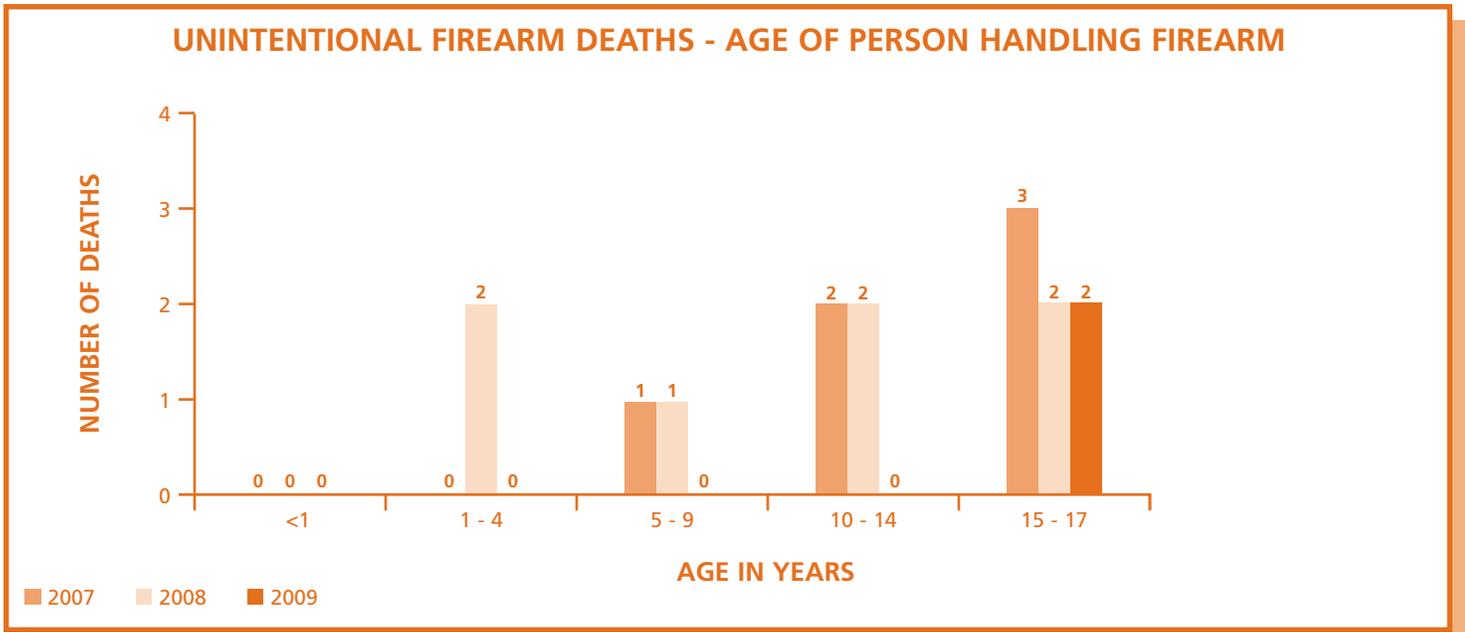
UNINTENTIONAL FIREARM DEATHS BY AGE



In the United States, males are far more likely to be injured and die from unintentional shootings than female. Of children 17 and under who were killed by unintentional shootings, 88% were males. In Missouri, in 2009, both of the victims of unintentional shootings were male.

Nationally, more than 70% of unintentional firearm shootings involve handguns. In 2009, one of the two unintentional firearm deaths among children involved handguns, the other death involved a rifle.

In 2000, it was estimated that there are firearms in 35.5% of the households with children under 18, and in only 9% of these households, the firearms were stored locked and loaded. Of the two unintentional firearm deaths reviewed by CFRP panels in 2009, one of the weapons was owned by a family member and the other was owned by an acquaintance. Information about how the weapons were stored was not provided by the panels in either case.



Unintentional Firearm Deaths Among Children

Parents need to store their guns safely and supervise their children's activities.

- Most unintentional childhood firearm deaths involve guns kept in the home that have been left loaded and accessible to children and occur when children play with loaded guns. Both of the two Missouri children, who died of a result of unintentional firearm injuries in 2009, were reported to be playing with the gun.
- Unintentional shootings among children most often occur when children are unsupervised and out of school.

Many parents have unrealistic expectations of their children's capabilities and behavior around guns:

- 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 to 80 percent of first and second grade students knew where the gun was kept.
- Before age 8, few children can reliably distinguish between real and toy guns or fully understand the consequences of their actions. A recent study found that half of boys, ages 8 to 12, who found a real handgun, were unsure whether or not it was a toy.
- Children as young as three years old are strong enough to pull the trigger of many of the handguns available in the United States.
- In a recent study, more than 90 percent of children who found and handled a gun, or pulled the trigger, reported having some previous type of firearm safety instruction.

Missouri has seen a 60% decline in unintentional firearm deaths over the past 10 years and similar declines have been seen nationwide. These changes can be attributed to many different factors:

- It is estimated that safety devices such as gun locks and load indicators, prevent more than 30 percent of all unintentional firearm deaths.

- To distinguish toy guns 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.

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 one.

For community leaders and policy makers:

- Enact laws outlining owner liability for harm to others, caused by firearms.
- Enact and enforce laws requiring that new handguns be designed to minimize the likelihood of discharge by children.
- Enforce laws and ordinances that restrict access to and decrease availability of guns.

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.

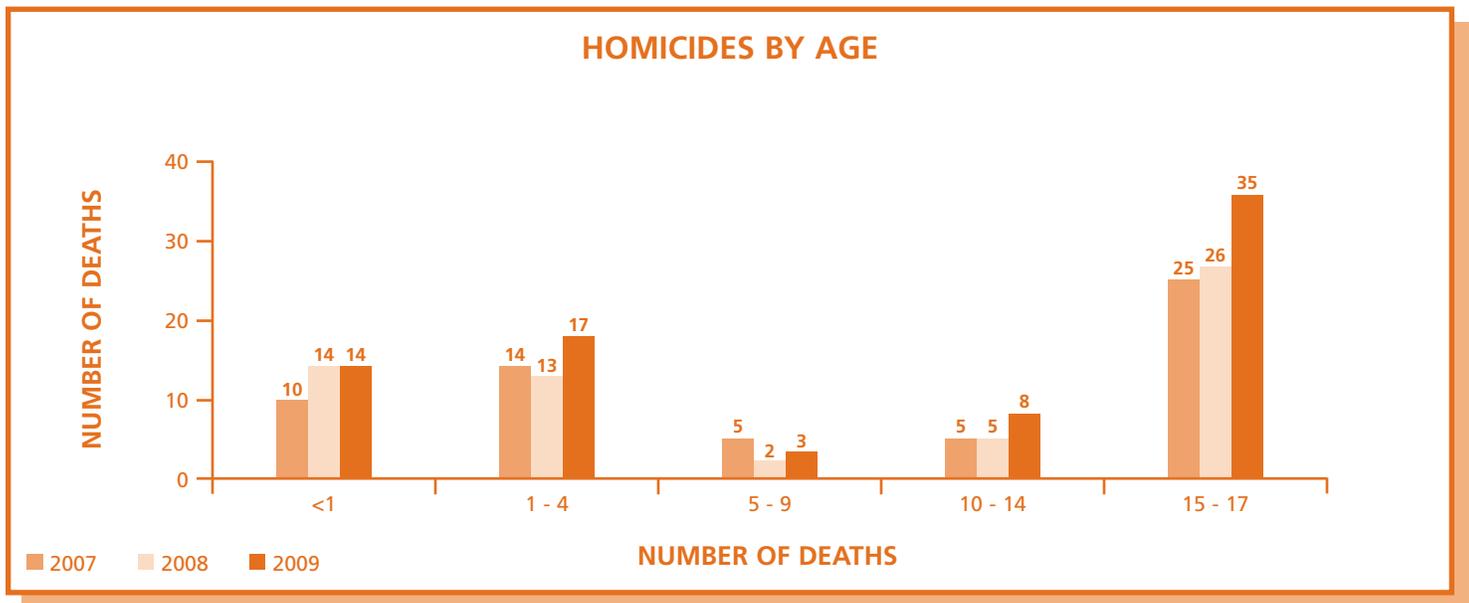
Resources and Links:

- National SAFE KIDS Campaign <http://www.safekids.org/>
National Rifle Association “The Eddie Eagle GunSafe Program”
. <http://nrahq.org/safety/eddie/>
Missouri Department of Conservation Hunter Education Program
. <http://mdc.mo.gov/hunting-trapping/learn-hunt/hunter-education>

