



# *Preventing Child Deaths* **in Missouri**

**The Missouri Child Fatality  
Review Program  
Annual Report for 2011**





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Missouri's Foundation for Child Abuse Prevention

Printing paid in part by a grant from our prevention partners:

**Children's Trust Fund**

PO Box 1641

Jefferson City, MO 65102-1641

(573) 751-5147

[www.ctf4kids.org](http://www.ctf4kids.org)

Special thanks to:  
The staff at State Printing Center  
Division of General Services  
Office of Administration

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# ***PREVENTING CHILD DEATHS IN MISSOURI***

## **THE MISSOURI CHILD FATALITY REVIEW PROGRAM**

### **ANNUAL REPORT FOR 2011**



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State Technical Assistance Team  
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**<http://www.dss.mo.gov/stat/mcfrp.htm>**

**Published December 2012**

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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.

### Co-Chairpersons

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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 and research from the late 1980's to present, show 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.

The Missouri Child Fatality Review Program (CFRP) has succeeded in remaining effective, relevant and sustainable over the past twenty 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) maintain 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 1,000 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. This includes all accidental, homicidal or suicide death. Additionally, 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.)

In 2011, Missouri CFRP joined 39 states in using the National Center for the Review and Prevention of Child Deaths' (NCRPCD) Case Reporting System. The Internet-based application allows local and state users to enter more statistical case data than previously collected, as well as enables users to generate standardized statistical reports. The additional statistics will further enhance identification of trends and pattern of risks, leading to improved investigations, provision of community-based services and implementation of prevention best practices on the local, state and national level.



# 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 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.

Under no circumstances, should any other specific information about the case or CFRP panel discussions be disclosed outside of the review. 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 other 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 question 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.)

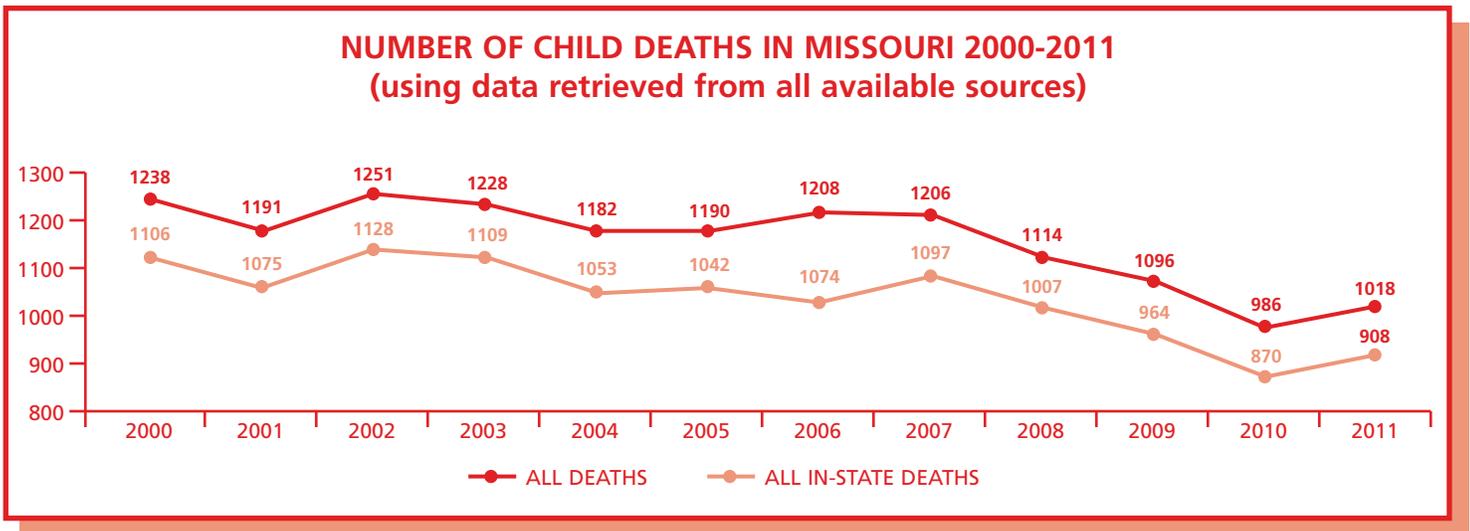
**Missouri Child Fatalities** refers to all children age 17 and under, who died in Missouri, without regard to the state of residence or the state in which the illness, injury or event occurred. (For example, a child who is a resident of Kentucky, injured in a motor vehicle crash in Illinois and is brought to a Missouri hospital, where he subsequently dies, would be considered as a “Missouri Child Fatality”. Statistical data would be reported to the Child Death Review Case Reporting System, but the death would be deemed non-reviewable.)

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

**Multiple-Cause Deaths:** *Cause of death* is a disease, abnormality, or injury 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 to determine if death meets the criteria for review. The findings of this initial review are reported on the Child Death Review Case Reporting System.
- Any child death that is *unclear, unexplained, or of a suspicious circumstance and all sudden unexpected deaths of infants one week to one year of age* is required to be reviewed by a county-based, multidisciplinary CFRP panel. Upon completion of the panel review, the Child Death Review Case Reporting System is reviewed, making any necessary corrections and/or additions, and all sections of the record are completed as appropriate. Panel members receive annual training on the CFRP process and investigation of child fatalities.
- The Child Fatality Review Program data management unit links data collected on the Child Death Review Case Reporting System, 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 2011. Some of the cases reviewed may not have been brought before a county panel until the year 2012. Also, in some cases, panels did not complete all of the information requested on the Child Death Review Case Reporting System.

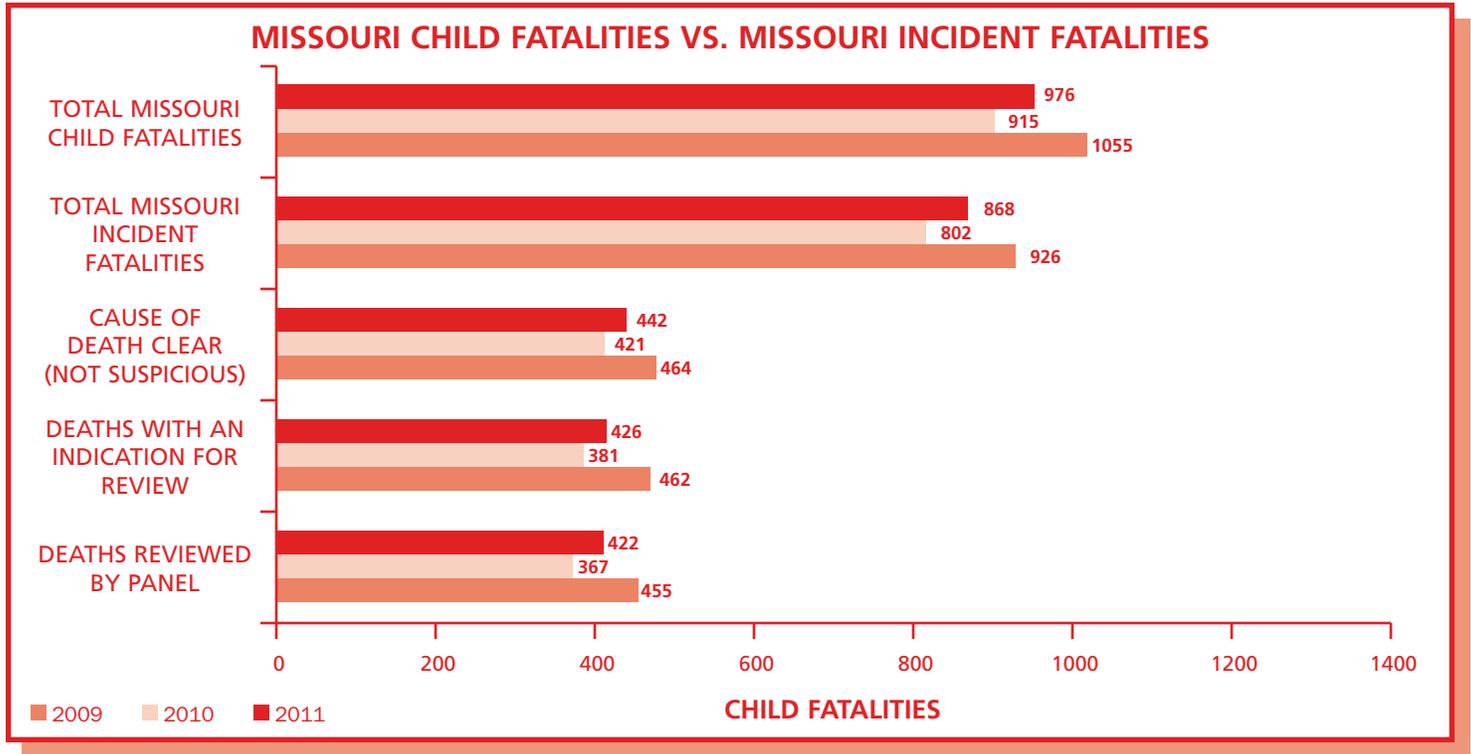
- Of **426** Missouri Incident Fatalities with indication for review as reported in Child Death Review Case Reporting System in 2011, **four** did not receive required CFRP panel review, or panel findings were not entered. These **four** fatalities are included in this 2011 CFRP Annual Report because the data, though incomplete, is useful and accurate within the limitations of the information provided.
- **Forty** Missouri Incident Fatalities were not reported Child Death Review Case Reporting System, but were reported to the CFRP by death certificates from the Department of Health and Senior Service. From information provided by the death certificates, **eleven** of those **40** fatalities (28%) had at least one indicator for review, including **six** motor vehicle fatalities, **two** fire/burn, **one** drowning, **one** undetermined and **one** other injury. Because we do not have sufficient information on these deaths, these fatalities are **not** included in the data for this annual report.
- While we are notified by the Department of Health and Senior Services of every child who receives a death certificate in the state, the data for this report comes from the Child Death Review Case Reporting System information submitted by the county-based CFRP panels. Compliance for overall Missouri Incident deaths is 96% and county child death reviews is 97%. Due to these program reporting compliance issues, our report does not reflect the actual total number of Missouri Child Fatalities and Missouri Incident Fatalities. Below is a chart showing the number of known child deaths, taken from all available sources, in Missouri from 2000 to 2011.

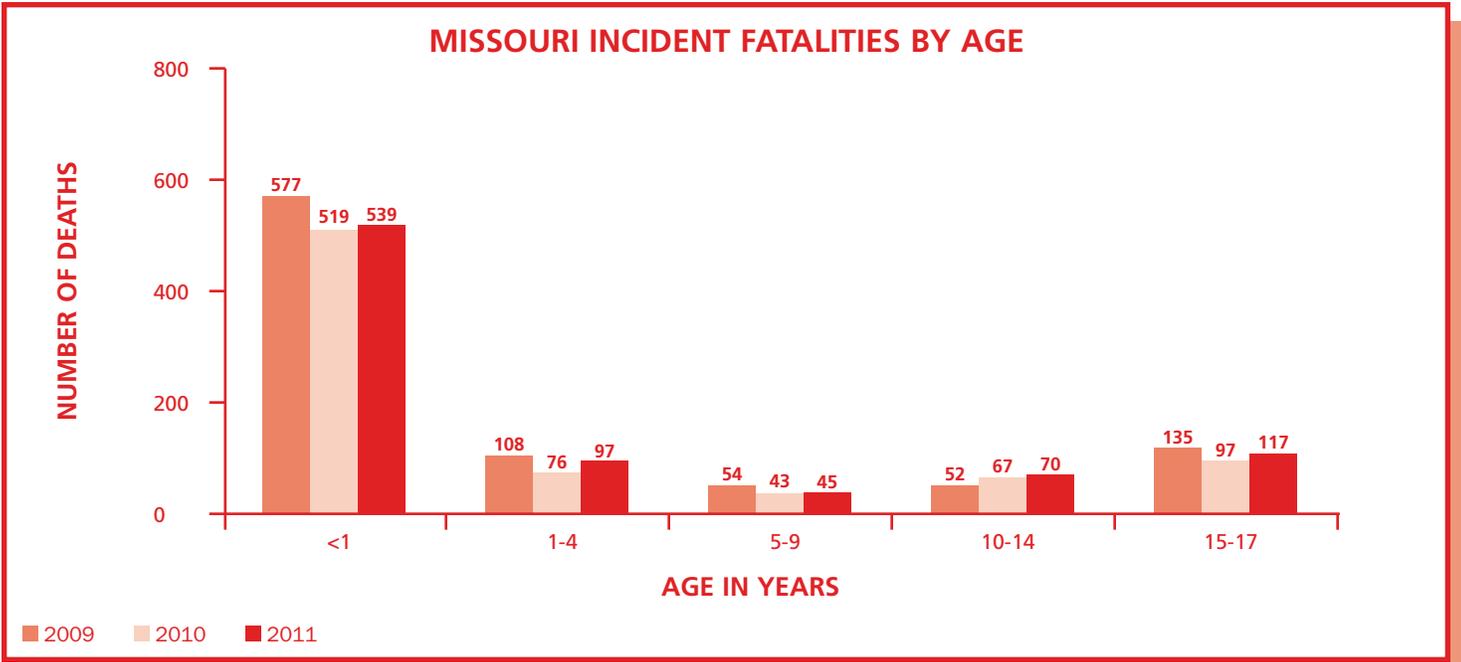


## SUMMARY OF FINDINGS

### Missouri Incident Fatalities

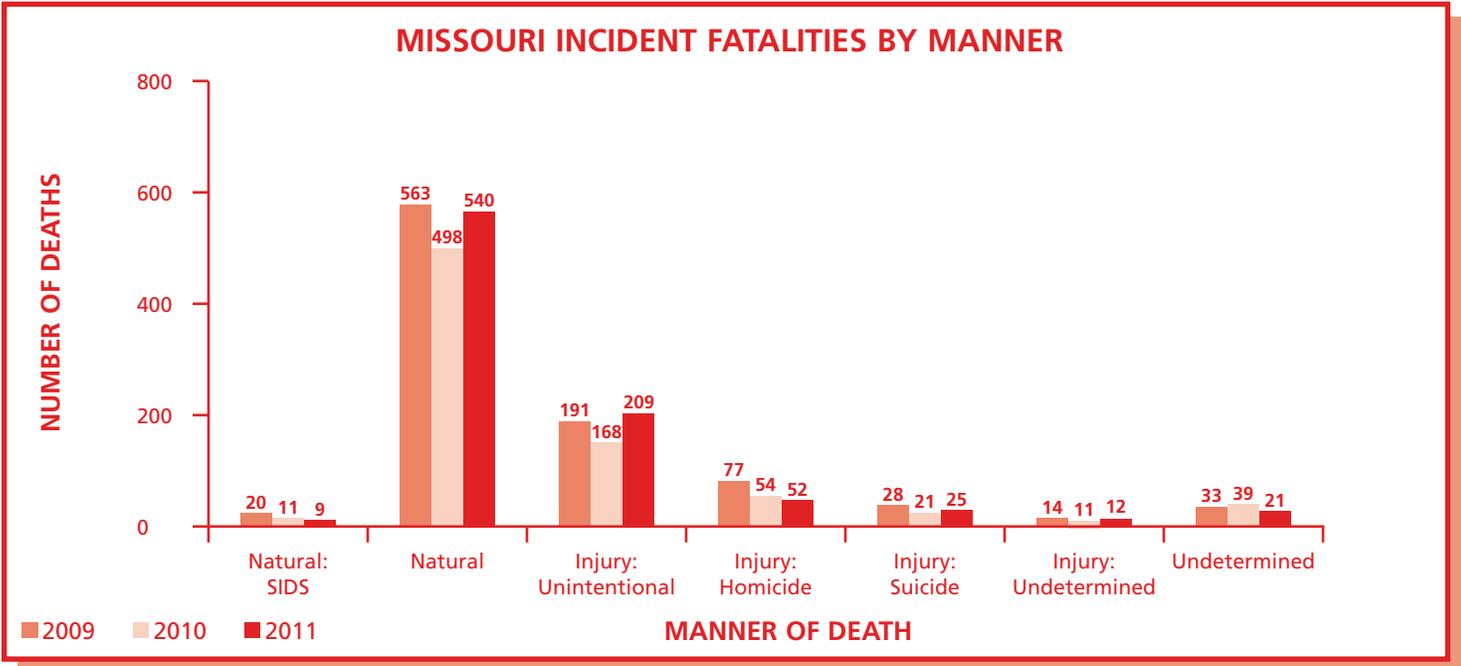
In 2011, STAT received information on **976** children age 17 and under, who died in Missouri. Of those deaths, **868** were determined to be “Missouri Incident Fatalities” and therefore, subject to review by the coroner or medical examiner and county CFRP chairperson. Of the 868 deaths subject to review, **442** (51%) were not suspicious and did not require detailed review. The remaining **426** (49%) had indicators for review by a county CFRP panel, and of those **422** (99%) were reviewed by the county panels.