Homicides

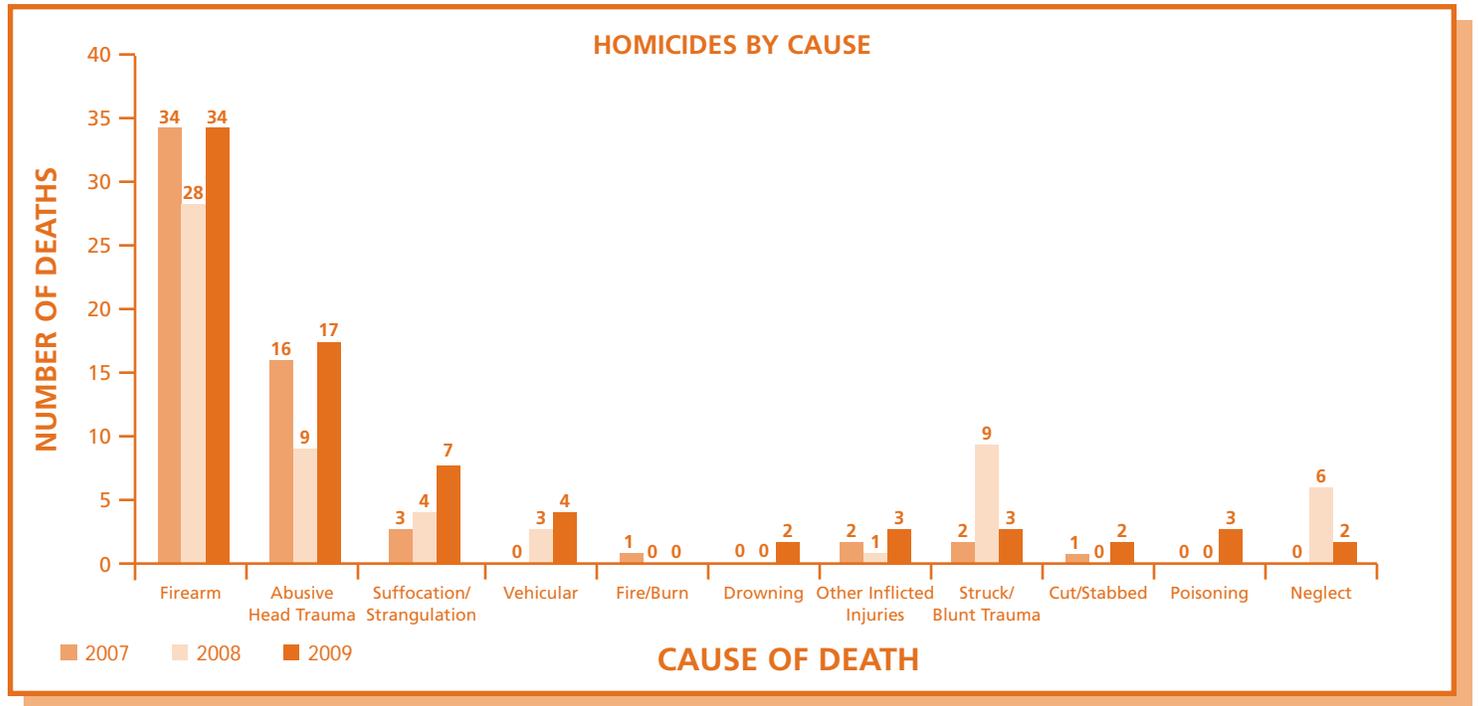
In 2009, homicide was listed as the death certificate manner of death for 77 Missouri children.

- 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 2009, a total of 109 Missouri children were identified by CFRP panels, as victims of Fatal Child Abuse and/or Neglect; of those, 33 were reported by death certificate as Homicide.
- Death of a child in which 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 culminates in murder. There were 34 such fatalities among Missouri children in 2009. Of those, CFRP panels identified six child deaths in which parental negligence was a contributing factor.
- 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 2009, there were 10 such deaths of this type among Missouri children.



HOMICIDES BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	17	21	25	WHITE	23	25	32
MALE	42	39	52	BLACK	34	33	44
				OTHER	2	2	1
	59	60	77		59	60	77



Fatal Child Abuse and Neglect

In 2009, 109 Missouri children were victims of Fatal Child Abuse and Neglect. Of those, 33 were reported as homicide by Death Certificate.

Representative Cases:

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

A three-month old sustained fatal trauma while in the care of an unlicensed day care worker. The child was in normal health when dropped off in the morning by parents. The child died of blunt head trauma.

A 10-month-old child with multiple admissions to the hospital for failure to thrive and vomiting died of starvation. This baby was supposed to be fed with a feeding tube, but it was not being used.

A 19-month old was being watched by mother's boyfriend. He called the mother at work and told her that the child had fallen in the bathtub and hit her head. The mother called a neighbor to check on child. The story did not match the severity of the injuries. The child died from cerebral anoxia, due to subdural hematoma and cerebral edema caused by blunt force injury to the head.

- Parents and caregivers need to be educated on ways to cope with crying children.

The mother was in jail for past injuries to a one-month old child. Father was caring for all the children and became "stressed." The child died from multiple blunt force injuries and head trauma.

A one-year-old child was slammed against the wall at the back of her crib by her mother's paramour, for refusing to sit down. He then went and took a nap. When he got up, he bathed and left the child in the tub, where she drowned due to her head injury. He dressed the child, put her to bed and went to pick up the mother up. The mother found the child the next morning.

Parents of a two-month-old child claimed he was found lying face down on a regular bed, but autopsy found bruising on his nose and lip, and a torn frenulum of the upper lip. The child died of intentional suffocation at the hands of his mother, because he would not stop crying.

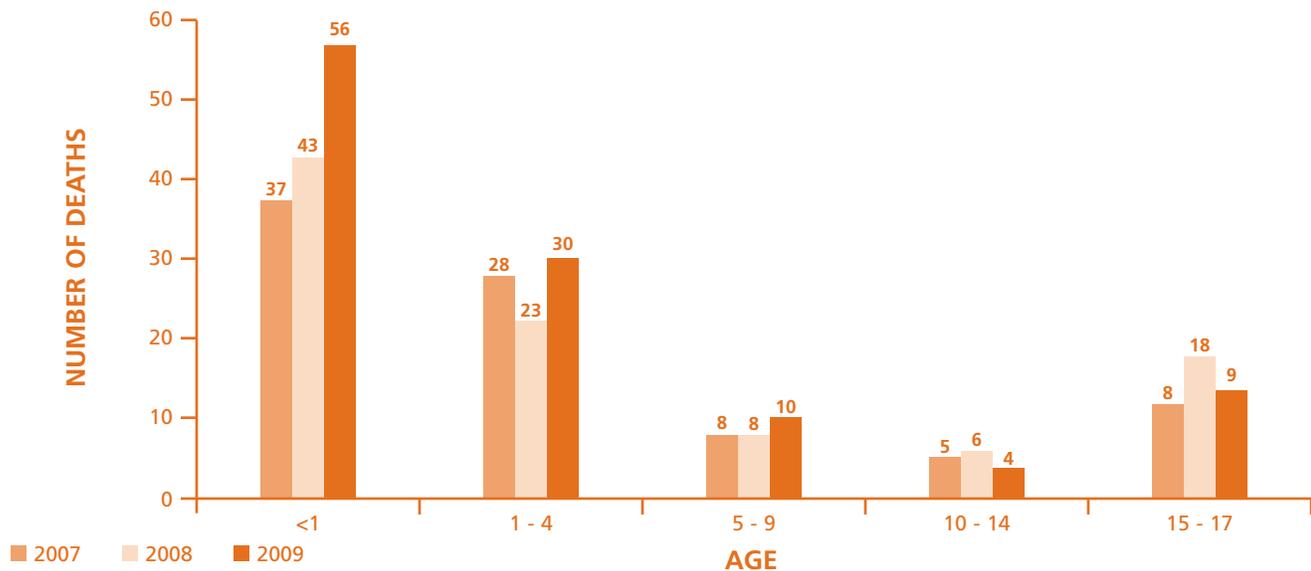
- The link between domestic violence and child abuse is clear.

The father had only been in this 21-month old child's life for the last eight weeks. During that time, he became progressively more aggressive with both the mother and child. The mother found him holding the child so tight, that she was concerned about the child's breathing. The parents argued and dad threw the child head-first into the floor. He then beat up mom, who was unconscious on the floor when police arrived.

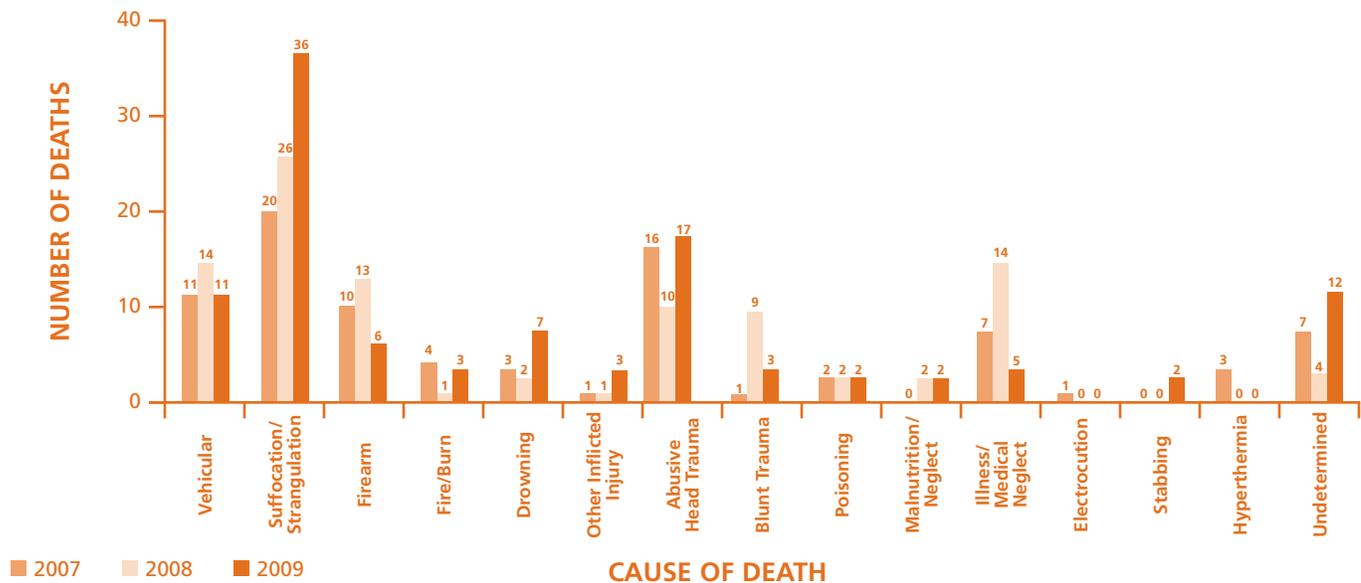
CHILD ABUSE AND NEGLECT DEATHS BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	37	42	43	WHITE	60	61	66
MALE	49	56	66	BLACK	23	34	42
				OTHER	3	3	1
	86	98	109		86	98	109

CHILD ABUSE AND NEGLECT DEATHS BY AGE



CHILD ABUSE AND NEGLECT DEATHS BY CAUSE



Child fatalities are the most tragic consequences of child abuse and neglect. The National Child Abuse and Neglect Data System (NCANDS) reported an estimated 1,760 child fatalities in 2007. However, it is well documented that child abuse and neglect fatalities are under-reported and that, nationally, the numbers may be much higher. There are a number of reasons for this discrepancy 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: the Department of Health and Senior Services' Bureau of Vital Statistics, the Department of Social Services, Children's Division and the 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 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, 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 multi-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 201.110, RSMo, for children under the age of 18, for whom the perpetrator has care, custody and control.

Since August 2000, all child deaths are reported to the Children's Division Central Registry. Additionally by statute, child deaths are to be 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 sufficient evidence to prove that a child who 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 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 cases such as this, Children's Division may determine that here was a *preponderance of evidence* to believe that this child was the victim of neglect, specifically lack of supervision.

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

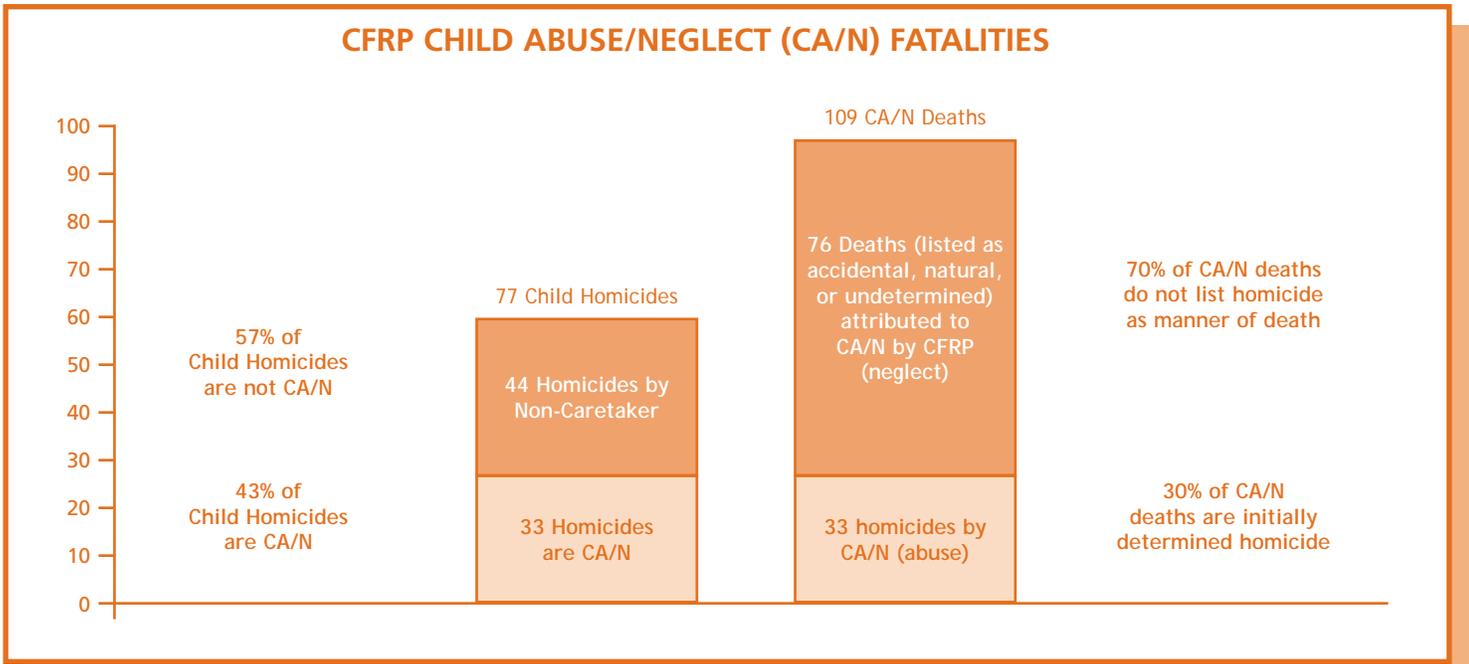
Child fatalities represent the extreme of all issues that have a negative impact on children. Despite an increasing awareness of severe violence against children, very little was known in the past about fatal child abuse and neglect. In the late 1980's, Missouri researchers discovered that many fatal 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 program. 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 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 2009, 33 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 shaken baby. Infants and young children are more likely to die from abuse and neglect. These children are the most vulnerable for many reasons, including their dependency, small size and inability to defend themselves. In 2009, 30 of the 33 Missouri children (91%) who died from inflicted abuse or neglect at the hands of a parent or caretaker were four years of age or younger. Of those, 14 (47%) were infants under the age of one year.

In 2009, three children died of blunt trauma injuries to the abdomen or chest when they were struck, punched, kicked or thrown by a parent or caretaker. 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.

According to Harvard Medical School, in the United States, abusive head trauma 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 2009, 17 Missouri children were victims of fatal Abusive Head Trauma, formerly 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 2009, six Missouri children died of suffocation/strangulation injuries at the hands of a parent or caretaker.

FATAL ABUSE INFLICTED INJURIES BY AGE	
<1 year	14
1-4 years	16
5-9 years	1
10-14 years	1
15-17 years	1

FATAL ABUSE INFLICTED INJURIES BY SEX	
Females	15
Males	18

FATAL ABUSE INFLICTED INJURIES BY RACE	
White	20
Black	12
Other	1

FATAL ABUSE INFLICTED INJURIES BY CAUSE			
Abusive Head Trauma	17	Suffocation/Strangulation	6
Blunt Trauma	3	Drowning	2
Stabbing	2	Neglect	2
Poison	1		

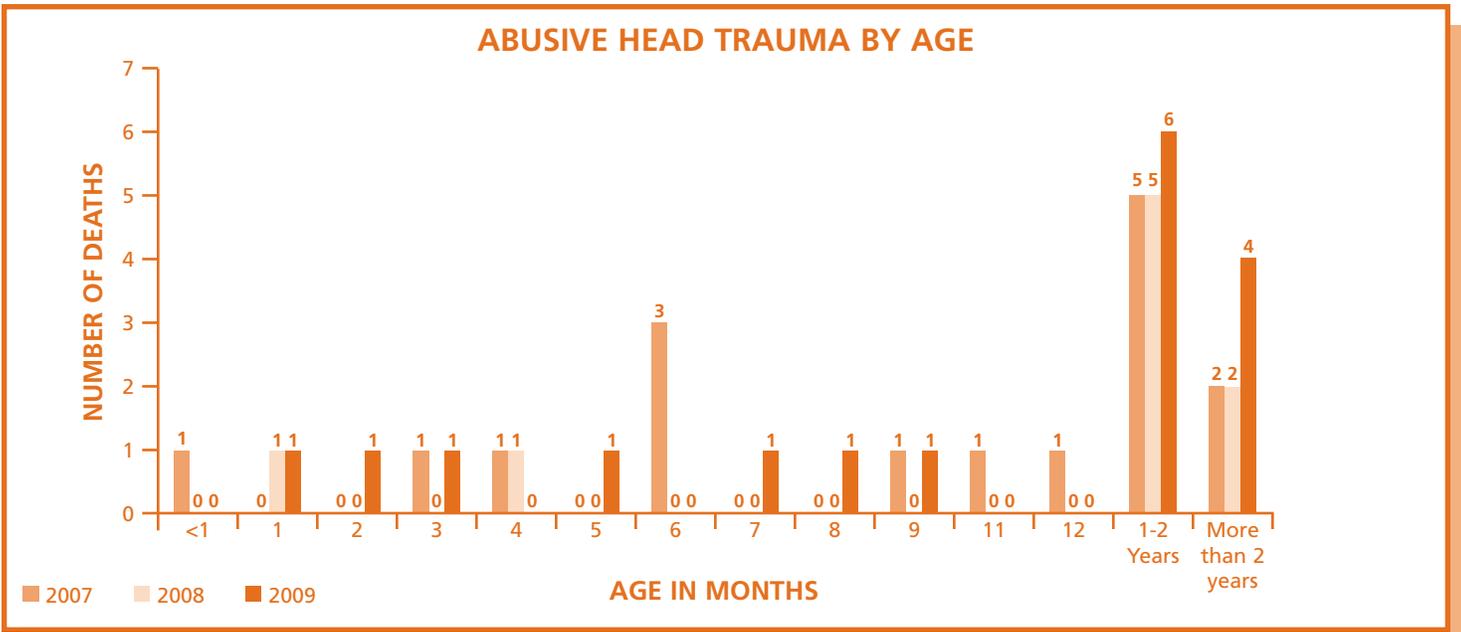
Abusive Head Trauma

Of the 33 Missouri children who died from inflicted injury at the hand of a parent or caretaker in 2009, **17** (52%) were victims of abusive head trauma (or inflicted brain injury), formerly known as Shaken Baby Syndrome.

Abusive Head Trauma 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), which are caused by neurological changes 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 these cases. (National Center for Shaken Baby Syndrome)

Abusive Head Trauma is so lethal that approximately 25 percent of all victims die as a result of their injuries. Those that do survive may have significant neurological injury resulting in a range of impairments seen over the course of their lives, including cognitive deficits and behavioral problems. Recent Canadian data on children hospitalized for abusive head trauma show that 19% died, 59% had neurological, visual impairment and/or other health effects and only 22% appeared well at discharge. Recent data also indicate that babies who appear well at discharge may show evidence of cognitive or behavioral difficulties later on, possibly by school age.

The average age of victims is between three and eight months, although these injuries are occasionally seen in children up to four years old. Infants are particularly vulnerable to abusive head trauma injuries because of their unique physical and behaviors characterizes. Physically, infants' heads are large and heavy in proportion to their body weight and their neck muscles are too weak to support such a disproportionately large head. Also, because infants' brains are immature, they are more easily injured. During abusive head trauma, the head rotates wildly on the axis of the neck creating multiple forces within the head.