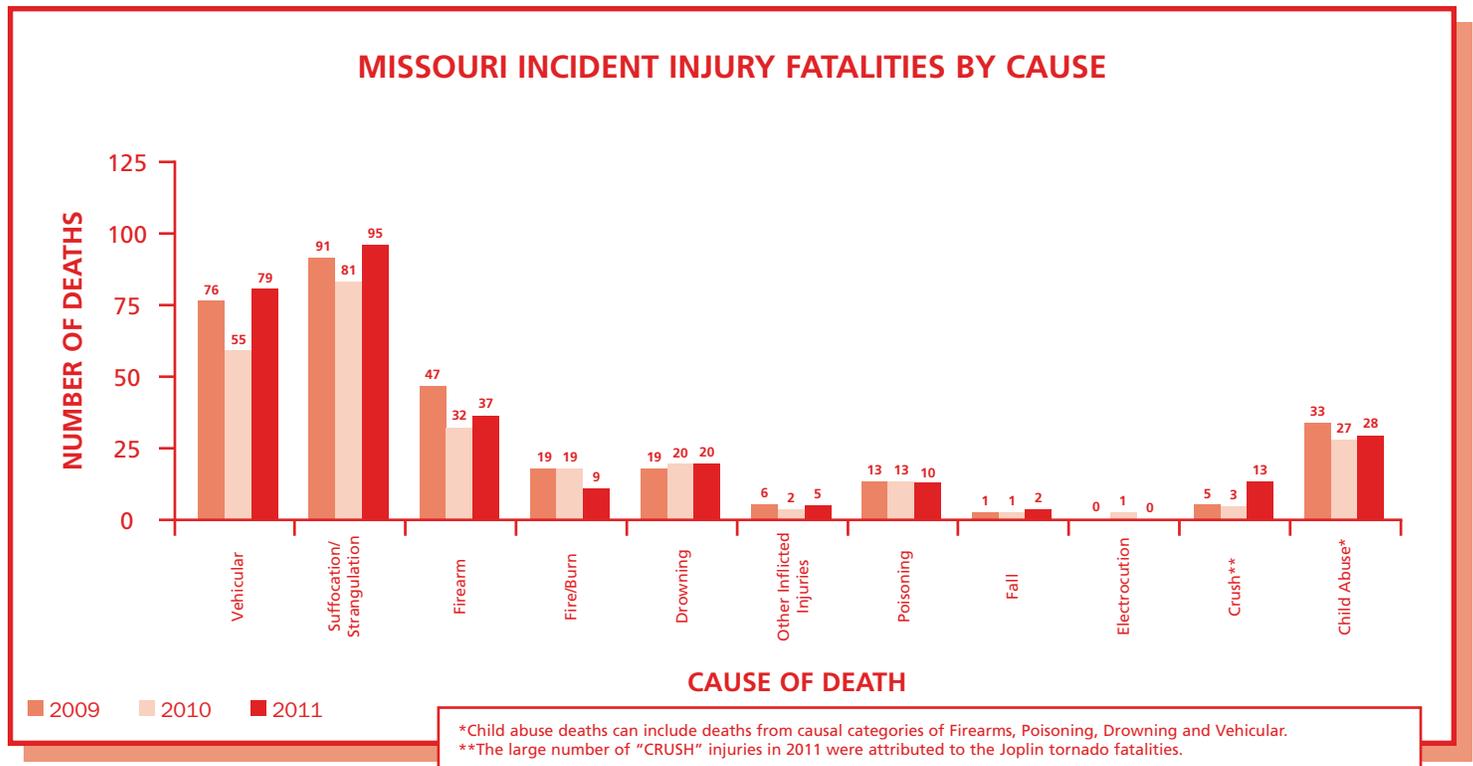




### MISSOURI INCIDENT FATALITIES BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	384	317	351	WHITE	615	563	573
MALE	542	485	517	BLACK	268	197	231
				OTHER	43	42	64
	926	802	868		926	802	868





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, Sudden Infant Death Syndrome (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 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*

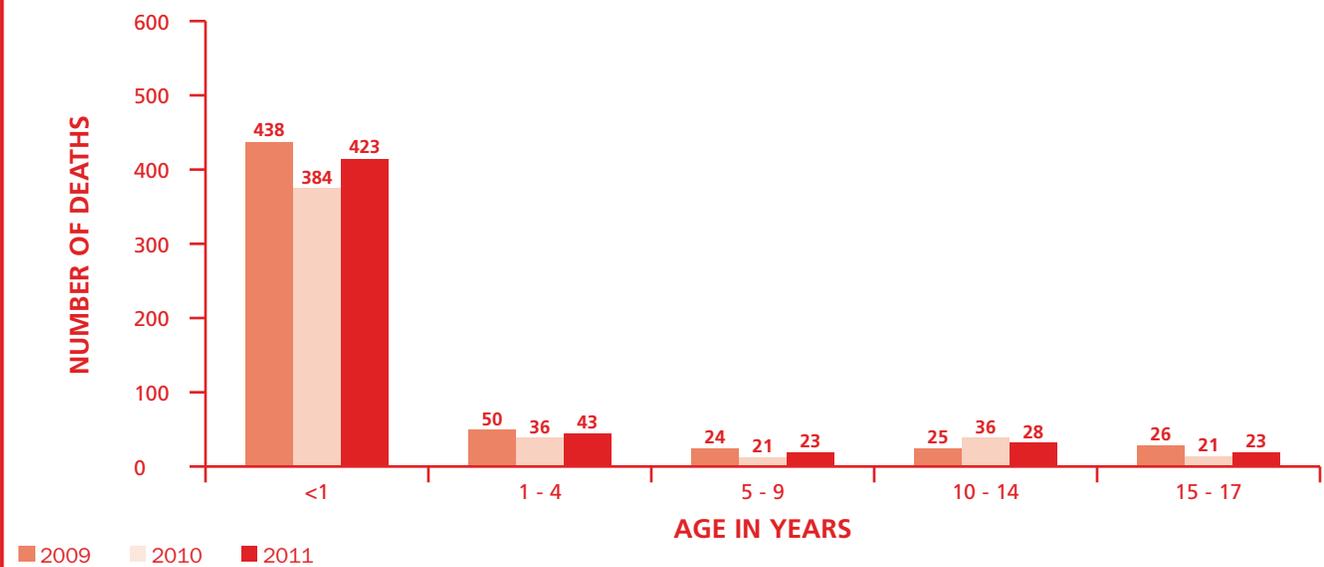
**Natural fatalities, other than SIDS, were responsible for the deaths of 540 Missouri children in 2011, representing 62% of all Missouri incident fatalities.**

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.

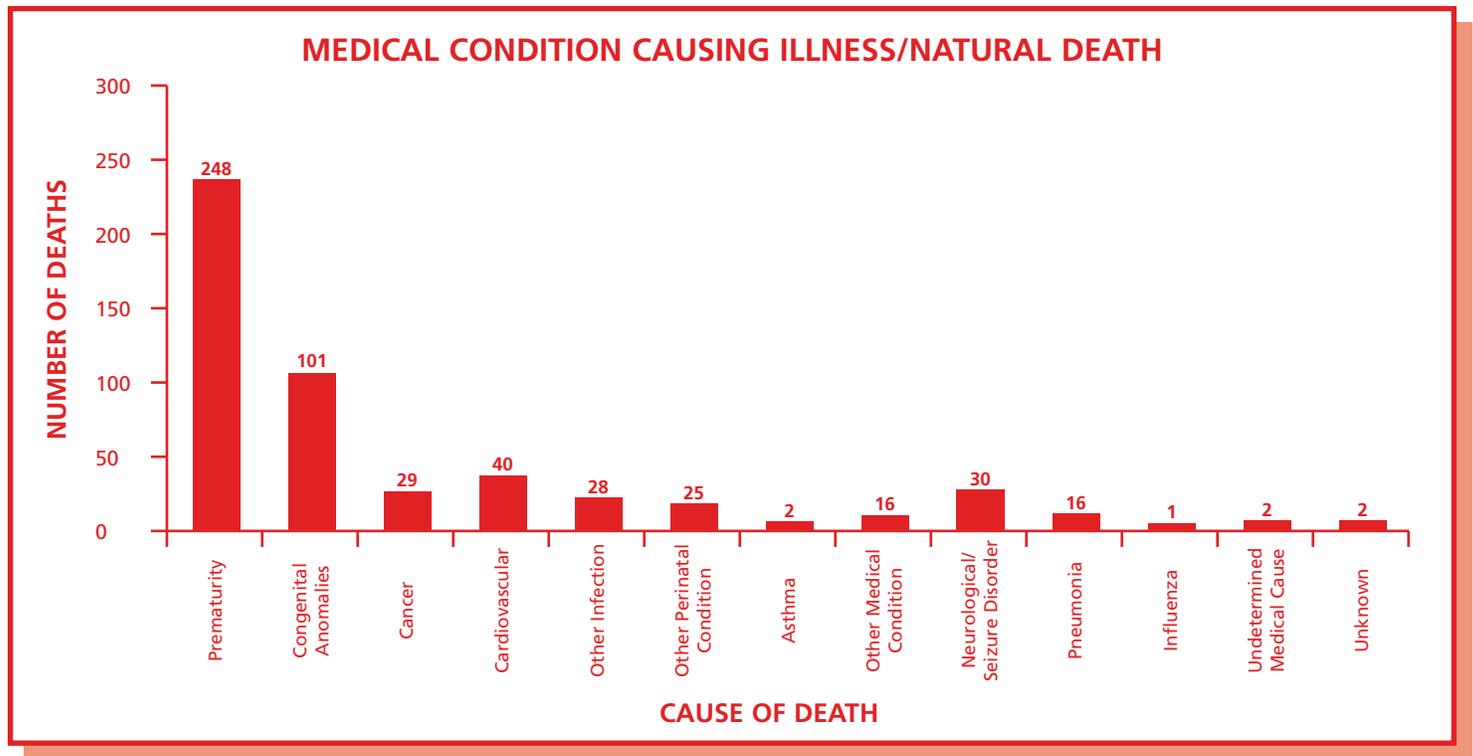
### NATURAL FATALITIES BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	257	208	231	WHITE	367	334	344
MALE	306	290	309	BLACK	163	142	153
				OTHER	33	22	43
	563	498	540		563	498	540

### ILLNESS/NATURAL CAUSE DEATHS BY AGE



Children die from a variety of medical conditions, but premature birth is the leading cause. Of the **540** natural deaths of children in Missouri in 2011, **248** (46%) were from premature birth.

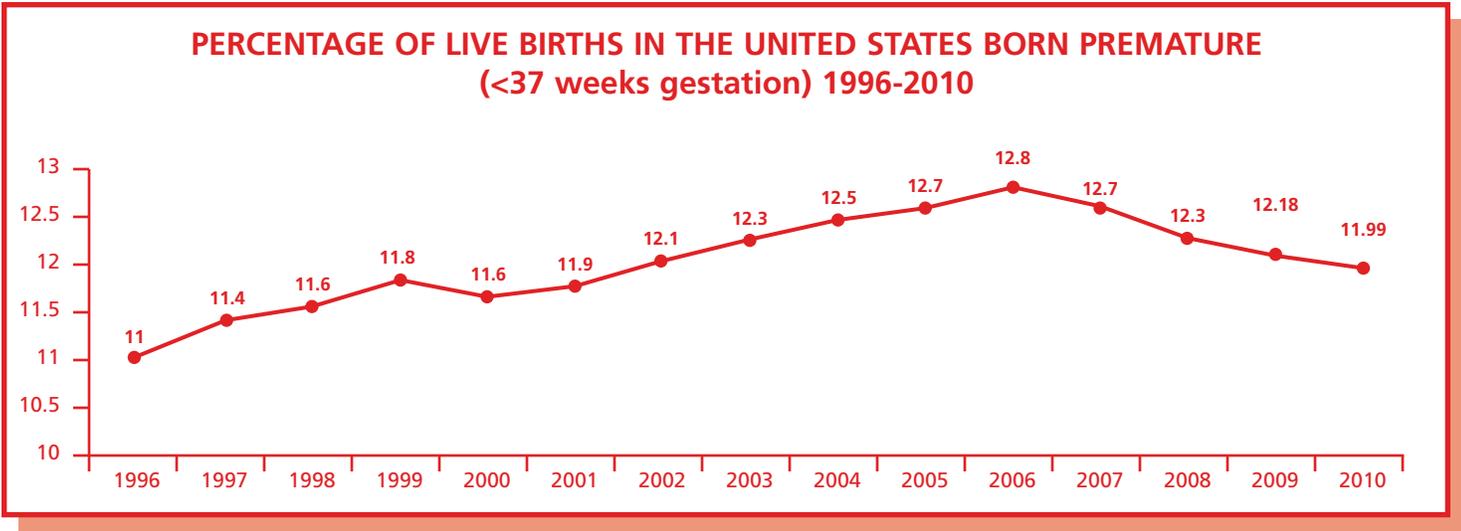


Statistics do not necessarily reflect how many children were born with fatal congenital defects, since such defects can fall under the cardiovascular or neurological/seizure disorder medical conditions. Even with the breakout of these medical conditions, congenital anomalies are by far the second largest reason for natural deaths in the state.

## Infant Mortality

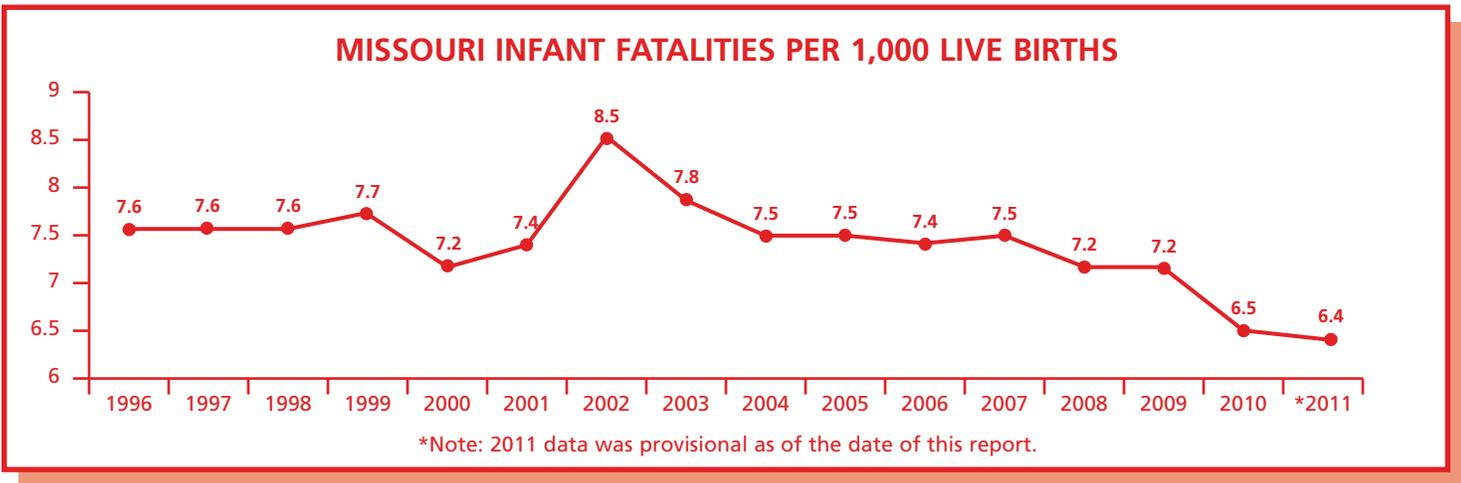
Infant mortality is one of the most important indicators of the health of a nation. According to research by the World Health Organization and other groups, the United States ranks 41st in the world for infant mortality, being behind such countries as Lithuania and Cuba. Some have criticized such research, since many countries do not count a child as a “live birth”, if they are under a certain weight or gestational age. But even when these differences were taken into account, the United States fell behind many other developed countries.