ABUSIVE HEAD TRAUMA FATALITIES BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	5	3	7	WHITE	9	7	10
MALE	11	6	10	BLACK	5	1	6
				OTHER	2	1	1
	16	9	17		16	9	17

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 abusive head trauma is almost always the baby’s crying and loss of control by the caregiver. Research has found that the amount of crying infants do tends to increase on a daily basis, starting at about one-two weeks, getting worse for up to two-three months and then starts to get better. While some babies cry more than others, all infants go through this same pattern. This is known as the “period of **PURPLE** crying,” it **P**eaks, is often **U**nexpected, **R**esists soothing, the child looks like they are in **P**ain, is **L**ong lasting with an average of 35-40 minutes at a time, but can last up to two hours and it tends to happen more in the late afternoon or **E**vening. Of the 17 children who died of abusive head trauma, crying is listed as the triggering event in **five** deaths (NOTE: Ten of these deaths had “unknown” listed under triggering event, possibly due to the lack of cooperation from the perpetrator.)

Research has established that 60-70% of perpetrators of abusive head trauma are male. Birth fathers account for the majority, followed by mother’s boyfriend, female babysitters, and mothers. In 2009, perpetrators of abusive head trauma fatalities in Missouri included **four** birth fathers, **eight** mother’s boyfriends, **four** child care workers and one birth mother.

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. Parents 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 services 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 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 had contributed to the death of the child. In 2009, CFRP panels found that Grossly Negligent Treatment had contributed to the deaths of **76** Missouri children; of those **7** were designated as Homicide by death certificate. For data purposes, all **76** deaths are included in the appropriate data section, Natural Causes, 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	Malnutrition	Exposure to Hostile Environment or Hazardous Situation	Unrestrained Child	Other	
5	Natural Cause	1	5	1	4	0	0	Two infants were born preterm and died due to mother's drug abuse. Three children died because medical care was withheld; one of those was living in a meth house.
11	Vehicular	6	0	0	0	4	5	Four children were run over when they were left unsupervised. Five children were riding unrestrained or improperly restrained, two of them were in vehicles that were being operated at a high rate of speed and one was riding with a driver who was intoxicated. The last two children were operating motorized cycles and not wearing helmets.
30	Suffocation	3	0	0	2	0	25	Twenty-two infants were bedsharing with adults, exposing them to soft bedding and the possibility of overlay by others. Four others were placed in unsafe sleep positions. One child had been left asleep in the car; he ended up with his head caught in the window. Two children with suicidal tendencies were improperly supervised, one shoved an item down her throat and one hung himself. The last child died because the bottle was propped and her lungs filled with formula.
1	Poison	1	0	0	1	0	0	Deceased child and twin got into mother's unsecured illegal drugs, the twin survived.
6	Firearm	2	0	0	2	0	4	One child was accidentally shot in the neck by younger cousin while hunting. One child unlocked the gun cabinet, got out a gun and shot himself. The four other children had multiple Children's Division and Juvenile Court referrals for lack of supervision, educational neglect, etc.
5	Drowning	4	0	0	0	0	1	One toddler died when he leaned over and fell head first into a full bathtub. Two children were left unsupervised outside for hours, they were found in the river. One child was left in front of the TV while caregiver went back to bed, and later found outside in a pool. The last child got tangled in the covering for the family pool and drowned.
3	Fire/Burn	2	0	0	1	0	0	Two children died after one of them pulled burning kindling from the woodstove. Their mother told them to put it back, but did not supervise them doing it. One other child died when his mother left his car seat on the stove.
3	Other Inflicted	1	0	0	2	0	0	Two children who were visiting their aunt were killed by her ex-boyfriend who killed most everyone in the house. One toddler died when his cousin body slammed him on the floor. Parents had told them to stop, but did nothing to stop them.
12	Undetermined	0	0	0	5	0	7	Six of these children were bedsharing. One was found in an unsafe sleep environment. Two infant bodies were found sealed in coolers. In one case, the child was found in an overheated room and swaddled. Mother was assaulted by her boyfriend and had the infant prematurely, and the last child had signs of prior abuse.
Total Child Deaths = 76		20	5	1	17	4	42	

*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 does exist, 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. 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 hand-on assistance, training and expertise, 1-800-487-1626, website: www.dss.mo.gov/stat.

National Center for Prosecution of Child Abuse, a program of the National District Attorneys Association. http://www.ndaa.org/ncpca_home.html
Provides training and technical assistance. A clearinghouse of child abuse case law, statutory initiatives, court reforms, information on expert witnesses, and trial strategies and research.

National Center on Shaken Baby Syndrome <http://www.dontshake.org/>
Provides technical assistance, research, expertise to investigation professionals, including scene investigation of suspected incidents, legal professionals, and visual presentations.

Something We Can Do: Preventing Abusive Head Trauma



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.

The Children's Trust Fund (CTF), Missouri's Foundation for Child Abuse Prevention, provides SBS Prevention materials, including brochures and "Preventing Shaken Baby Syndrome" DVDs, for parents and child care providers.

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

Prevention Recommendations:

For parents:

- Report child abuse and neglect.
- Seek crisis help through the Parental Stress Helpline (1-800-367-2543) or ParentLink (1-800-552-8522).

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 providers.
- 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 the 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 and enhance our ability to identify those children who are most likely to be abused and intervene before they are harmed.

Resources and Links:

Missouri Child Abuse Hotline	1-800-392-3738
The National Center on Shaken Baby Syndrome	http://www.dontshake.org/
US Department of Justice Office of Juvenile Justice and Delinquency Prevention	http://ojjdp.ncjrs.gov/
Centers for Disease Control and Prevention	http://www.cdc.gov/
Missouri Department of Social Services, Children’s Division	http://www.dss.mo.gov/cd/
National Center for Missing and Exploited Children	http://www.missingkids.com
State of Missouri Office of Child Advocacy	http://www.oca.mo.gov/
National Council of Juvenile and Family Court Judges	http://www.ncjfcj.org/
Child Welfare Information Gateway	http://www.childwelfare.gov/

Other Homicides

Of the 77 child homicides in Missouri in 2009, 44 involved perpetrators who were not in charge of the child; of those 34 (77%) involved firearms.

Representative Cases:

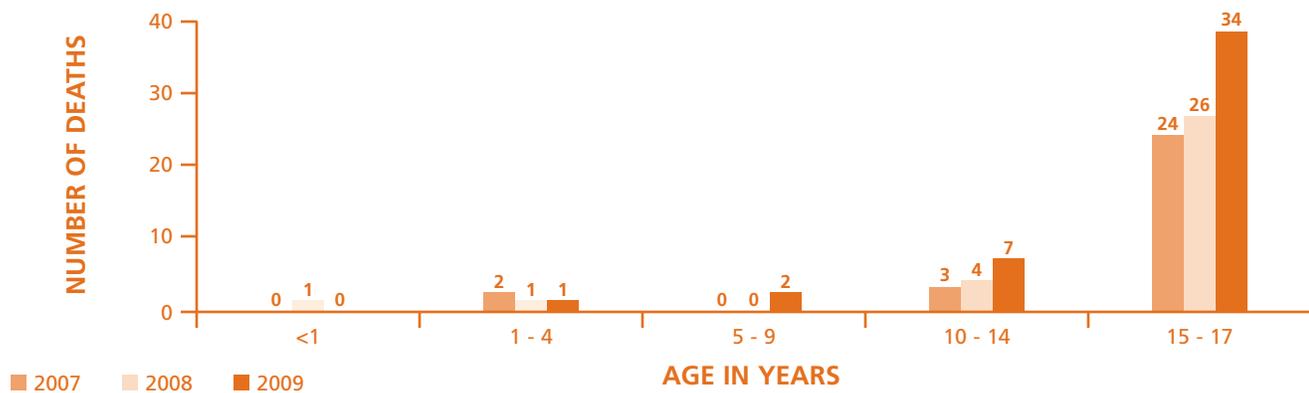
- The increased availability of guns and drugs contribute to violence.

A seventeen-year-old boy was involved in a three-party argument. The suspect pulled out a handgun and fired two shots. The victim and his brother got the gun away from suspect, but he pulled out a second weapon and shot both the victim and his brother.

A sixteen-year-old child, who had not attended school since age 13, was visiting a friend, when he was shot. He had multiple Children's Division and Juvenile Court involvements. The motive is unknown and no suspects have been identified, but the area was known for gang activity.

A fifteen-year-old boy and his friend were sitting in a car when two cars passed, whose occupants were shooting at each other. It is thought that the deceased and his friend were the unintended targets of stray bullets.

OTHER HOMICIDE DEATHS BY AGE



OTHER HOMICIDE DEATHS BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	5	8	10	WHITE	3	7	12
MALE	24	24	34	BLACK	26	25	32
	29	32	44		29	32	44

In 2009, 44 Missouri children were murdered by non-caretakers. Of those, 34 were youth homicides in which the perpetrator was another child. Most youth homicides involve juvenile crime and violence, or abductions by adults or other adolescents that culminate in murder.

Of the 44 Missouri children murdered by non-caretakers in 2009, ten 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 one child who was shot by a neighbor who was target shooting 1160 feet away through dense brush.

Youth homicide

The most common mechanism of juvenile homicide is firearms. Thirty-four Missouri children died of intentional firearm injuries in 2009. Youth homicides are a serious problem in large urban areas, especially among black males. The percentage of firearm homicides among Missouri adolescents has risen sharply in the last four years; particularly when drug and gang activity is a factor.

YOUTH VIOLENCE	
Firearm	30
Other Inflicted	3
Suffocation	1
HOMICIDES, OTHER	
Firearm	4
Poisoning	2
Vehicular	4

According to the Office of Juvenile Justice and Delinquency Prevention, the national juvenile arrest rate for murder more than doubled from the mid 1980's to 1993. The rate then fell until 2004, when it again increased until reported in 2008. In Missouri on the other hand, the rate of youth violence homicides peaked in 2001, fell until 2006 and has risen sharply to a peak in 2009 that is 27% higher than in 2001.

Research on youth violence has increased our understanding of factors that make some populations more vulnerable to victimization and perpetration. Risk factors increase the likelihood that a young person will become violent. However, risk factors are not direct causes of youth violence; instead, risk factors contribute to youth violence. For example, in Missouri in 2007, 19% of high school participants in the Youth Risk Survey indicated that they had carried a weapon during the past month.