Data suggests that the main reason for the United State’s high infant mortality rate is the significant rate of preterm births, which rose from 11% in 1996, to 12.8% in 2006. The March of Dimes states that in the past decade, obstetric practices such as non-medically indicated early induction, cesarean delivery are risk factors for preterm birth and iatrogenic prematurity. Prematurity is also the leading cause of death in the first month of life and those who survive could potentially face lifelong serious health issues. Even so, preterm birth rates have been dropping since 2006, with the largest drop seen in the late-preterm births. For 2011, the Center for Disease Control and Prevention (CDC) reports that the preterm rate is down to 11.99% of all births. Missouri’s rate is even lower at 11.8%, according to provisional data provided by the Missouri Department of Health and Senior Services.

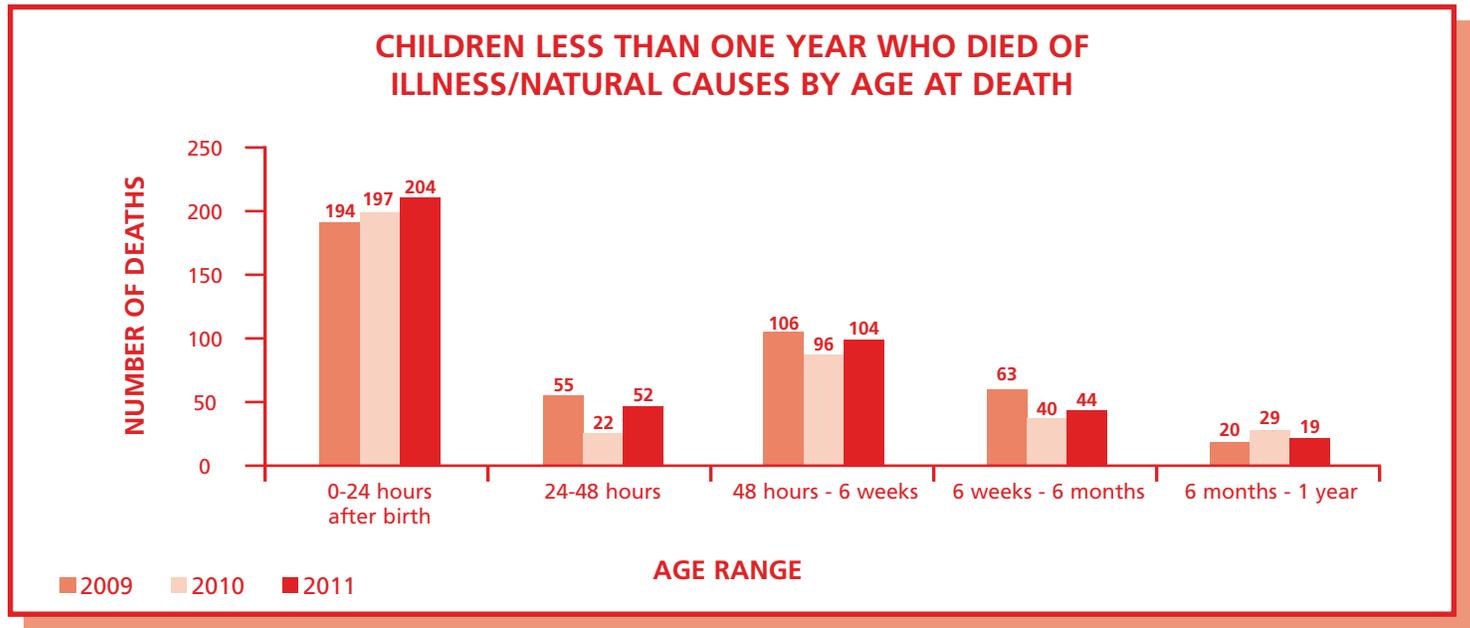


According to the CDC National Center for Health Statistics, the earlier a baby is born, the greater the risk of death. Babies born a few weeks early, 34 and 36 weeks gestation, have a death rate three times higher than babies born at full term. By reducing the number of children born prematurely, even by just a few weeks early, could save many infant lives.

In Missouri, the infant mortality rate dropped to 6.4 deaths per 1000 live births, which is lower than the national rate of 6.6 deaths per 1000 live births.



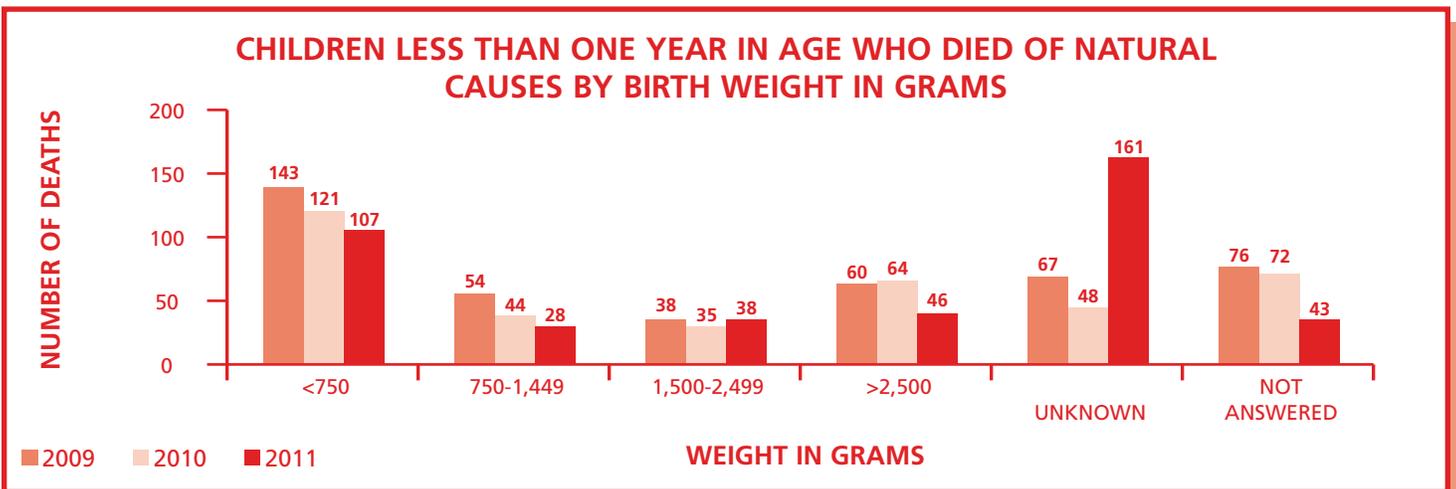
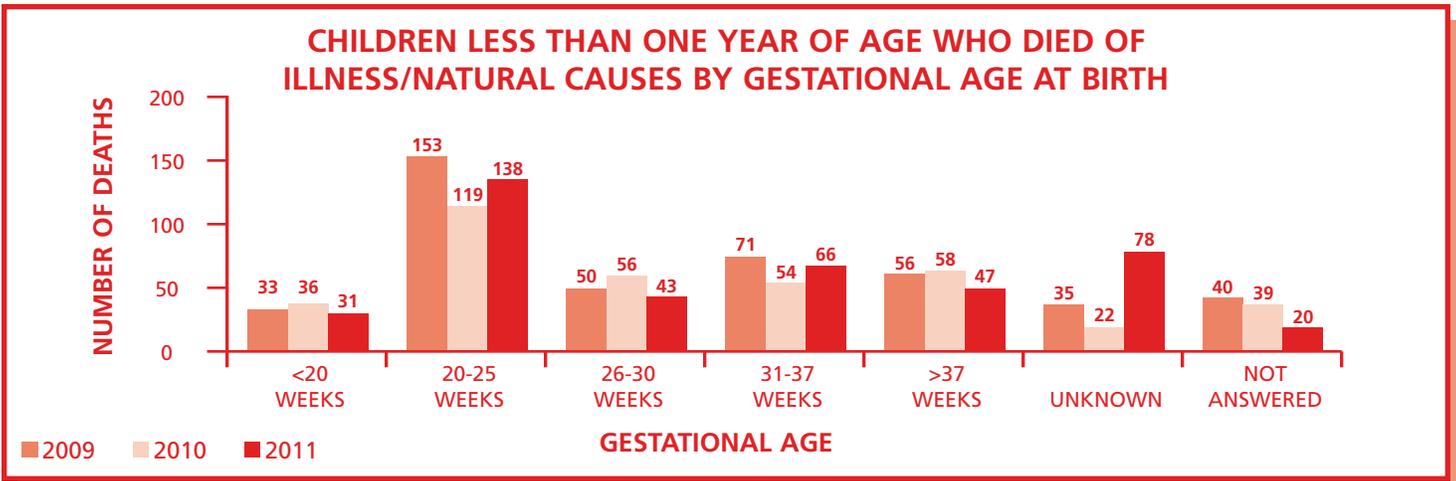
Infants less than one year of age comprise the majority of natural cause deaths in 2011, with **423** (78%). Of the **256** deaths that occurred within the first 48 hours, **204** (80%) occurred within 24 hours after birth.



### NATURAL FATALITIES AGE <1 YEAR BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	192	155	179	WHITE	283	251	264
MALE	246	229	244	BLACK	127	114	128
				OTHER	28	19	31
	<b>438</b>	<b>384</b>	<b>423</b>		<b>438</b>	<b>384</b>	<b>423</b>

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 2011, **277** infants were reported to be born preterm on the Child Death Review Case Reporting System, while **173** 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 that may cause children to be born premature or with low birth weights. In 2011, **32** mothers had medical complications such as diabetes or preeclampsia, **14** admitted to smoking during pregnancy, **eight** abused prescription drugs, **two** abused over the counter drugs and **one** was the victim of intimate partner violence.

According to the US Department of Health and Human Services, “Early and continuous prenatal care helps identify conditions and behavior that can result in low birth weight babies ... Babies born to mothers who received no prenatal care are three times more likely to be born at low birth weight, and five times more likely to die, than those whose mothers received prenatal care.” In 2011, **13** of the children who died from natural causes within the first year of life, had no prenatal care. All **13** of these children were born before the 37th week of gestation and **12** of them were of low birth weight.

## 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 wellbeing 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.

Currently the National FIMR program is changing its methodology to incorporate the concept of Life Course Theory, which looks at how "socioeconomic status, race and racism, neighborhood conditions, health care, disease status, stress, nutrition and weight status, birth weight, and a range of behaviors affect health outcomes, including reproductive and birth outcomes." This means that FIMR is shifting its focus from the specific incident to the surrounding mechanisms that lead up to the death. In this way they are looking more at how to prevent the situation from happening in the first place, rather than how to deal with it once it does.

The FIMR process in Missouri conforms to the principals and guidelines set by The National Fetal and Infant Mortality Review Program, 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 wellbeing 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 130 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 125 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 are distinct but complementary systems, sharing a common mission and some promising opportunities for collaboration. When appropriate, the two systems may one day 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://health.mo.gov/data/fimr/index.php>

National Fetal and Infant Mortality Review Program . . . . .<http://www.nfimr.org/>

A Life Course Approach Resource Guide Developed by the MCH Training Program . . . . .  
<http://mchb.hrsa.gov/lifecourseapproach.html>

FIMR: A tool communities can use to address issues related to health disparities in infant outcomes  
[NFIMR Educational Bulletin] . . . . . <http://www.nfimr.org/site/assets/docs/DisparitiesBulletin.PDF>

FIMR and Child Fatality Review: Opportunities for Local Collaboration . . . . .  
<http://www.nfimr.org/site/assets/docs/FIMRCDR.pdf>

The Diverse Roles of FIMR State Coordinators in Supporting Public Health Functions . . . . .  
<http://nfimr.mightysparklabs.com/site/assets/docs/State%20FIMR%20Coordinators%20Role%20and%20Responsibilities.pdf>

## SUDDEN INFANT DEATH SYNDROME

In 2011, Sudden Infant Death Syndrome (SIDS) was the cause of death of 9 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 unexpected 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 mechanisms 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. Nationally, 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.

SIDS FATALITIES BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	7	3	5	WHITE	17	10	7
MALE	13	8	4	BLACK	2	1	2
				OTHER	1	0	0
	20	11	9		20	11	9

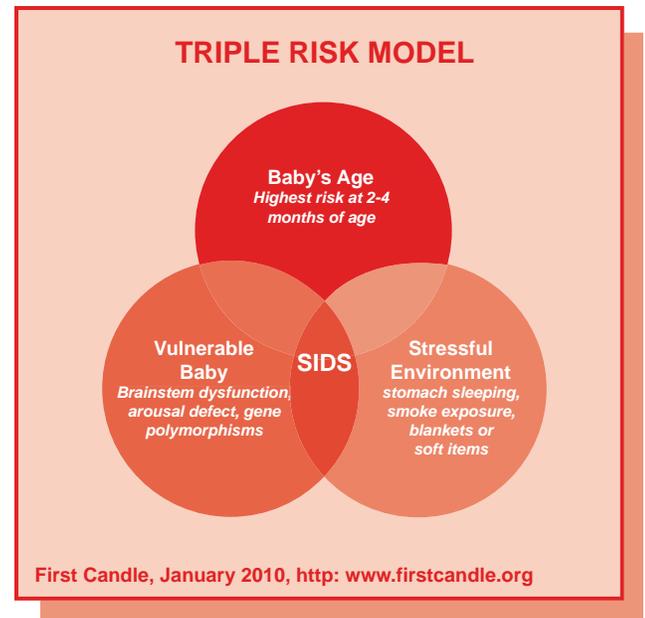
SIDS FATALITIES BY AGE



### 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.



One point that needs to be made is that when a child died of SIDS, they do not just “quit breathing,” instead their entire body shuts down. First Candle states, “We liken it to a light switch – once the switch is flipped, there is no going back. These babies cannot be resuscitated, even if there is immediate intervention. Occasionally, when the baby is in the care of someone that begins CPR immediately, they can keep the baby’s heart beating and restore breathing by artificial means (respirator), but within 24-48 hours that baby is determined brain dead and has to be removed from life support.”

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 prevention best practices, based upon what has been learned, will have an even greater impact in saving infant lives.

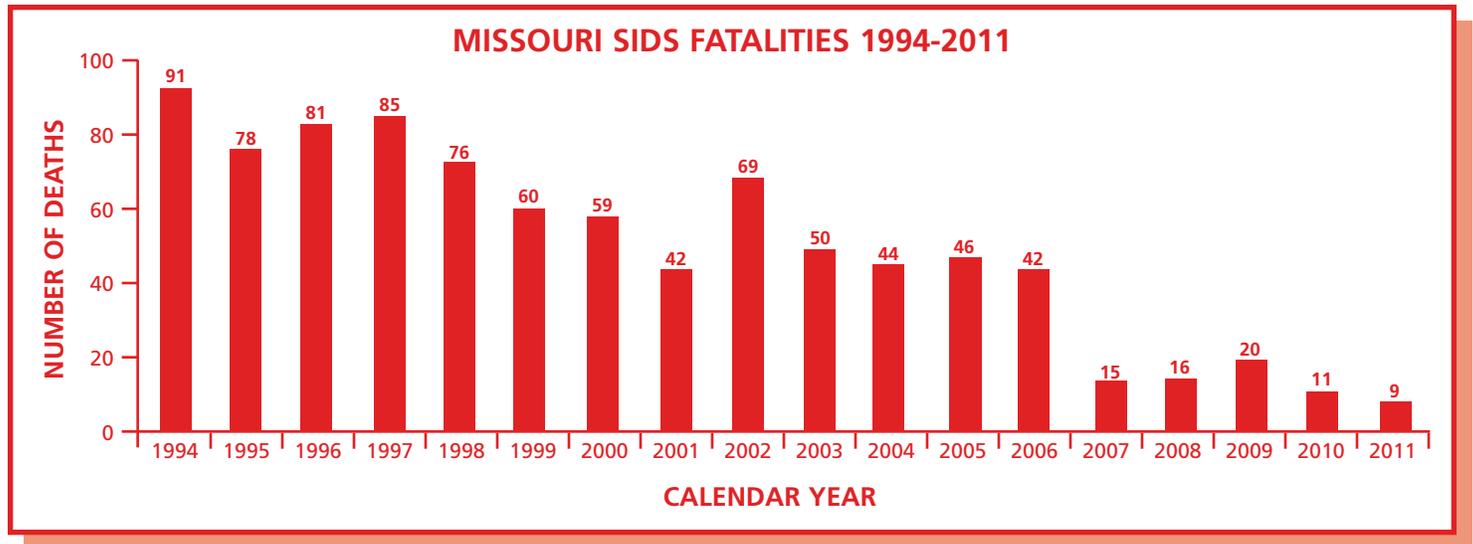
## Other Risk Factors

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
- Same sleep surface sharing
- Overheating
- Exposure to tobacco smoke

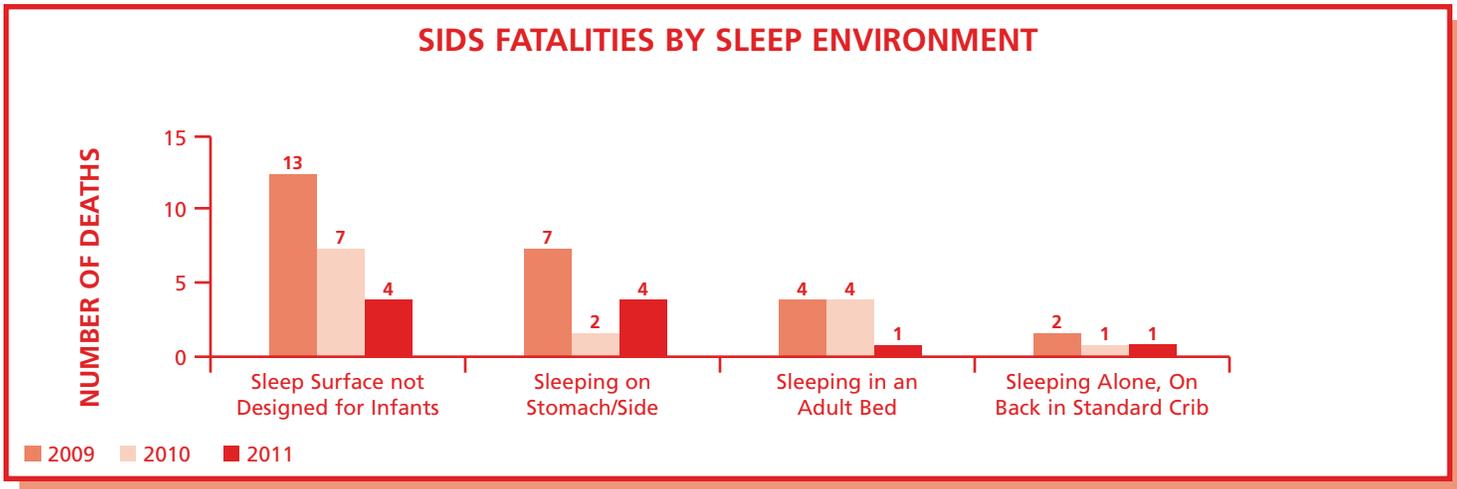


Nationally, of those infants whose deaths are attributed to SIDS each year, many are found in potential high risk environments from which they are unable to extricate themselves, such as being on their stomachs, face down, or where their noses and mouths can become covered by soft bedding.

Historically, unsafe sleep arrangements have occurred in a majority of sudden infant deaths 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 2011, of **nine** sudden unexpected infant deaths reviewed by county CFRP panels and diagnosed as SIDS, **four** (44%) infants were known to be sleeping on their stomach or side, though **three** other children were listed as “unknown sleeping position,” possibly due to the reluctance of caregivers to admit they may have placed the child in a compromising sleep position. **Four** of the **nine** were not sleeping in a standard crib on a firm mattress, **one** was known to be sleeping in an adult bed. Only **one** infant who died suddenly and unexpectedly, whose death was diagnosed as SIDS, was known to be sleeping alone on its back, in a bassinet. 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.

SIDS fatalities are only a small portion of sleep-related infant deaths. In 2011, **ninety-four** infant deaths were determined by the county CFRP panels to be sleep-related, of which **eight** were diagnosed as SIDS, **two** as natural, **13** as undetermined manner, and **71** as suffocation. In summation, **84** infant deaths (26% of all non-natural deaths – injury, suicide and undetermined combined) may have been preventable, if safe sleep practices had been followed.



## Risk Reduction Recommendations:

In October 2011, the American Academy of Pediatrics (AAP) issued new guidelines on reducing the risk of SIDS and other sleep-related deaths. The following is a summary of their latest recommendations:

### Level A Recommendations:

- Always place your baby on his or her back for every sleep time.
- Always use a firm sleep surface. Car seats and other sitting devices are not recommended for routine sleep.
- The baby should sleep in the same room as the parents, but not in the same bed.
- Keep soft objects or loose bedding out of the crib, to include pillows, blankets and bumper pads.
- Pregnant women should receive regular prenatal care.
- Avoid tobacco, alcohol and illicit drug use during pregnancy and after birth.
- Breastfeeding is recommended.
- Consider offering a pacifier at naptime and bedtime.
- Avoid overheating.
- Do not use home cardio-respiratory monitors as a strategy for reducing the risk of SIDS.
- Expand the national campaign to reduce the risk of SIDS to include a major focus on safe sleep environment and ways to reduce the risks of all sleep-related infant deaths, including SIDS, suffocation and other accidental deaths; pediatricians, family physicians, and other primary care providers should actively participate in this campaign.

### Level B Recommendations:

- Infants should be immunized in accordance with recommendations of the AAP and the CDC.
- Avoid commercial devices marketed to reduce SIDS.
- Supervised, awake tummy time is recommended to facilitate development and to minimize development of a misshapen head.



**Level C Recommendations:**

- Health care professionals, staff in newborn nurseries and NICUs, and child care providers should endorse the SIDS risk-reduction recommendations from birth
- Media and manufacturers should follow safe-sleep guidelines in their messaging and advertising.
- Continue research and surveillance on the risk factors, causes, and physical mechanisms of SIDS and other sleep-related infant deaths, with the ultimate goal of eliminating these deaths entirely.

**Prevention Recommendations**

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 sleep surface sharing 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, practice and follow Missouri Department of Health and Senior Services, Daycare Licensing Administrative Rules 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 and encourage safe sleep education for all unlicensed child care providers. The AAP 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/UpdatedSIDSInstructions113011\\_1.pdf](http://www.healthychildcare.org/PDF/UpdatedSIDSInstructions113011_1.pdf)

For child fatality review panels:

- All sudden unexpected deaths of infants less than 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.mo.gov/stat/forms.htm>, or a different version can be found on the CDC website at: <http://www.cdc.gov/sids/SUIDRFdownload.htm>

- Ensure a thorough death scene investigation, autopsy and medical and social review of all available data and information pertaining to any sudden unexpected infant death, as these are of critical importance in identifying risk factors, developing prevention strategies and applying prevention best practices.

## Something We Can Do: Safe Cribs for Missouri

According to the AAP, the Consumer Product Safety Commission (CPSC) 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 either have not received this information, are instructed differently by older family members, or 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:

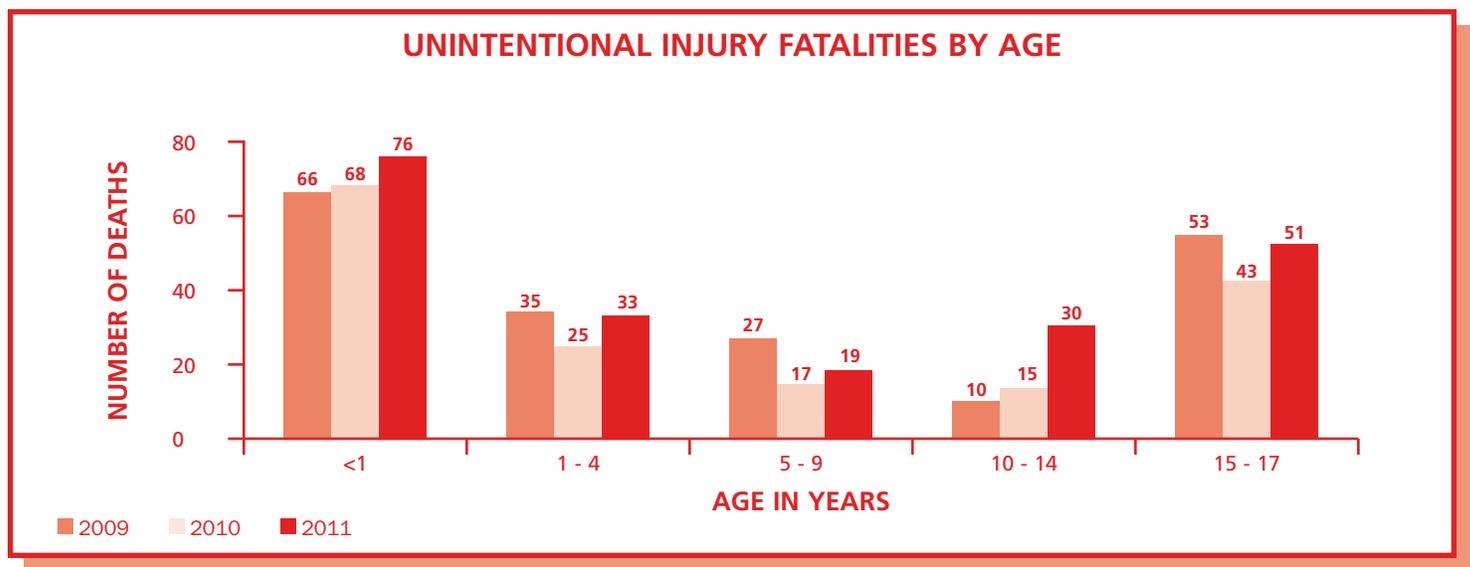
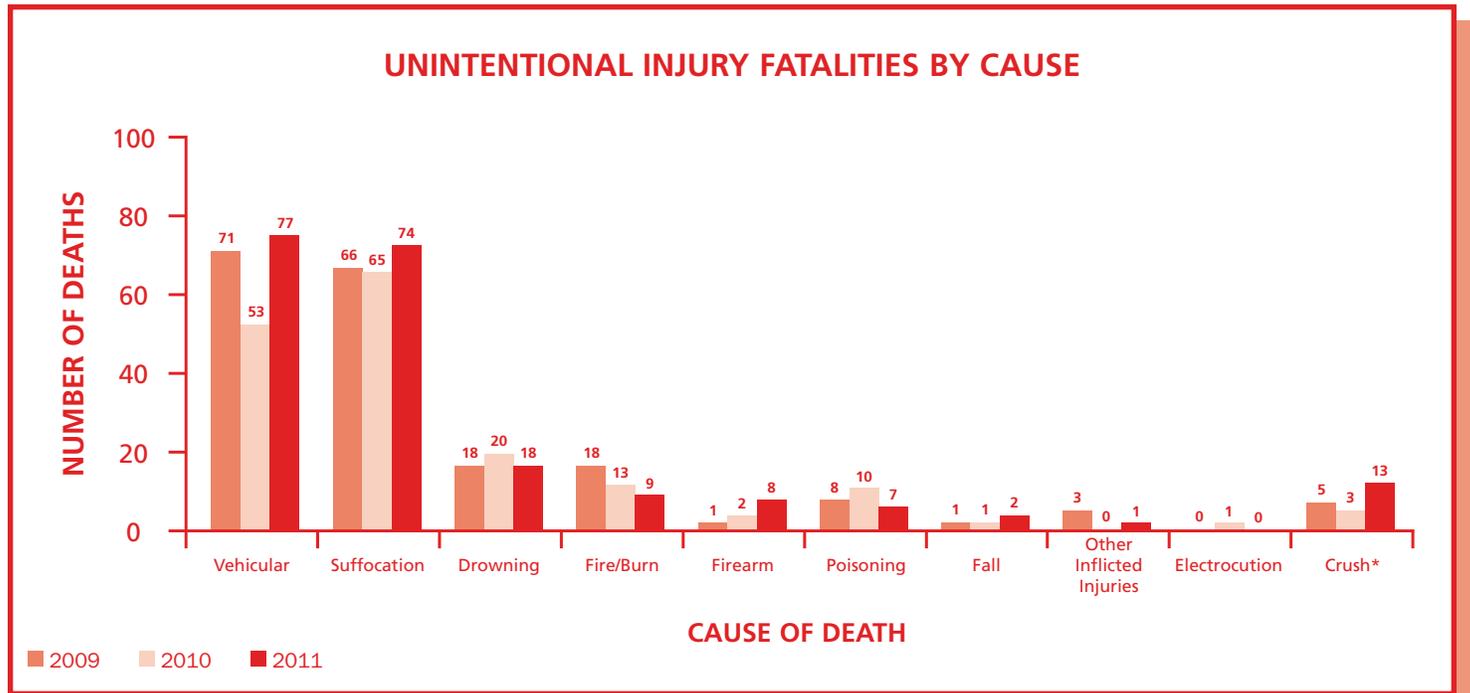
- Missouri Fetal and Infant Mortality Review. . . . . <http://health.mo.gov/data/fimr/index.php>
- American Academy of Pediatrics’ Healthy Child Care America Back to Sleep Campaign. . . . . <http://www.healthychildcare.org/sids.html>
- National SIDS/Infant Death Resources Center . . . . . <http://www.sidscenter.org>
- SIDS Resources, Inc. 135 West Monroe, St. Louis, MO 63122  
Counseling and support, research, training and education. . . . . <http://www.sidsresources.org/>



## UNINTENTIONAL INJURY FATALITIES

In 2011, there were 209 unintentional injury fatalities among Missouri children.

In 2011, **209** Missouri children died of unintentional suffocation injuries, making up 24% of all Missouri incident fatalities. The leading causes of unintentional injury are vehicular deaths at **77** (37%) and suffocations at **74** (35%) and drowning at **18** (9%).



Unintentional injury fatalities are most prevalent in the youngest and oldest age ranges. Children under one year of age are the most vulnerable, relying on the actions of others to keep them safe; while the older children often engage in risky behaviors, as they begin their transition to adulthood.