The Surgeon General's report on youth violence associates the following risk factors with perpetration of youth violence:

Individual Risk Factors

- History of violent victimization.
- Attention deficits, hyperactivity or learning disorders.
- 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 the risks of becoming violent. These factors exist at various levels. To date, protective factors have not been studied as extensively or rigorously as risk factors; however, identifying and understanding protective factors are equally as important as researching risk factors.

Individual Protective Factors

- Intolerant attitude toward deviance.
- High IQ.
- High grade point average.
- Positive social orientation.
- Religiosity.
- Connectedness to family or adults outside 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 or going to bed.
- Involvement in social activities.

Peer/School Protective Factors

- Commitment to school.
- Involvement in social activities.

Violence Prevention Recommendations:

For parents:

- Provides 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:

- Centers for Disease Control and Prevention, National Center for Injury Prevention and Control
..... <http://www.cdc.gov/ncipc/dvp/yvp/YVP-risk-p-factors.htm>
- US Dept of Justice, Office of Juvenile Justice and Delinquency <http://ojjdp.ncjrs.gov/>
- The National Youth Violence Prevention Resource Center
..... <http://www.safeyouth.gov/Pages/Home.aspx>
- Missouri Juvenile Justice Association <http://www.mjja.org/>
- 2007 Missouri Youth Risk Behavior Survey
..... http://dese.mo.gov/divimprove/curriculum/newwebpages/documents/yrbs_95_07.pdf

Suicide

In 2009, 28 Missouri children committed suicide

“Suicide is not chosen; it happens when pain exceeds resources for coping with pain.”
- D. L. Conway

Representative Cases:

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

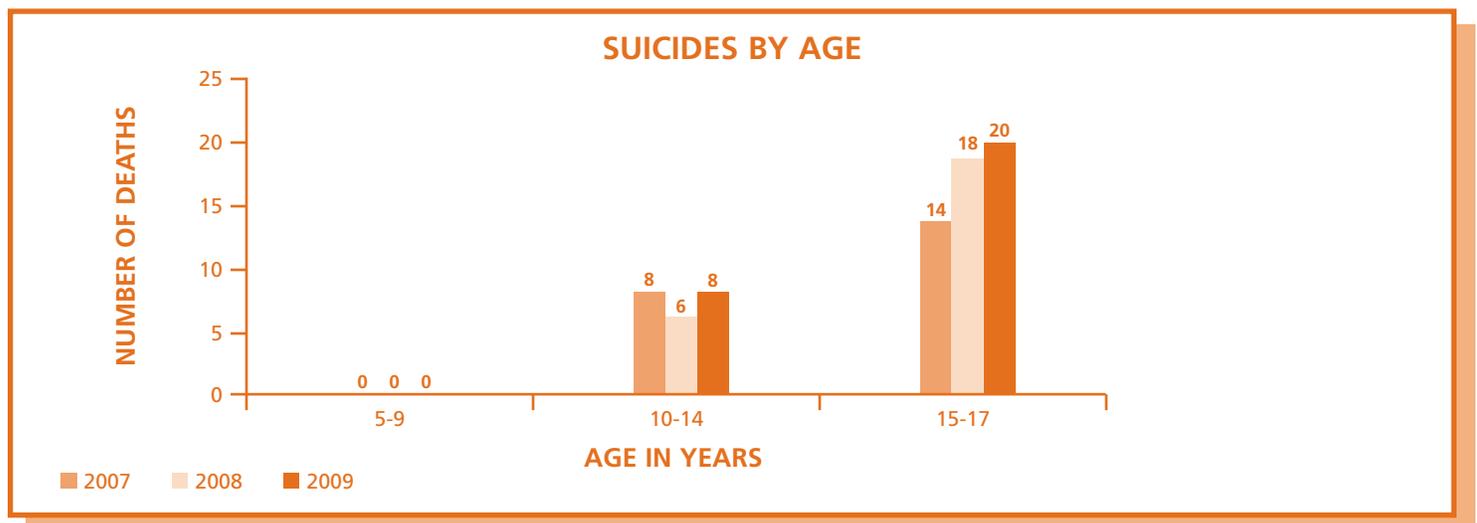
A sixteen-year-old girl hung herself from a tree with a dog leash, after her boyfriend had broken up with her the day before. She had told her mother that she wanted to go to hospital, because she wanted to hurt herself. Mom talked to her, but did not take her, thinking that everything was okay.

A 13-year-old hung himself with a belt from towel rack in bathroom. He was upset at his parents for grounding him from playing with his friends, until he cleaned his room. His mother and step-father found him when they pried the door open.

A 14-year-old boy with a history of mental health issues was found hanging in a closet. He had been recently discharged from a mental hospital for suicidal indications.

A seventeen-year-old boy with a past medical history of depression and anxiety was found dead, hanging from a workout bench.

According to Missouri Department of Mental Health, suicide rates for older adolescents and young adult males, ages 15-24, have decreased since peaking in the early 1990s. By contrast, the rate for adolescent males, ages 10-14, while relatively low, increased slightly from 1.2 in 1981, to 1.7 in 2003. Rates for all females, ages 10-24, decreased during the same period. In 2009, **28** children died of self-inflicted injuries; **20** were ages 15-17; the remaining **eight** were children ages 10-14.



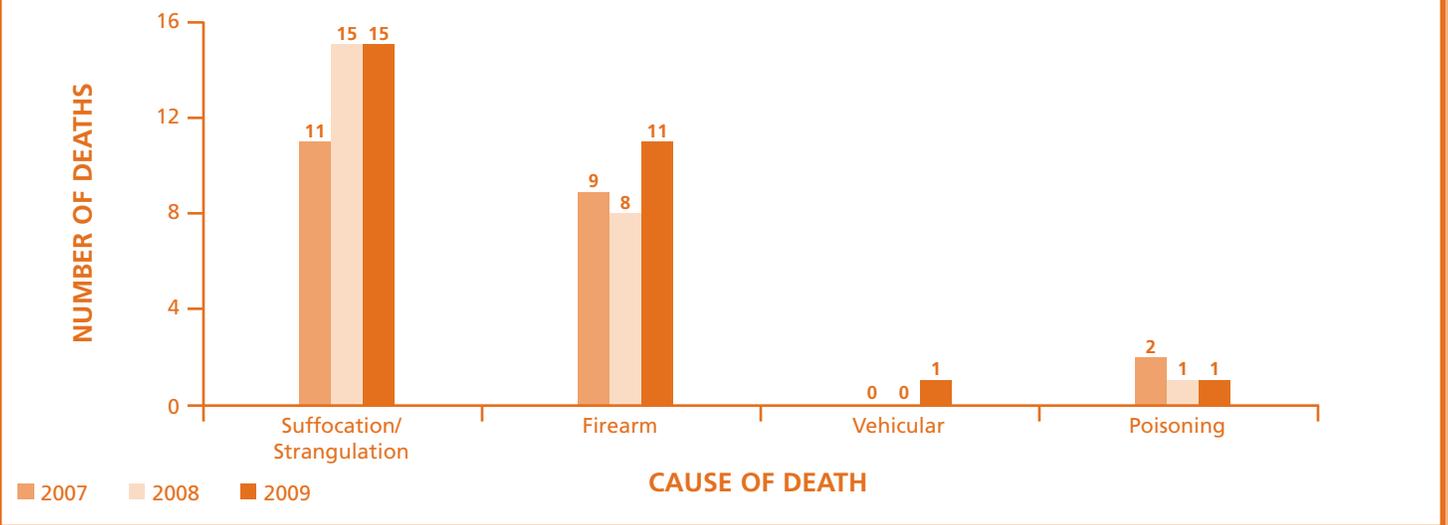
White males comprise the majority of adolescent suicide victims in Missouri. Although more females attempt suicide than males, males are approximately three times more likely to die from suicide.

SUICIDES BY SEX AND RACE

SEX	2007	2008	2009	RACE	2007	2008	2009
FEMALE	4	4	9	WHITE	18	22	27
MALE	18	20	19	BLACK	4	2	1
				OTHER	0	0	
	22	24	28		22	24	28

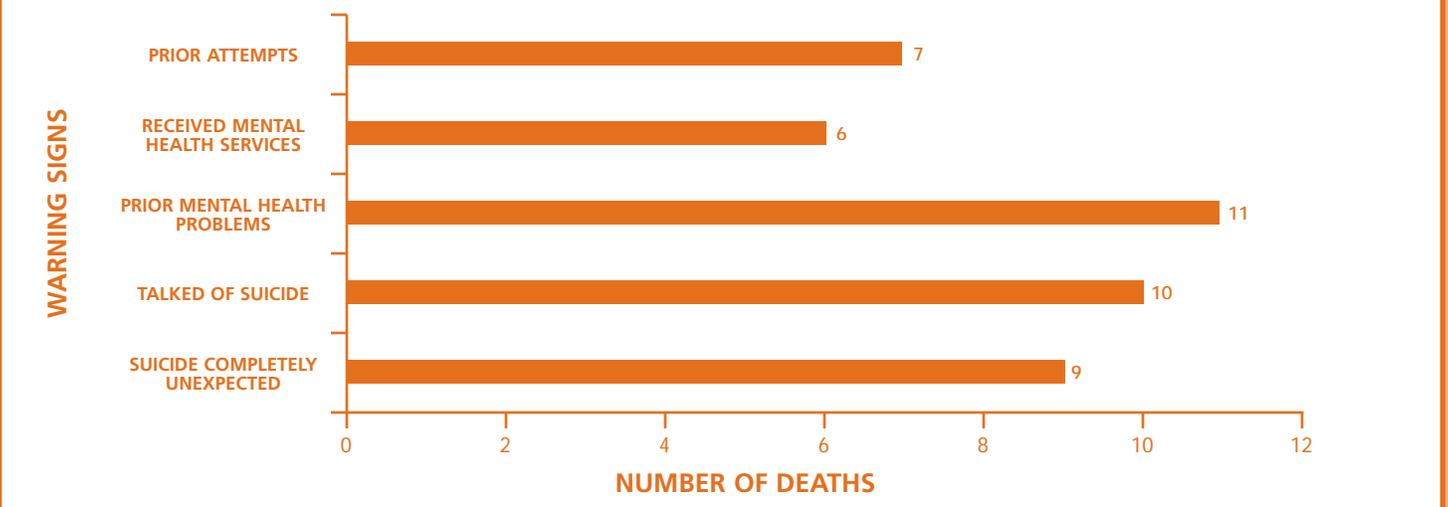
Suffocation/strangulation and firearms are the most common mechanism of suicide among Missouri children.