## UNINTENTIONAL INJURY FATALITIES BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	72	58	80	WHITE	138	135	156
MALE	119	110	129	BLACK	47	22	40
				OTHER	6	11	13
	<b>191</b>	<b>168</b>	<b>209</b>		<b>191</b>	<b>168</b>	<b>209</b>

## Unintentional versus Accidental

The Child Fatality Review Program was implemented to more accurately identify the causes of child fatalities and strategies for how to prevent similar child deaths from occurring. While this seems rather straightforward, there still remains reluctance in some communities to review circumstances surrounding “tragic, unavoidable accidents”. This is not just a Missouri phenomenon. According to an American College of Surgeons report on injury prevention, the real problem rests in the word “accident”. An accident is an unexpected occurrence which happens by chance...an event that is not amenable to planning or prediction; whereas, an injury is a definable, correctable event, with specific, identifiable risks for occurrence. A better definition for “accident” is that it results from a risk that is poorly managed. Accidents or rather, unintentional injuries, do not just happen. They are caused by lack of knowledge, oversight and/or carelessness—a lack of proper training and realization that a risk exists.

Leaving small children (less than six years of age) unsupervised around water (**11**) or moving vehicles (**5**), allowing toddlers access to loaded weapons (**5**), and placing a babies in unsafe sleeping environments (**73**) are all ill advised, yet these actions resulted in the deaths of **94** children in Missouri, in 2011, making up 45% of all unintentional injury fatalities. Then there are vehicle crashes, which is a term also adopted by the Missouri State Highway Patrol. Some people believe that vehicular deaths cannot be prevented, but it is well known that following laws, avoiding distractions, correctly using seatbelts and child safety seats save lives. In 2011, **36** (55%) of **66** the children who died while either driving or riding in a motor vehicle, were unrestrained at the time of the crash.

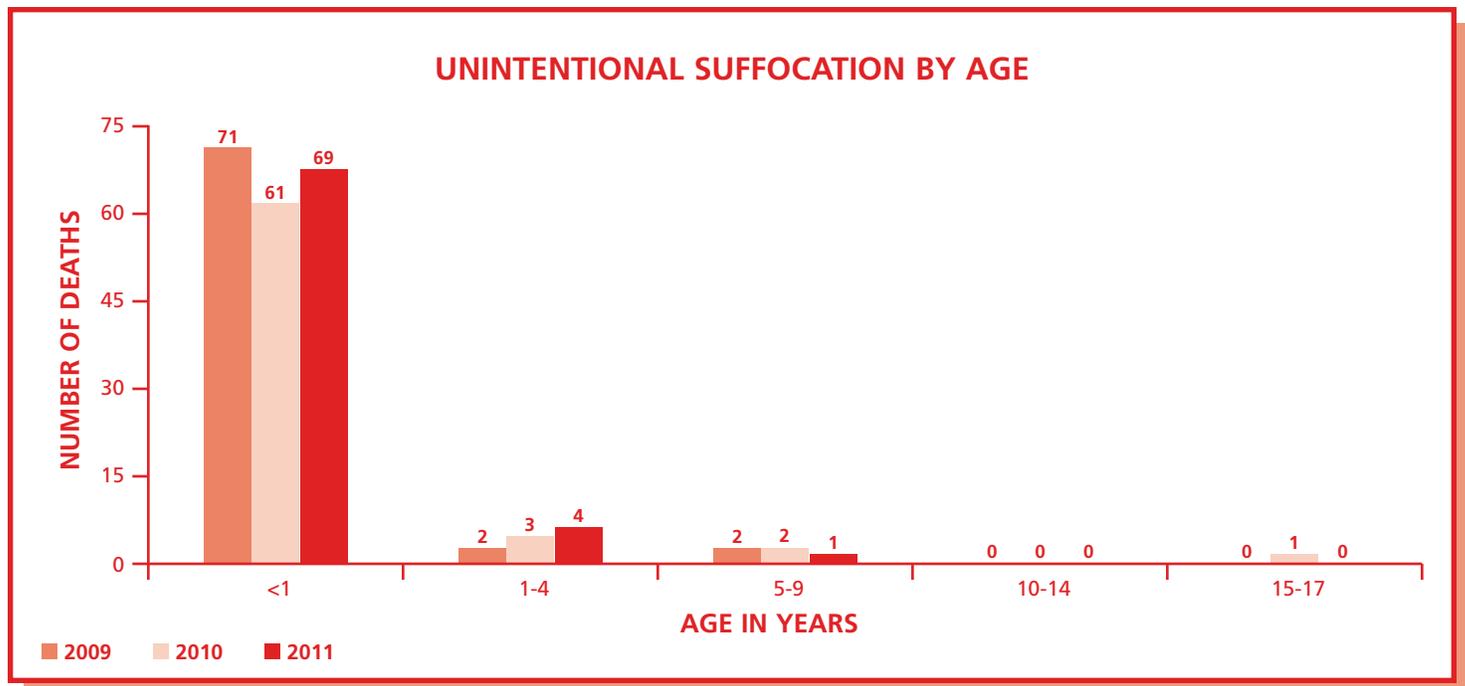
## UNINTENTIONAL SUFFOCATION IN INFANTS

“Choking, suffocation, and strangulation cause serious unintentional injuries in children and are leading causes of unintentional death in infants and toddlers. Nearly all choking, suffocation and strangulation deaths and injuries are preventable.”

*Canadian Paediatric Society*

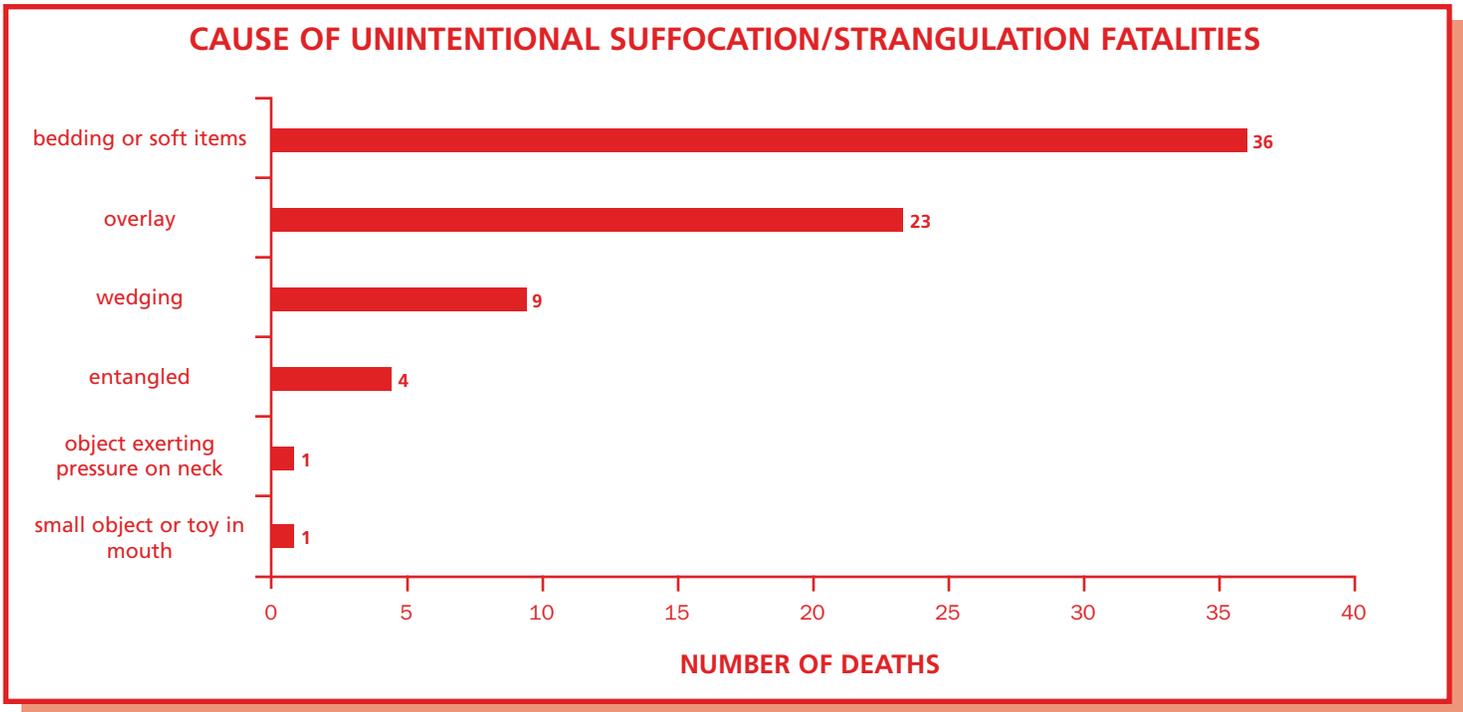
**In 2011, Unintentional Suffocation was the cause of death of 74 Missouri children.**

Deaths by unintentional suffocation are much more prevalent among children under one year of age, than from any other age range. In 2011, **69** (93%) of the unintentional suffocation deaths of children were under one year of age. **Four** others (6%) were one year of age and **one** was nine years old.



**UNINTENTIONAL SUFFOCATION BY SEX AND RACE**

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	29	27	30	WHITE	47	48	45
MALE	46	40	44	BLACK	23	11	22
				OTHER	5	8	7
	75	67	74		75	67	74



The pattern of deaths by unintentional suffocation differs by age. Older children are typically injured from strangulation by hanging during play, while 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 die by means smothering or rebreathing, suffocate when 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. Sleeping surfaces such as a waterbed or bean bag chair can cause an infant to rollover and have the ability to form themselves around the child's face, if placed face down.

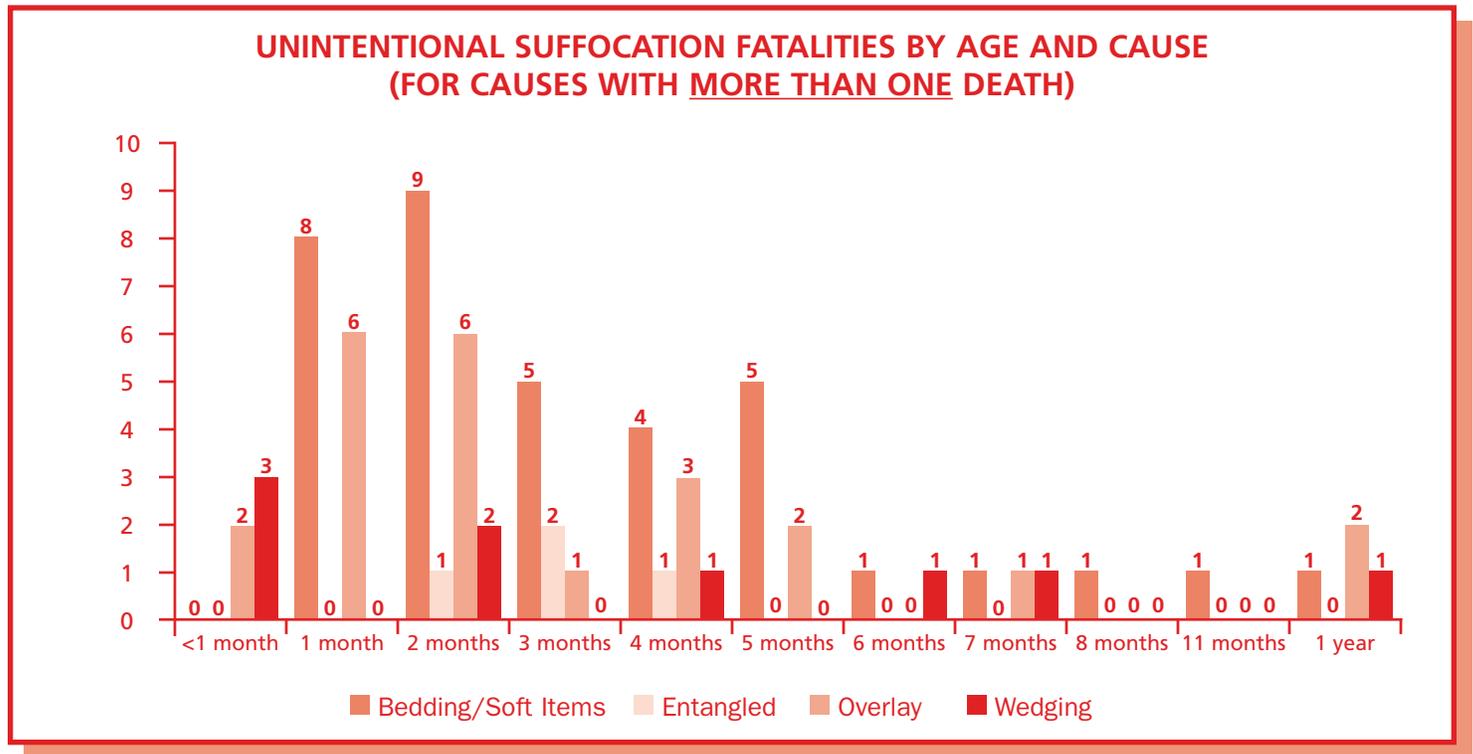
As infants get older and become more mobile, the risks of entanglement or wedging become more problematic. According to the American Academy of Pediatrics, wedging deaths most often occur between three to seven months, when infants have developed motor skills giving them the ability to move to corners of beds and cribs. Yet, they do not have the muscle development or motor control to be able to extricate themselves from a wedged position. While **four** children ages less than three months old died of wedging in Missouri, in 2011, in each case, the child had been propped up on a pillow or laid upon an uneven surface, and rolled down into a wedged position.

An **overlay** is a type of unintentional suffocation that occurs when an infant is sharing the same sleep surface with one or more persons (adults, other children or even pets) and someone rolls over on them or traps the infant under an arm or leg. Suffocation due to overlay can be verified by one of the following means: (1) the admission of someone who was on the same sleep surface, that they were overlying the infant when they awoke; or (2) the observations of another person.

To reduce the risk of unintentional suffocation deaths of infants, the American Academy of Pediatrics recommends the arrangement of room-sharing without bedsharing, or having the infant sleep in the

parents' room, but on a separate sleep surface (crib or similar surface) close to the parents' bed. There is evidence that this arrangement not only decreases the risk of SIDS by as much as 50% and is safer than bedsharing or solitary sleeping (when the infant is in a separate room), but is also more likely to prevent suffocation, strangulation, and entrapment, which may occur when the infant is sleeping in the adult bed. Furthermore, room sharing without bedsharing allows close proximity to the infant, which facilitates feeding, comforting, and monitoring of the infant. Unfortunately, many of Missouri parents continue to share a sleeping surface with their infants. Of the **73** babies, less than one year of age, that died of unintentional suffocation in 2011, **47** (64%) of them were sharing a sleep surface with one or more individuals. Of those, **34** were sleeping in an adult bed, **10** were sleeping on a sofa, **two** were sharing a crib with their twin and **one** was sleeping on a mattress on the floor.

The Child Safety Protection Act bans any toy intended for use by children under three years of age that may pose a choking, aspiration or ingestion hazard and requires choking hazard warning labels on packaging for these items when intended for use by children ages three to six years. 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 outerwear garments, such as jackets and sweatshirts. Also, as children become more mobile and dexterous, everything they pick up often goes into their mouths. **One** nine-month old died of suffocation on a piece of plastic.



Unintentional suffocation deaths in older children are often related to circumstances associated with choking, aspiration and/or strangulation. **One** nine-year-old child died of unintentional hanging in 2011.

## Prevention Recommendations:

### For parents:

- Remove drawstrings from younger 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 and safe 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 . . . . .	<a href="http://www.cpsc.gov">http://www.cpsc.gov</a>
National SAFE KIDS Campaign . . . . .	<a href="http://www.safekids.org">http://www.safekids.org</a>
American Academy of Pediatrics . . . . .	<a href="http://www.aap.org">http://www.aap.org</a>
Missouri Children’s Trust Fund, “Safe Crib-Safe Sleep” Campaign. . . . .	<a href="http://www.ctf4kids.org">http://www.ctf4kids.org</a>
American College of Surgeons “Injury Prevention” . . . . .	<a href="http://www.facs.org/trauma/injuryprevent.pdf">http://www.facs.org/trauma/injuryprevent.pdf</a>

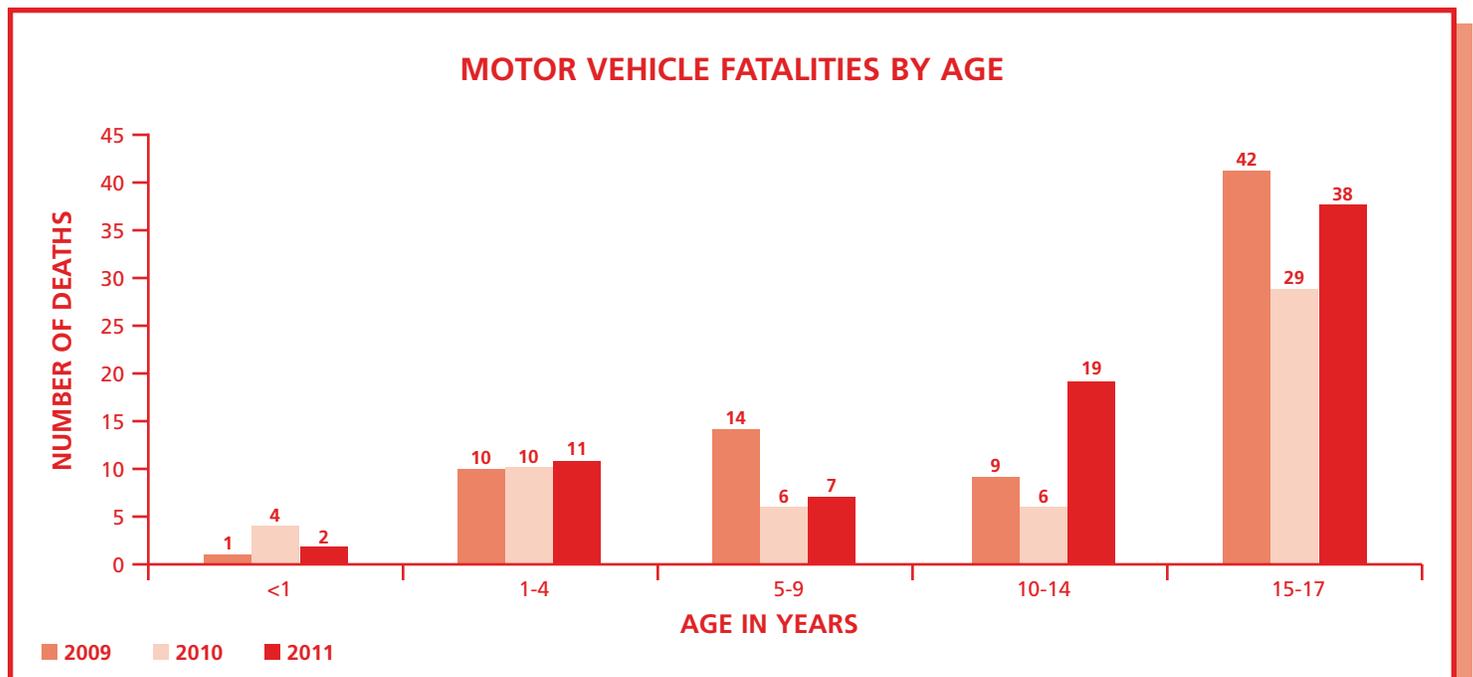
## UNINTENTIONAL MOTOR VEHICLE FATALITIES

There were **85** motor vehicle fatalities among Missouri children in 2011. Of those, **79\*** were reported to the CFRP on the Child Death Review Case Reporting System.

\*Note: One death was a homicide and one was undetermined. These two deaths will be discussed in the pertinent sections of this report.

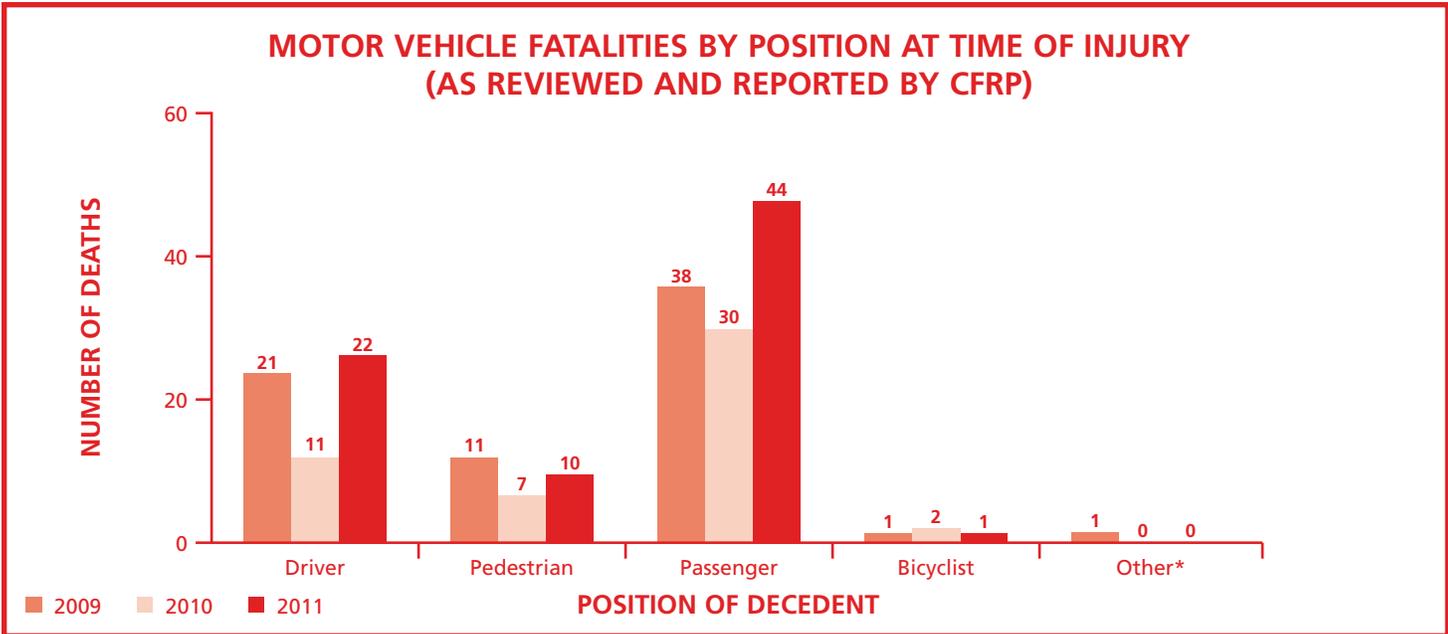
In the United States, motor vehicle crashes are the leading cause of injury deaths for children and adults and the second leading cause of injury death for children ages birth to one. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles,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

Of the **85** motor vehicle deaths among Missouri children in 2011, **77** were reported to the Child Fatality Review Program as unintentional; of which **75** were reviewed by local CFRP panels.



**MOTOR VEHICLE FATALITIES BY SEX AND RACE**

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	29	20	36	WHITE	64	47	63
MALE	47	35	41	BLACK	12	6	12
				OTHER	0	2	2
	<b>76</b>	<b>55</b>	<b>77</b>		<b>76</b>	<b>55</b>	<b>77</b>



Note: Due to differences in data collection systems, 2009 and 2010 numbers were obtained from deaths reviewed; whereas, 2011 numbers were obtained from all motor vehicle fatalities reported to CFRP.

\*In 2009, a six-year-old autistic child was run over, when he jumped from a vehicle that he had put into neutral while waiting for his mother in the vehicle.

TYPE OF VEHICLE			
Car	42	Bicycle	1
Truck	14	ATV	2
SUV	9	School Bus	1
Motorcycle	3	Tow truck	1
Van	3	Unknown	1

PRIMARY CAUSE OF CRASH			
Unsafe speed	21	Medical Event	1
Recklessness	2	Backover	4
Ran Red Light	3	Rollover	8
Distracted	2	Poor Line of Sight	3
Inexperience	3	Car Changing Lanes	2
Poor Tires	2	Road Hazard	1
Weather	1	Other Driver Error	4
Visibility	2	Racing (on track)	1
Drugs or Alcohol	6	Other	2
Fatigue	1	Unknown	8

CONDITION OF ROAD			
Normal	60	Inadequate Lighting	2
Gravel	1	Race track	1
Snow	3	Unknown	5
Fog	1	Not Answered	1
Wet	3		

LOCATION OF CRASH			
City Street	3	Intersection	4
Residential Street	2	Driveway	4
Rural Road	19	Off Road	1
Highway	42	Other	2

RESTRAINTS – LAP BELT	
Not needed	20
Needed, but none present	1
Present, used correctly	16
Present, used incorrectly	3
Present, not used	29
Unknown	8

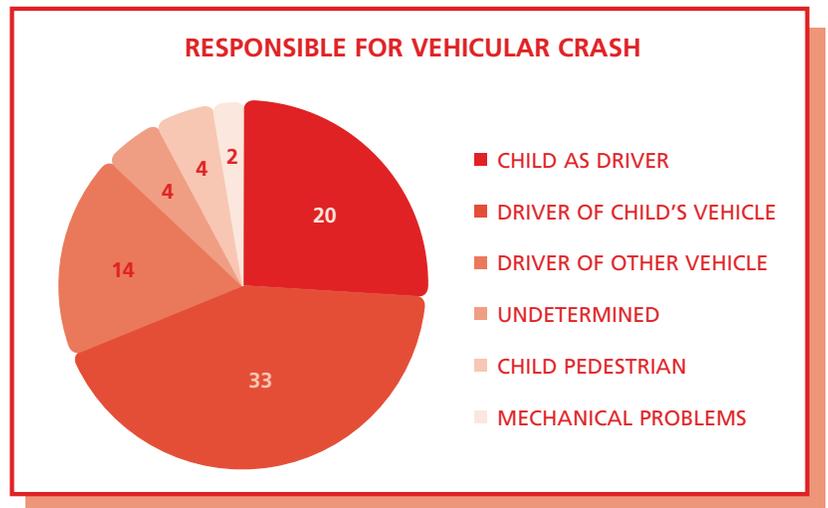
RESTRAINT – CHILD SEAT	
Not needed	70
Needed, but none present	2
Present, used correctly	2
Present, used incorrectly	1
Unknown	2

ALCOHOL AND/OR OTHER DRUG USE	
Decedent as driver impaired	3
Driver of decedent's vehicle impaired	7
Driver of other vehicle impaired	1
Impaired pedestrian	1
Not applicable	65

HELMET USE	
Not needed	71
Needed, but none present	2
Present, used correctly	2
Present, used incorrectly	1
Unknown	1

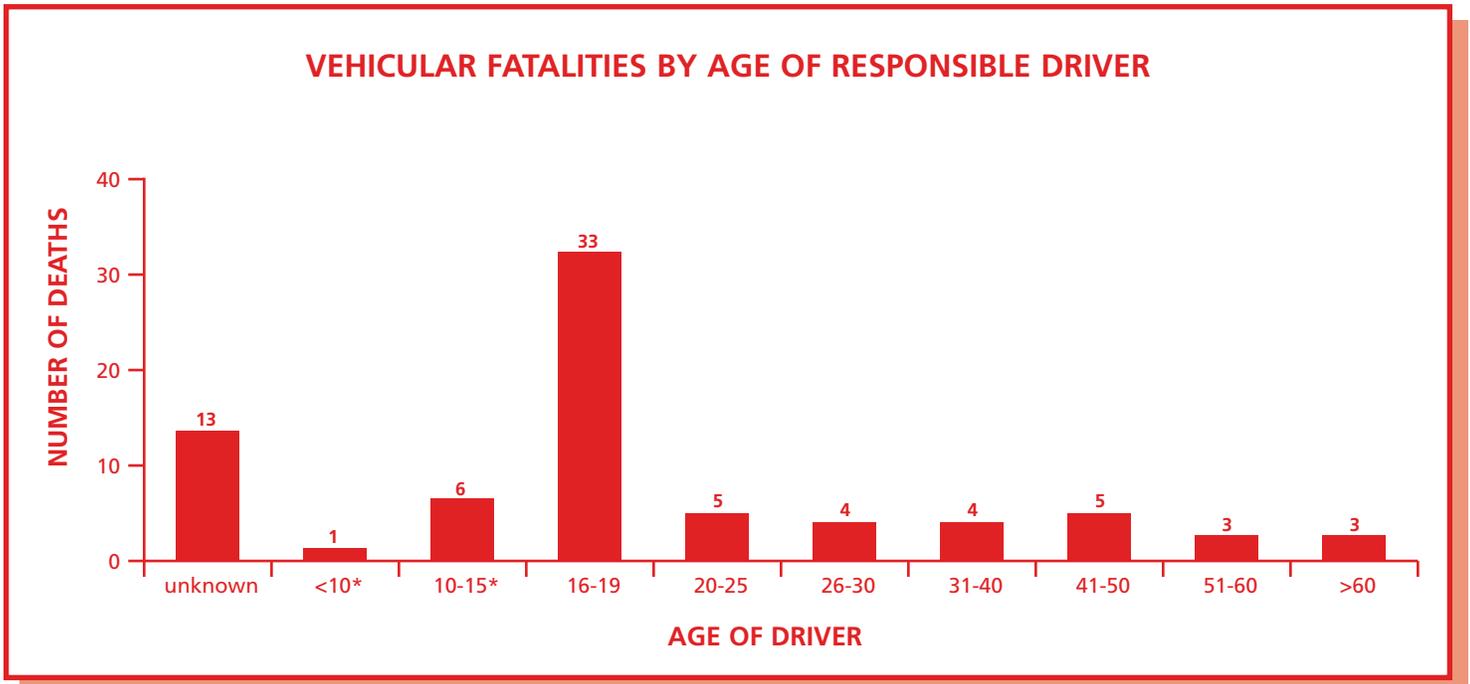
Most vehicle crashes occur due to the actions of one or more persons, be it recklessness, impaired driving, inattention or simple inexperience.

Of the **77** reported motor vehicle fatalities, only **two** deaths were caused from problems with the vehicle. In **33** (43%) deaths, the driver of the child's vehicle was responsible for the accident; in **20** (26%) it was the child as the driver. **Fourteen** (18%) deaths were caused by the driver of another vehicle and in **four** cases the exact cause of the crash



was not able to be determined. The last **four** deaths were pedestrians who, through their own actions, caused the accident which took their life.

According to the National Highway Traffic Safety Administration, teen driver crash experiences are different than those of adults, as compared to other drivers, a higher proportion of teenagers are responsible for their fatal crashes, because of their own driving errors. Of the **67** vehicular deaths in which a driver was determined to be responsible for the accident, **40** (60%) were under the age of 20 with **33** (83%) of those being between sixteen and nineteen years of age.



\* includes underage and unlicensed drivers of cars or ATV's.



## Driver and Passenger Fatalities

Of the **77** reported motor vehicle deaths in Missouri in 2011, **66** (86%) involved drivers and passengers.

### Representative Cases:

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

A three-year-old child was riding in the front seat on his mother's lap. The driver lost control of the car went off the left side of the road, struck a median cable and flipped, ejecting the child from the vehicle.

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

Two teenage girls were riding together. The driver was driving too fast, when the vehicle left the roadway and overturned, ejecting both occupants. Both of the girls were impaired.