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 28 Missouri children who committed suicide in 2009, twenty 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. The Missouri Suicide Prevention Plan tells us that understanding the interactive relationship between risk and protective factors in suicidal behavior continues to be studied and drives the development of interventions.

Risk factors are a combination of stressful events, situations, and/or conditions that may increase the likelihood of suicide, especially when several coincide at any given time. Risk factors for suicide include, but are not limited to:

Biopsychosocial Risk Factors

- Mental disorders, particularly mood disorders, schizophrenia, anxiety disorders and certain personality disorders.
- Alcohol and other substance use disorders.
- Hopelessness.
- Impulsive and/or aggressive tendencies.
- History of trauma or abuse (bullying, violence and assault).
- Some major physical illnesses.
- Previous suicide attempt.
- Family history of suicide.

Environmental Risk Factors

- Academic, job or financial loss.
- Relational or social loss (divorce, incarceration, legal problems).
- Easy access to lethal means.
- Local clusters of suicide that have a contagious influence.

Sociocultural Risk Factors

- 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).
- Exposure to suicidal behavior of others, including through media coverage and influence of others who have died by suicide.

Protective factors make it less likely that individuals will develop suicidal ideations, and may encompass biological, psychological or social factors in the individual, family and environment.

Protective factors:

- Effective clinical care for mental, physical and substance use disorders.

- Easy access to a variety of clinical interventions and support for help-seeking.
- Restricted access to highly lethal means of suicide.
- 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.

The Missouri Suicide Prevention Plan:

In 1999, the U.S. Surgeon General, Dr. David Satcher, issues 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 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 this 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: <http://dmh.mo.gov/cps/issues/suicideplan.pdf>. The writers' point out that suicide is a huge and complex problem. 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 the activities outlined in this section are to be effective.

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 and 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, carefully consider 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. <http://dmh.mo.gov/cps/issues/suicide.htm>

Access Crisis Intervention (AIC) Hotline. <http://dmh.mo.gov//cps/ACImap.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) <http://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.

Yellow Ribbon Suicide Prevention Program <http://www.yellowribbon.org/>

National Center for Injury Prevention and Control, Youth Suicide Prevention Programs

A Resource Guide <http://www.cdc.gov/ncipc/pub-res/youthsui.htm>

Suicide Prevention Resource Center. <http://www.sprc.org/>

Suicide Prevention Advocacy Network <http://www.spanusa.org/>

American Association of Suicidology <http://www.suicidology.org/web/guest/home>

Life Crisis Services (St. Louis area) 1-314-647-4357

Mid-Missouri Crisis Line 1-888-761-4357

“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 child fatality review panel 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 canvas the neighborhoods where the deaths occurred, installed smoke detectors and batteries where they were needed and raised public awareness through the media. Over a decade later, the Annual Neighborhood Fire Prevention Awareness day continues in multiple locations throughout the state.

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 child fatality review data to gain new insights into sudden, unexpected infant deaths and concluded that certain unsafe sleep arrangements occurred in the large majority of cases diagnosed as SIDS, unintentional suffocation and cause undetermined. Research demonstrated what child fatality review panel members had suspected: infant deaths caused by unsafe sleep conditions were preventable. In Missouri, Pennsylvania, Michigan, Wisconsin 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?)** A national level standardized case reporting tool and Internet-based data collection system is improving and protecting the lives of all children and adolescents on a national level. The collection of uniform data better gives us the opportunity to identify valuable national trends, risks, spikes and patterns. The National Center for Child Death Review (CDR) 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 is the cause?)** In western New York, a hospital-based program was developed to educate all new parents about the dangers of shaking an infant, now known as abusive head trauma. This initiative effectively reduced the incidence of abusive head trauma in that region, since it was implemented. This program has been replicated throughout the country and proven equally successful. Several states have passed legislation requiring this program for child care providers. In this way, prevention of abusive head trauma 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 initiative was based on research into sudden unexpected infant deaths. 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 communities as state systems are sustainable and effective in the long term. Examples include state laws that require proper restraints 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, and 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 abusive head trauma as part of their curricula.

Resources:

American Academy of Pediatrics	http://www.aap.org/
Children’s Safety Network	http://www.childrenssafetynetwork.org/
Consumer Product Safety Commission	http://cpsc.gov/
Harborview Injury Prevention and Research Center	http://depts.washington.edu/hiprc/
Missouri Child Fatality Review Program	http://www.dss.mo.gov/stat/mcfrp.htm
Missouri Child Death Pathologist Network	http://www.dss.mo.gov/stat/cpn.htm
Missouri Children’s Trust Fund	http://ctf4kids.org/

- Missouri Prevention Center <http://education.missouri.edu/orgs/prevention/>
National Center for Injury Prevention and Control <http://www.cdc.gov/injury/index.html>
National Center on Shaken Baby Syndrome <http://www.dontshake.org/>
National MCH Center for Child Death Review <http://www.childdeathreview.org/>
National SAFE KIDS Campaign <http://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 from 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 the public policy and involve the community in prevention initiatives that protect and improve the lives of children. In 2009, 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 Ordinances

Three children, ages one, four and six, died in a fire. The panel made recommendations to the local government to have the fire department check homes for smoke detectors and find funding for the providing of such detectors for families who cannot afford them.

A three-year-old child was killed when a neighbor, who was 1160 yards away through dense brush, missed the target he was shooting at. The panel recommended basic firearm safety classes be required.

A 15-year-old boy was riding a motorcycle on a two-lane road. He crossed the center line while negotiating a curve and collided with a pick-up truck. The panel recommended continued enforcement of the requirement that all persons who ride a motorcycle take safety classes before they can obtain a permit.

Educational Activities in the Media

A four-year-old child had been asleep, when father left him in the vehicle. About 10 minutes later, a witness saw the child with his head hanging out of the window. The panel released a media public service announcement reference never leaving children unattended in vehicles and proper use of child safety restraints.

A two-month-old child was found unresponsive at the babysitter's home. Autopsy revealed closed head injury, due to non-accidental trauma. The panel ran several articles in the local newspaper on the dangers of abusive head trauma and how to deal with stress involving infants.

Educational Activities in School

A 17-year old, with indications of depression and a history of prior suicide attempts, as well as alcohol and drug abuse, committed suicide. Panel members presented educational programs on suicide awareness, prevention and availability of assistance and resources, in local schools, for students, teachers and parents.

A six-year-old child died of acute bacterial pneumonia. The family had only moved to the United States seven months ago and spoke very little English. The panel believes that if the child had received proper medical care, he would have survived. They recommend that school nurses or educators pass out information about the availability of health care and other assistance to families of immigrant children.

A 14-year-old child hung himself in the closet, as part of playing the "choking game." The panel arranged for a motivational speaker who gives a presentation on choking games, to speak at the school.

A 17-year-old passenger received fatal chest injuries, when the driver lost control of a vehicle driven at a high rate of speed, and it struck a tree on the passenger side. The panel recommended that the Missouri Department of Transportation and local Emergency Medical Services hold highway safety classes and demonstrations at the local schools.

Community Safety Project

A 17-year old child contracted a bacterial disease from swimming in a creek. The panel notified the Centers for Disease Control and Prevention and residents in the area of the creek, concerning the health and safety hazard. Signage was also posted concerning the hazard of swimming in the creek.

A 17-year-old girl was found dead along with her 25-year-old boyfriend. The couple had ongoing domestic problems, which had been becoming more physical, resulting in a murder-suicide. The panel recommended information on domestic violence be made available to the community.

A one-month-old child died of suffocation, from bedsharing with the mother on a loveseat. The panel circulated in the community, U.S. Department of Health and Human Services National Institutes of Health door hangers entitled, "Please put me on my Back to Sleep."

Changes in Agency Practices

A one-month-old baby covered in bruises was brought to the hospital unresponsive and subsequently died. One parent was already incarcerated for previous abuse on the child. The panel recommends providing education on effective parenting skills and offering in-home services to families who are under these types of stressors.

A 25-day-old infant was sleeping with her parents on a twin bed in a homeless shelter. The panel recommends changes in shelter policy, concerning appropriate sleeping arrangements for infants.

News Service

A one-year-old child was left unsupervised, got out of the house and drowned in the family pool. The panel recommended a news release be issued on taking appropriate actions to make residential pools secure and safe for young children.

A fifteen-year-old was swimming on a sand bar at a river, when he saw an eight-year-old child get caught up in a current. He was able to push the child out, but was swept away himself and drowned. The panel gave a press release about water safety and the use of U.S. Coast Guard-approved personal flotation devices when around all open water sites.

Other Programs or Activities

A 16-year-old driver died when, due to weather conditions, she lost control of the vehicle, striking a tree. The panel believes that the addition of noise stripping/scoring would have helped prevent this accident, and requested that they be added to the center line and outer fog lines of all state highways.

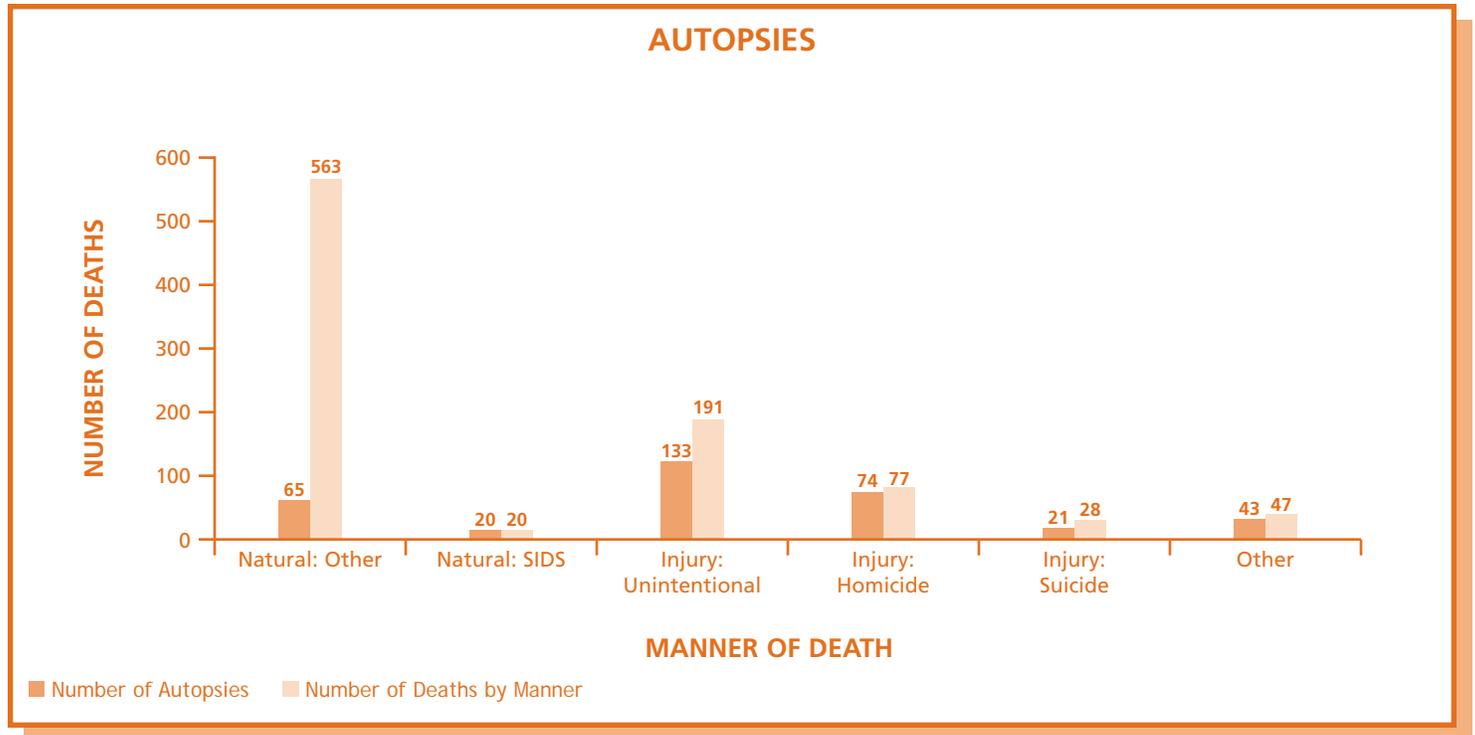


Appendices

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, unexpected manner.

Missouri’s Certified Child-Death Pathologist Network ensures autopsies performed on children, birth through ages 17, and 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 optional members on either a permanent or situational basis.

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.

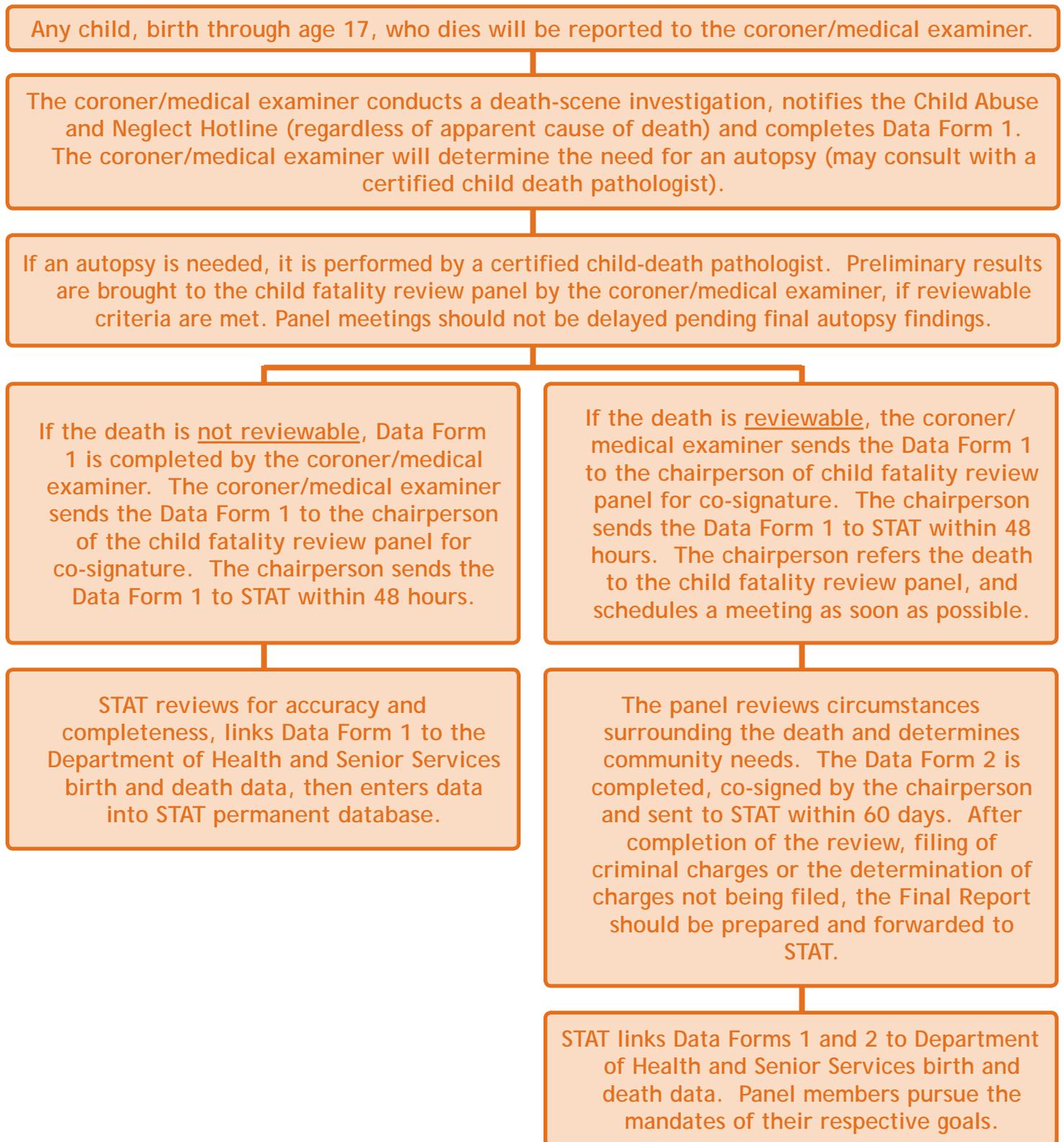
Certified child-death pathologists must perform the autopsies.

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 2007-2009

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Adair	3	1	1	0	1	2	0	1	1
Andrew	2	2	2	2	2	0	2	2	0
Atchison	0	1	0	0	0	0	0	0	0
Audrain	1	4	4	1	2	0	1	2	0
Barry	6	5	2	5	4	1	5	3	1
Barton	1	1	0	1	1	0	1	0	0
Bates	4	4	2	4	4	2	3	3	1
Benton	2	0	2	2	0	1	2	0	1
Bollinger	1	1	1	1	1	1	1	1	1
Boone	45	36	44	6	9	7	4	3	3
Buchanan	13	14	13	8	8	6	6	5	6
Butler	10	5	18	6	4	7	4	4	6
Caldwell	0	0	0	0	0	0	0	0	0
Callaway	5	4	13	5	2	12	3	2	11
Camden	2	2	7	2	2	3	2	1	2
Cape Girardeau	7	9	9	4	7	5	3	4	3
Carroll	0	1	3	0	1	2	0	1	2
Carter	1	1	3	1	0	0	1	0	0
Cass	6	8	6	5	7	5	3	4	3
Cedar	4	3	2	3	1	2	3	1	1
Chariton	0	0	0	0	0	0	0	0	0
Christian	7	5	6	7	4	5	3	3	4
Clark	0	2	1	0	2	1	0	2	1
Clay	23	19	18	12	15	9	8	12	4
Clinton	1	6	1	1	5	1	1	2	0
Cole	9	13	4	5	7	3	5	3	2
Cooper	0	1	1	0	1	0	0	1	0
Crawford	1	2	7	0	1	6	0	1	4
Dade	2	2	0	2	1	0	2	1	0
Dallas	3	0	3	2	0	3	0	0	3
Davies	2	0	1	0	0	0	0	0	1
DeKalb	1	2	1	1	2	1	1	0	0
Dent	2	4	4	2	3	3	1	3	3
Douglas	3	1	2	2	1	2	3	1	1
Dunklin	2	10	10	2	7	7	1	5	4
Franklin	16	15	14	11	8	9	8	6	9
Gasconade	2	4	3	2	3	3	2	1	3
Gentry	0	0	0	0	0	0	0	0	0
Greene	42	50	56	11	14	20	9	8	14
Grundy	1	2	2	0	0	0	0	0	0
Harrison	2	2	1	2	1	1	1	1	0
Henry	6	2	2	5	0	2	4	0	0