An impaired 17-year old was driving alone at 3 a.m., when the vehicle left the roadway, striking a culvert which sent it airborne, striking a concrete overpass pillar. Although the airbags deployed, after several rollovers the teen was ejected through the windshield, as he was not wearing his seatbelt. The vehicle landed on its top on the shoulder of the roadway.

Three girls snuck out of the residence, stole a truck and went joyriding. At a high rate of speed, the driver lost control of the vehicle, hitting a fence and barn. None of girls were wearing seatbelts and all three died.

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% 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 still needs to be done. In 2011, **24** 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 **77** reported motor vehicle fatalities, **12** involved either a victim or a driver who was impaired. In 2011, CFRP panels determined that **four** of these deaths involved a teen victim who was impaired, **three** of those were drivers of a vehicle that crashed, and **one** was a pedestrian. There were **seven** deaths in which the driver of the vehicle in which the victim was a passenger was impaired; of those, **two** fatalities involved riding with an impaired teen driver, **four** were young children riding with impaired relatives and **one** was riding with the step-father of a friend. The last **one** of these 12 deaths involved collision with another vehicle driven by an impaired driver.

The highest fatality rates are found among teenage drivers. The National Highway Traffic Safety Administration states that based on miles driven, teenagers are involved in three times as many fatal

crashes as other drivers. They go on to state that inexperience, risk-taking behavior and immaturity, and greater risk exposure are three deadly factors often associated in teen driver-related fatalities.

It takes time to master the skills needed to safely operate a motor vehicle. Because of this, many states including Missouri have gone to a graduated driving system for new drivers. The Missouri Graduated Driver's License law requires that all first-time drivers between 15- and 18-years old complete a period of driving with a licensed driver (instruction permit), and restricted driving (intermediate license), before getting a full driver license. The issuance of a permit ensures that a new driver gets at least 40 hours of supervised driving practice before they are allowed to drive on their own. The intermediate license restricts the number of teens that a new teen driver can have in their vehicle, as well as the hours of day they are allowed to drive.

But, regulations alone cannot address teen driver safety. Graduated licensing for teen drivers must be combined with education for parents and teens about identified risks to teenage drivers such as the dangers of underage drinking, speeding, inattention, distracted driving and low seatbelt use.

Seatbelts are known to reduce the risk of fatal motor vehicle injury by as much as 45%. Of the reported motor vehicle fatalities among children in Missouri, in 2011, **37** (48%), were teenagers age 15-17, **15** were passengers, **three** were pedestrians and **19** were drivers. Of these teen deaths, **21** (57%) were known to be unrestrained at the time of the crash.

## **Pedestrian Fatalities**

Of the **77** reported motor vehicle fatalities among Missouri children in 2011, **10** were pedestrians. Of these children, **three** were age four and under, **two** were between the ages of five and nine, **two** were between 10 and 14, and the **three** were between the ages of 15 and 17.

### **Representative Cases:**

- **Young children require constant supervision.**

While under grandmother's supervision, a three-year-old child who was supposed to be out back playing, instead walked across the road with a sibling and cousin. The child was struck by a van, while in the roadway and killed instantly.

- **Teens need to be reminded of the dangers of crossing busy thoroughfares.**

A 17-year-old teen died after he and two friends tried to cross a highway, on foot. The driver of a tow truck was unable to stop and struck the boy. The teen was pronounced dead at a local hospital.

- **Drivers need to be aware of the presence of pedestrians, especially in school zones.**

While on a cross-country team run, a 13-year-old boy stumbled and fell into the street. He was struck by a car and killed.

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 years) 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.

While young children are vulnerable to pedestrian accidents due to their inexperience, teens are vulnerable due to their impulsiveness and risk-taking behavior. Teens are especially in danger if they are in groups, or if they have been consuming alcohol. **Four** of the **10** pedestrian deaths were children ages 13 and above. Alcohol was a factor in **one** death, while **three** were with other teens and were struck in the roadway by motor vehicles.

## 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 **77** reported motor vehicle fatalities among Missouri children in 2011, **one** was a bicyclist.

### Representative Cases:

- **Young children require supervision when operating bicycles and tricycles.**

Dad was backing down the driveway, when his vehicle struck a 4-year-old child riding a Big Wheel. The child died from head trauma. It is unknown who was supervising the child.

That 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 crashes in 2011. **One** was operating the motorcycle and the **two** others were passengers. All three were wearing helmets, but the helmet used by **one** of the victims was not believed to be secured properly, since it was found a distance away from the scene.

### Representative Cases:

- **Alcohol and motorcycles just do not mix.**

A 13-year-old girl was riding on a motorcycle with an adult who was impaired. The driver failed to negotiate the on-ramp, striking a rail and ejecting them both from the motorcycle.

- **Other drivers need to be aware of motorcycles.**

A 14-year-old child was a passenger on a motorcycle with his father, when they were struck from behind by a car which had lost control and slid into the motorcycle.

The dangers of inexperience and inattention are of a higher degree of risk, when involving motorcycles and other smaller motorized vehicles, such as mini-bikes. Such vehicles generally have a short and relatively unstable wheelbase, small tires, slow acceleration, borderline brakes, and poor visibility in traffic (both of the motorcycle and by the motorcycle operator). The American Academy of Pediatrics states that typically injuries on these types of vehicles are the result of losing control of the motorcycle after striking rocks, bumps, holes or other roadway debris. 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.

Competitive juvenile off-road motorcycle racing or motocross is growing in popularity and is a cause for concern. Proponents of motocross said it was no more dangerous than other children's sports, such as skiing and football, but the United States Consumer Product Safety Commission in Washington states that while there are numerically less injuries in motocross than in football, far less people participate in motocross than in those other sports. The CDC also states that the injuries involving off-road motorbikes are far more serious than those seen in other youth sports. In 2011, **one** fourteen-year-old child died while riding on a motocross track. He had on all the required safety equipment and had over four years experience at the sport, but even that did not protect him from the crash impact.

## All-Terrain Vehicle Fatalities

**Two** of the **77** reported motor vehicle fatalities in 2011, involved all-terrain vehicles (ATV's).

### Representative Cases:

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

An eight-year-old male was riding an ATV on a dirt road unsupervised, when he failed to stop at an intersection. His ATV was struck by a pickup truck traveling on the county road. The child was neither wearing a helmet, nor was there a safety flag on the ATV.

A sixteen-year-old driver of a 4-wheel ATV had been racing up and down the roadway most of the day. He collided with a second 4-wheeler, overturning his 4-wheeler. Neither were wearing helmets.

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. **Neither** of the two children who died in 2011, were wearing helmets.

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 requires that all children under the age of 18 wear helmets when riding on an ATV, no one under 16 operates an ATV unless on a parent's land or accompanied by a parent, and passengers may not be carried with the only exceptions being for agricultural purposes and ATVs designed to carry more than one person.

## 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 who 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, as well as addressing appropriate concerns related to signage, visibility and/or roadway maintenance.
- 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 . . . . .	<a href="http://www.aap.org/">http://www.aap.org/</a>
Children’s Safety Network. . . . .	<a href="http://www.childrenssafetynetwork.org">http://www.childrenssafetynetwork.org</a>
National SAFE KIDS Campaign . . . . .	<a href="http://www.safekids.org/">http://www.safekids.org/</a>
National Center for Injury Prevention and Control . . . . .	<a href="http://www.cdc.gov/injury/index.html">http://www.cdc.gov/injury/index.html</a>
Harborview Injury Prevention and Research Center. . . . .	<a href="http://depts.washington.edu/hiprc/">http://depts.washington.edu/hiprc/</a>
National Highway Transportation Safety Administration. . . . .	<a href="http://www.nhtsa.gov/">http://www.nhtsa.gov/</a>
Missouri Coalition for Roadway Safety. . . . .	<a href="http://www.savemolives.org/">http://www.savemolives.org/</a>
The Think First Injury Prevention Foundation . . . . .	<a href="http://www.thinkfirst.org/">http://www.thinkfirst.org/</a>

## 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

### 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](http://www.ctf4kids.org).

#### Resources

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



## UNINTENTIONAL FIRE/BURN FATALITIES

In 2011, nine Missouri children died of fire/burn injuries.

### Representative Cases:

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

Two children, ages one and 10, and one adult died in a house fire started by a three-year-old playing with a toaster. The child had been left unsupervised for 15-20 minutes.

A one-year-old child died from a fire started by a five-year-old sibling with a lighter. The five-year-old had a history of starting fires. There were smoke detectors in the apartment, but they did not work.

- **Electrical wiring needs to be up to code, not only in residences, but also in adjacent structures.**

A baby, along with her parents and aunt, all died in a house fire. The Fire Marshal investigation concluded that the fire was from faulty wiring in a carport.

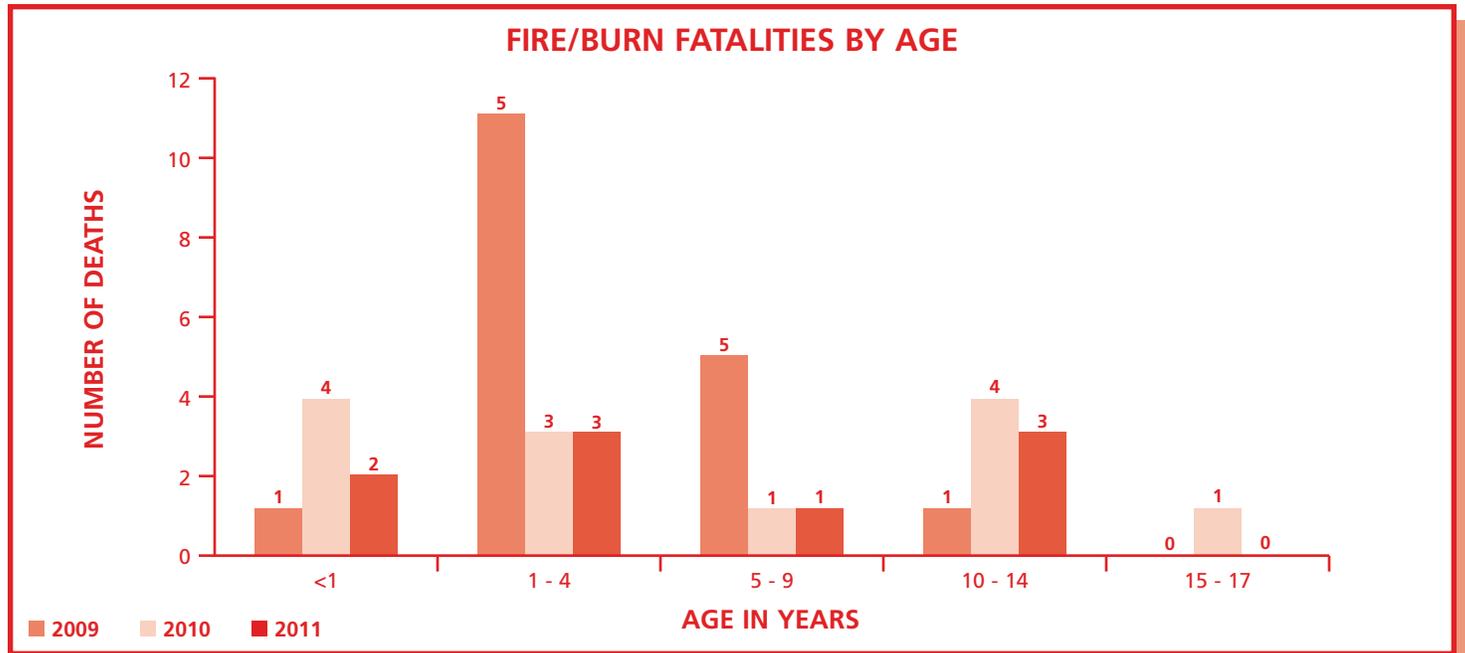
An infant died in a mobile home fire. The fire was caused by a short in an air compressor, in a shed next to the trailer.

According to the National SAFE KIDS Campaign, fires and burns are the third leading cause of unintentional death among children ages 1 to 14. Each year, approximately 488 children, ages 14 and under, die in residential fires and another 116,600 are injured by fire- or burn-related incidents. Children ages four and under are at much higher risk for these injuries than adults.

Two out of three times when a child is injured or dies from a residential fire, a smoke detector is not working or not present. Having a working smoke detector is very important. It reduces the chance of dying in a fire by nearly half.

### Fire/Burn Fatalities 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 **nine** fire/burn fatalities among children in Missouri in 2011, **five** 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.



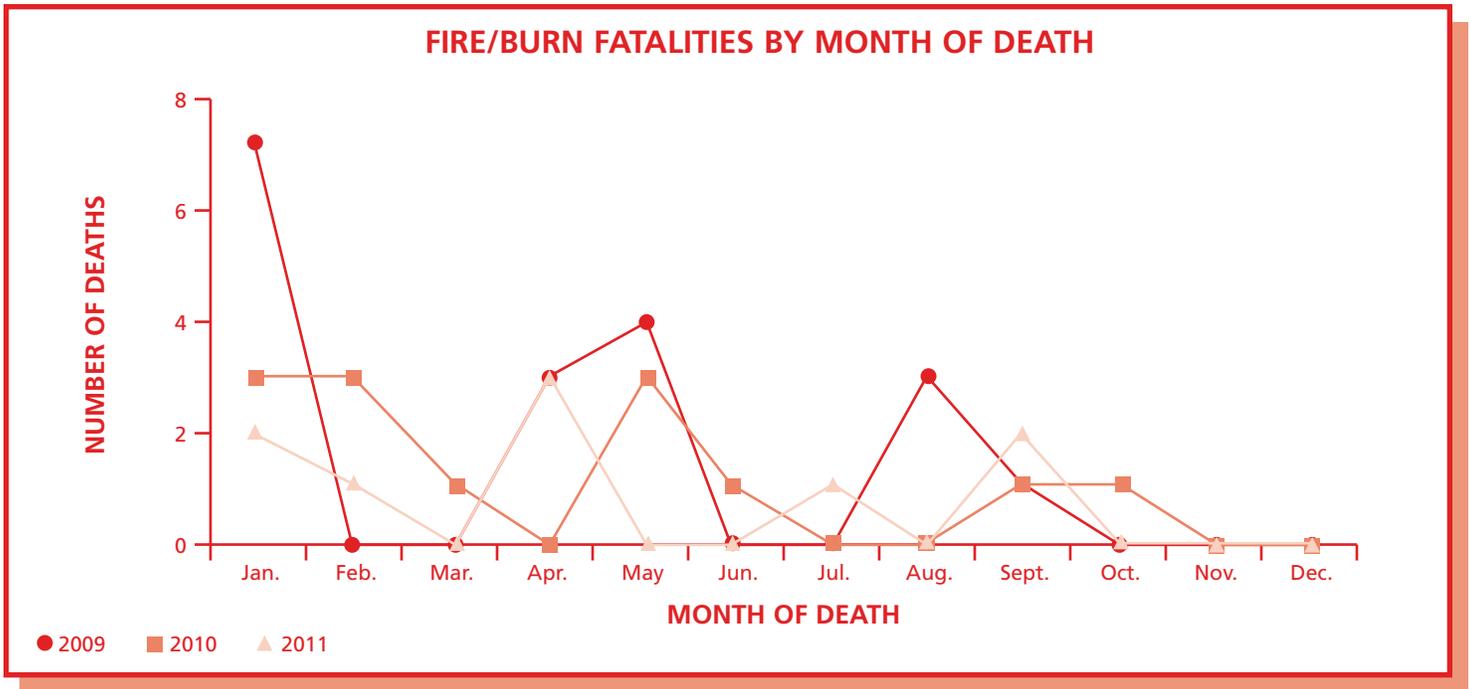
### UNINTENTIONAL FIRE/BURN FATALITIES BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	8	10	4	WHITE	13	10	9
MALE	10	3	5	BLACK	5	2	0
				OTHER	0	1	0
	<b>18</b>	<b>13</b>	<b>9</b>		<b>18</b>	<b>13</b>	<b>9</b>

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 detectors, 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. **Five** of the **nine** fire deaths in Missouri in 2011, were in rural areas.