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 2007-2009

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Hickory	0	0	0	0	0	0	0	0	0
Holt	1	0	0	1	0	0	1	0	0
Howard	2	0	0	2	0	0	2	0	0
Howell	8	8	9	5	5	2	4	3	2
Iron	3	1	2	2	1	2	1	1	2
Jackson	171	166	139	63	74	82	37	43	47
Jasper	13	10	10	11	7	8	6	8	4
Jefferson	19	22	15	18	16	10	16	12	8
Johnson	6	6	5	5	3	2	4	0	1
Knox	0	0	1	0	0	1	0	0	1
Laclede	9	2	6	5	2	4	5	1	4
Lafayette	2	2	1	2	2	1	2	1	1
Lawrence	4	6	4	3	1	1	0	4	2
Lewis	2	2	1	2	1	1	1	1	1
Lincoln	9	6	6	9	2	4	8	2	2
Linn	1	1	1	1	1	1	1	0	0
Livingston	1	1	2	1	0	2	1	0	1
McDonald	4	2	2	4	2	2	4	2	1
Macon	1	1	1	1	1	1	1	0	1
Madison	1	1	2	1	1	1	1	0	1
Marion	8	4	4	2	2	2	2	2	0
Maries	1	1	1	1	1	0	1	1	0
Marion	8	4	4	2	2	2	2	2	0
Mercer	0	1	0	0	1	0	0	0	0
Miller	5	2	1	4	2	0	5	2	0
Mississippi	0	3	0	0	3	0	0	2	0
Moniteau	1	1	1	1	1	0	1	0	0
Monroe	3	2	0	3	2	0	2	2	0
Montgomery	2	2	0	2	2	0	1	2	0
Morgan	1	5	1	1	5	0	1	5	0
New Madrid	4	3	3	4	1	3	3	1	0
Newton	17	19	10	8	8	2	7	6	1
Nodaway	4	2	1	2	0	1	1	0	1
Oregon	4	0	0	2	0	0	3	0	0
Osage	0	0	0	0	0	0	0	0	0
Ozark	0	3	2	0	3	2	0	0	1
Pemiscot	6	3	6	5	3	2	4	1	2
Perry	0	1	0	0	1	0	0	0	0
Pettis	2	5	6	1	3	4	2	3	4
Phelps	2	9	6	0	9	5	1	6	4
Pike	4	2	1	4	2	1	3	1	0
Platte	3	4	8	0	1	2	0	1	1

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 2007-2009

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Polk	0	2	6	0	1	3	0	1	2
Pulaski	8	5	4	5	2	0	3	3	0
Putnam	0	1	1	0	0	1	0	0	1
Ralls	2	1	0	2	1	0	2	1	0
Randolph	3	5	1	1	2	1	1	2	0
Ray	2	3	3	0	1	2	0	1	1
Reynolds	2	0	3	1	0	3	1	0	2
Ripley	2	3	6	2	3	6	2	3	4
St. Charles	24	20	40	14	9	20	10	7	16
St. Clair	1	1	2	1	0	2	1	0	2
St. Francois	13	7	5	6	7	4	2	6	3
St. Louis county	191	177	193	54	50	55	30	35	36
Ste. Genevieve	4	0	4	2	0	2	1	0	2
Saline	2	6	5	2	5	3	1	2	0
Schuyler	0	0	0	0	0	0	0	0	0
Scotland	1	1	1	1	0	0	1	0	0
Scott	4	6	4	2	5	1	2	2	3
Shannon	1	1	1	1	1	1	1	1	0
Shelby	1	0	1	0	0	1	0	0	0
Stoddard	0	1	0	0	1	0	0	1	0
Stone	1	4	5	0	4	3	1	3	3
Sullivan	3	2	1	1	2	1	2	1	0
Taney	4	6	4	4	5	3	1	3	2
Texas	4	8	9	2	5	7	2	3	5
Vernon	2	6	1	0	6	1	1	5	1
Warren	5	2	3	4	2	3	4	0	2
Washington	2	2	1	2	2	1	1	1	1
Wayne	2	1	1	2	1	1	1	0	1
Webster	3	8	5	0	4	5	0	2	3
Worth	0	0	0	0	0	0	0	0	0
Wright	0	1	1	0	1	0	0	1	0
St. Louis City	216	139	88	58	52	44	39	34	32
STATE TOTAL	1065	972	926	466	472	455	335	318	310

Appendix 5. Missouri Incident Child Fatalities (Age less than 18) by Age, Sex and Race 2007-2009

Age	All Deaths			Reviewed Deaths			Injury Deaths		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
0	673	616	577	184	207	191	87	108	90
1	48	41	42	27	27	28	14	11	20
2	30	22	32	23	17	19	21	12	16
3	23	19	18	17	13	11	15	8	10
4	15	12	16	9	7	13	9	5	8
5	13	16	11	8	11	8	6	10	6
6	18	3	14	11	1	12	8	1	7
7	11	10	14	8	7	11	6	6	10
8	10	8	6	6	5	3	5	2	3
9	15	8	10	12	5	6	9	4	4
10	12	11	7	8	9	6	5	8	4
11	12	8	10	7	7	6	7	4	5
12	11	14	4	7	9	3	6	8	3
13	20	17	9	14	9	7	10	8	2
14	14	19	21	11	11	16	11	9	13
15	34	33	21	25	27	18	23	23	16
16	57	49	44	46	43	47	47	37	46
17	49	66	59	43	57	50	46	54	47
TOTAL	1065	972	926	466	472	455	335	318	310

Sex	All Deaths			Reviewed Deaths			Injury Deaths		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Female	446	405	542	180	181	173	117	119	107
Male	619	567	384	286	291	282	218	199	203
TOTAL	1065	972	926	466	472	455	335	318	310

Race	All Deaths			Reviewed Deaths			Injury Deaths		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
White	701	660	615	323	321	296	246	221	211
Black	323	278	268	129	135	140	78	87	92
Other	41	31	43	14	15	19	11	10	7
Unknown	0	3	0	0	1	0	0	0	0
TOTAL	1065	972	926	466	472	455	335	318	310

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 the “Manner of Death” variable in a 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 one or more applicable indicators for review, as reported by Data Form 1, 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 indicators of whether a review of that death will be required. If the 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 of death 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 a *preponderance of evidence* finding for child abuse or neglect. *Preponderance of evidence* may result from a 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 wellbeing.

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.

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 U.S. 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.

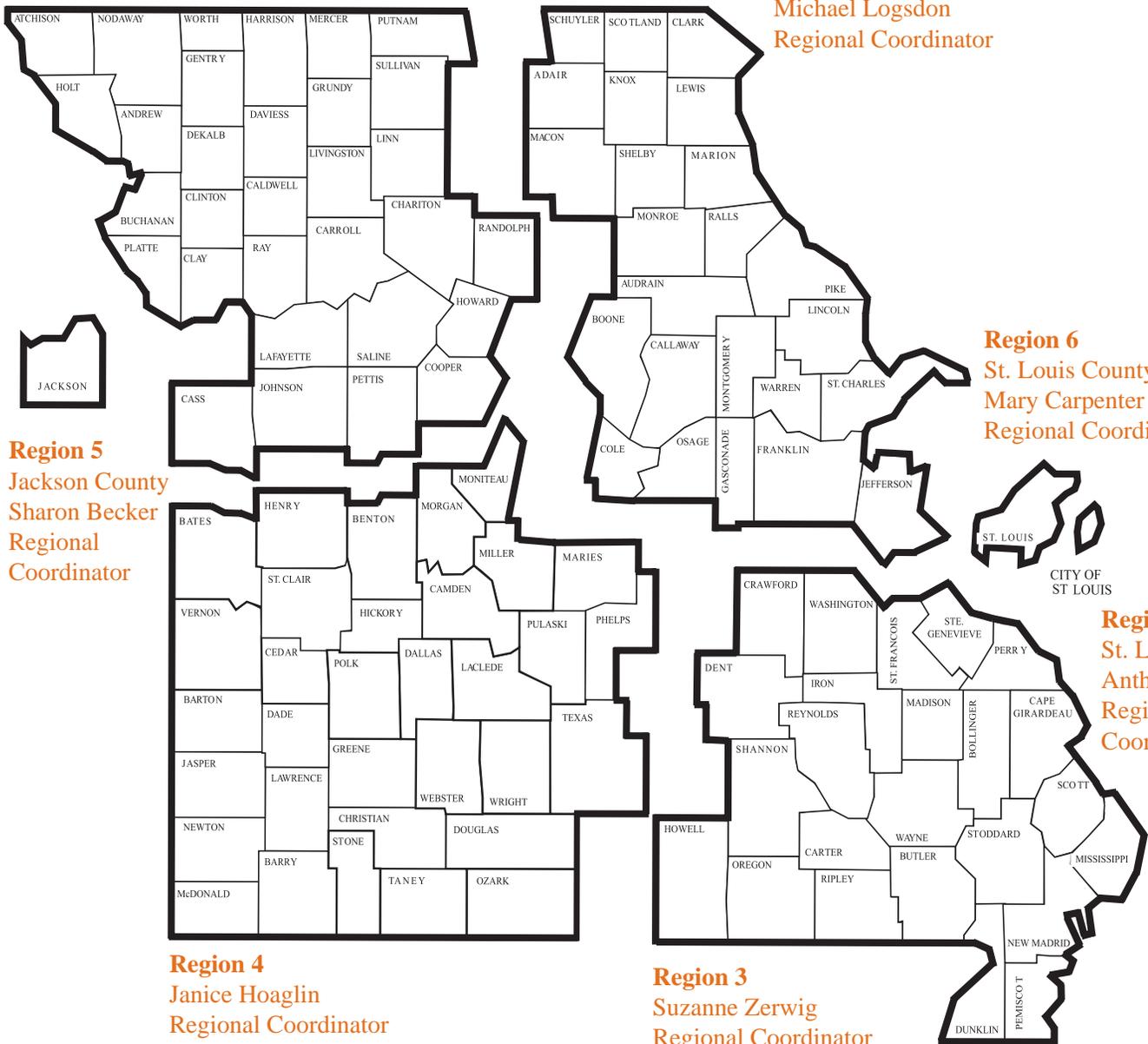
State Technical Assistance Team Child Fatality Review Program

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 6
St. Louis County
Mary Carpenter
Regional Coordinator



Region 5
Jackson County
Sharon Becker
Regional Coordinator

Region 4
Janice Hoaglin
Regional Coordinator

Region 3
Suzanne Zerwig
Regional Coordinator

Region 7
St. Louis City
Anthony Harper
Regional Coordinator