Although 90% of all residences have smoke detectors today, no smoke detectors were present in 42% of residential structure fires where fatalities occurred. Smoke alarms were reported to be present in only **three** of the **nine** fatal Missouri fires reviewed by county CFRP panels in 2011, in one case the detector was known to be not working and in the other two, it is unknown if they were in working order or not. Smoke detectors have been promoted as an invaluable tool for preventing fire and burn injury. Nationwide increases in the prevalence of smoke detectors in homes, and the passage of legislation requiring smoke detectors 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 2011, **three** children were known to have died in a fire 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, Delinquent/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.

SMOKE DETECTOR PRESENT	
Yes	3
Unknown	6

FIRE STARTED BY	
Other Child	3
No One	6

MULTIPLE FIRE DEATHS	
Yes	7
No	2

TYPE OF BUILDING	
Single Home	6
Apartment	1
Trailer/Mobile Home	2

DID ANY FACTORS DELAY FIRE DEPARTMENT ARRIVAL	
Yes (snow/ice)	2
No	7

WAS STRUCTURE A RENTAL PROPERTY	
Yes	3
No	3
Unknown	3

SOURCE OF FIRE	
Lighter	1
Space Heater	1
Electrical Wiring	2
Other (toaster)	2
Unknown	3

## Something We Can Do: Fire Prevention Awareness Day

When three children died in a house fire in St. Louis, CFRP panel members and other community leaders talked about finding a way to target that neighborhood for a fire safety campaign providing appropriated prevention response to those tragic deaths. Smoke detectors, properly installed, and maintained, have proven extremely effective in preventing fatalities. Annually since 1995, 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 detectors 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 2011, 22 total children drowned in Missouri. Eighteen of those were unintentional injuries.**

Note: One of these children died of child abuse, and **one** was a homicidal drowning. Those **two** deaths will be discussed under the “homicide” section of this report. **Two** others are considered as “undetermined intent” and will be looked at in the undetermined injury section of this report.

### Representative Cases:

- **Small children need constant supervision.**

Mom was bathing a one-year-old child and left her in the tub while mom was doing laundry. Mom found the child face down in the water, when she returned.

- **Children need to be taught that even if a pond looks frozen, it may not hold their weight.**

Four kids were playing together when two of them went out onto the ice of grandparent’s pond, and fell through the ice. One of them was able to get out, but the seven-year-old was not, and drowned.

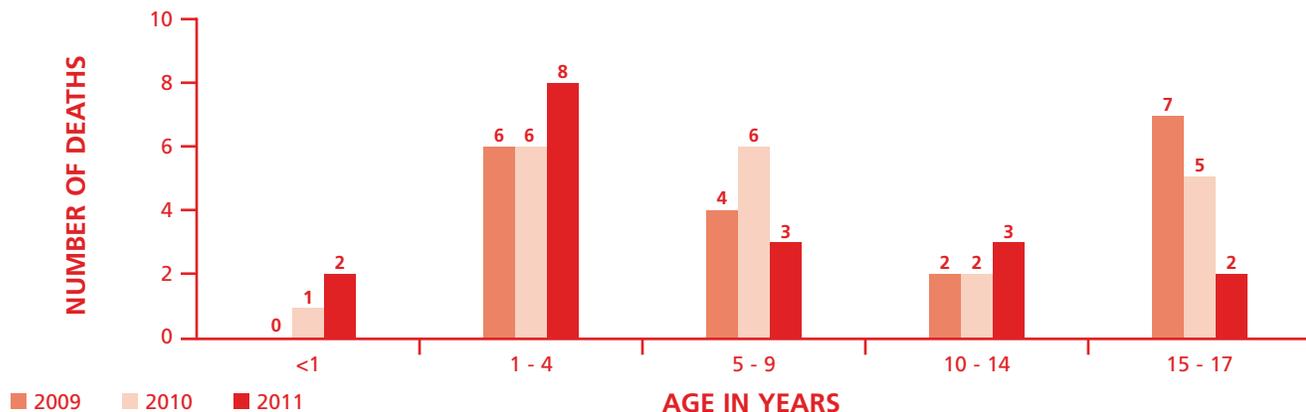
Two siblings, ages nine and 12, were walking on a frozen pond when the ice gave way and they both drowned. They were not found until 45 minutes after the incident.

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

A 12-year-old child was swimming in the lake with an older cousin. The child was using a swim “noodle”, had trouble and went under water. A police officer from across the lake went to help and could not find her.

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 **18** Missouri children who drowned in 2011, **ten** (56%) were age four and under.

**UNINTENTIONAL DROWNING FATALITIES BY AGE**



**DROWNING FATALITIES BY SEX AND RACE**

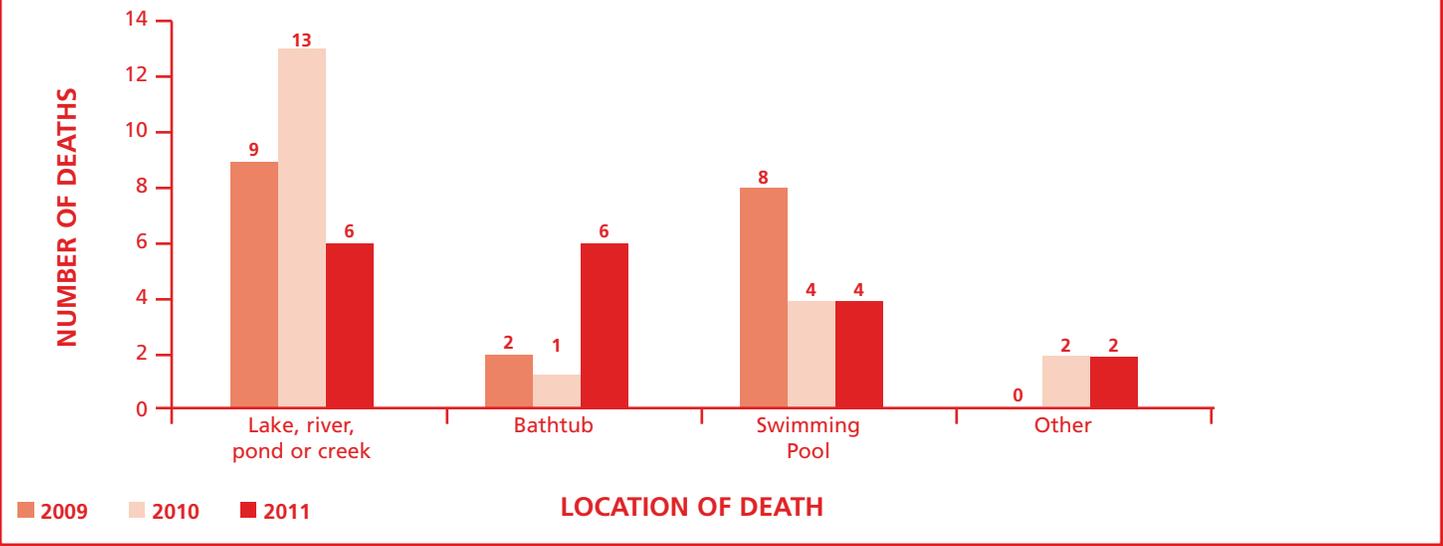
SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	7	2	2	WHITE	15	19	13
MALE	12	18	16	BLACK	4	1	5
	19	20	18		19	20	18

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 **18** Missouri children who drown in 2011, **four** (22%) occurred in swimming pools hot tubs or spas, **six** (33%) occurred in open water locations, **six** (33%) occurred in a bathtub, and **two** (11%) occurred in “other” locations (a frozen over pond.)

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.

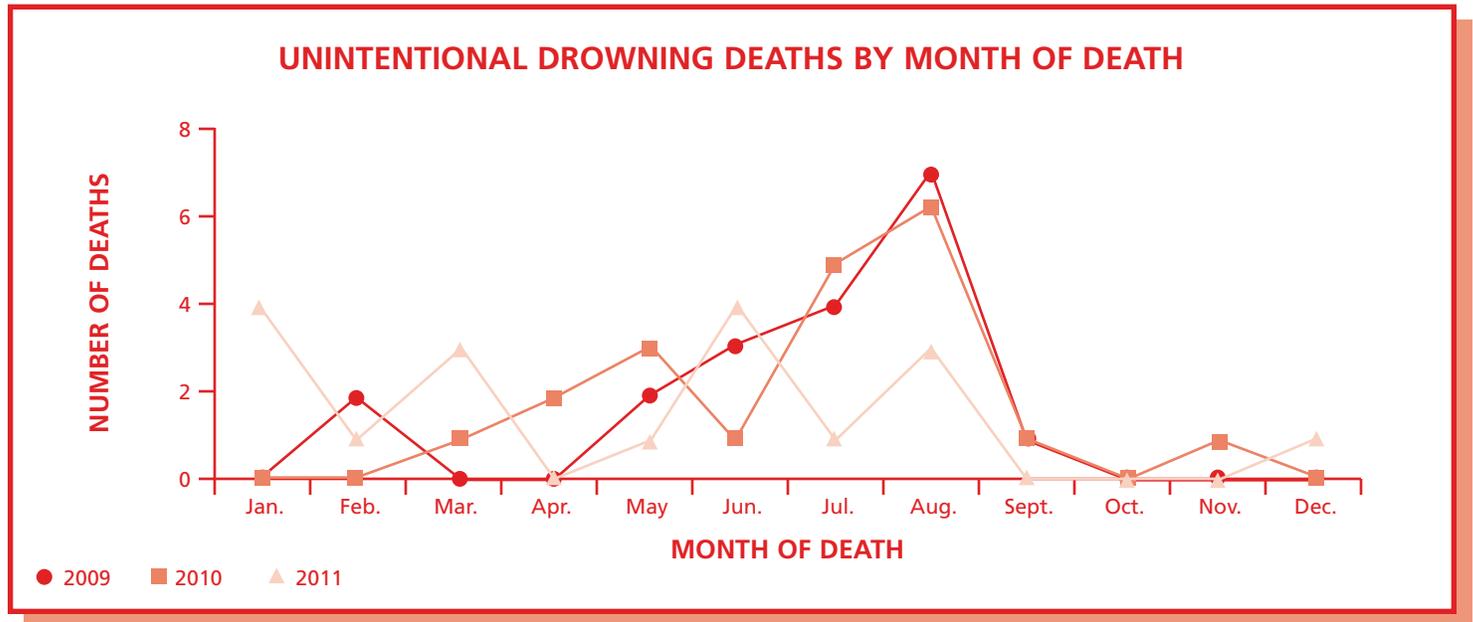
**UNINTENTIONAL DROWNINGS BY LOCATION**



**Drowning Fatalities Among Children**

Use of a personal flotation device is well established as an effective means to prevent drowning deaths. **None** of the Missouri children, who drowned in 2011, were wearing a personal flotation 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.
- Keep children off of frozen ponds and lakes unless they have been inspected by a knowledgeable adult as to the status of the ice.
- Ensure that children always wear U.S. Coast Guard approved personal flotation 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 flotation 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 . . . . .	<a href="http://www.safekids.org/">http://www.safekids.org/</a>
National Center for Injury Prevention and Control . . . . .	<a href="http://www.cdc.gov/injury/index.html">http://www.cdc.gov/injury/index.html</a>
Harborview Injury Prevention and Research Center. . . . .	<a href="http://depts.washington.edu/hiprc/">http://depts.washington.edu/hiprc/</a>
Consumer Product Safety Commission . . . . .	<a href="http://www.cpsc.gov/">http://www.cpsc.gov/</a>
Red Cross . . . . .	<a href="http://www.redcross.org/">http://www.redcross.org/</a>
The United States Lifesaving Association (USLA) . . . . .	<a href="http://www.usla.org/">http://www.usla.org/</a>
Missouri State Water Patrol . . . . .	<a href="http://www.mswp.dps.mo.gov/">http://www.mswp.dps.mo.gov/</a>

## UNINTENTIONAL POISONINGS

In 2011, 7 children died of unintentional poisoning\*.

\*Note: **Four** additional children died of poisoning, but **one** was considered a child abuse death, **one** was homicide, **one** was suicide and **one** was of an undetermined manner. These deaths will be discussed in later sections of this report.

### Representative Cases:

- **Medications should not be left accessible and should be kept out of reach of children.**

Mother placed the 11-year-old autistic child's medications on the counter along with her own. The child mistakenly took mother's medication instead and died.

- **Teens and inappropriate drug use are a deadly combination.**

A 17-year-old bragged to his siblings about taking prescription medications. The siblings helped him to bed to "sleep it off" versus contacting medical assistance.

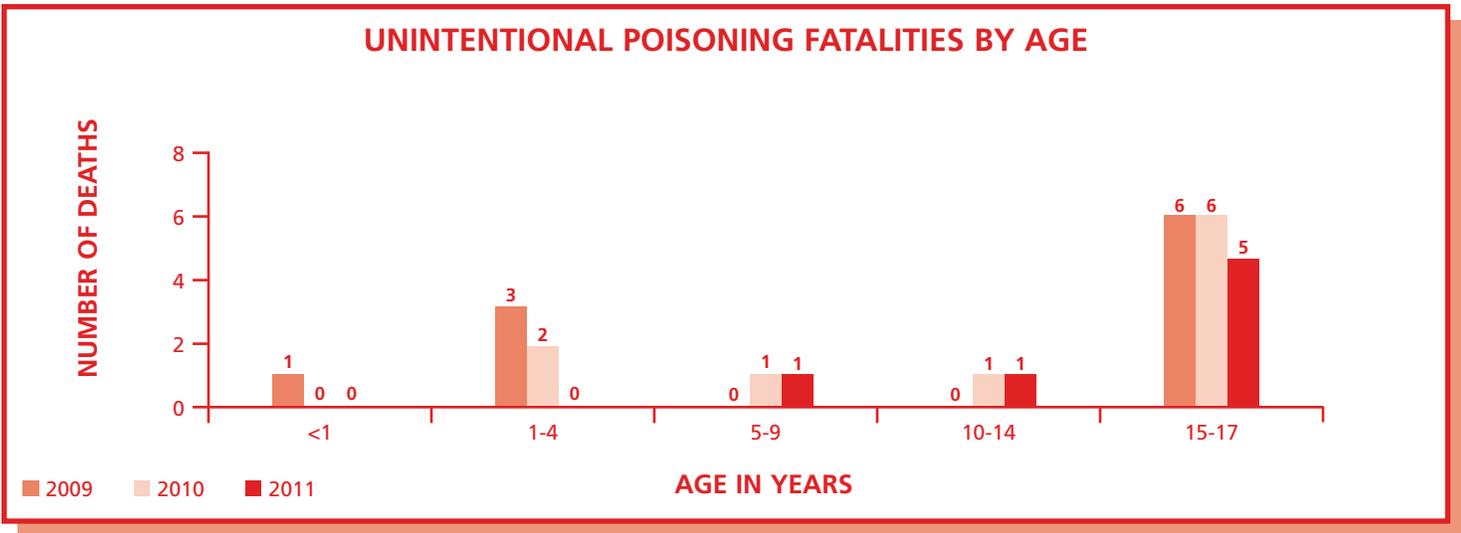
A 15-year-old, who was to go into rehab, spent the evening drinking beer and whisky with his aunt and uncle. He was found dead the next day, having aspirated on vomit and overdosed on heroin.

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.

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. In 2011, there were **no** children who died of poisoning in this age range in Missouri

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.

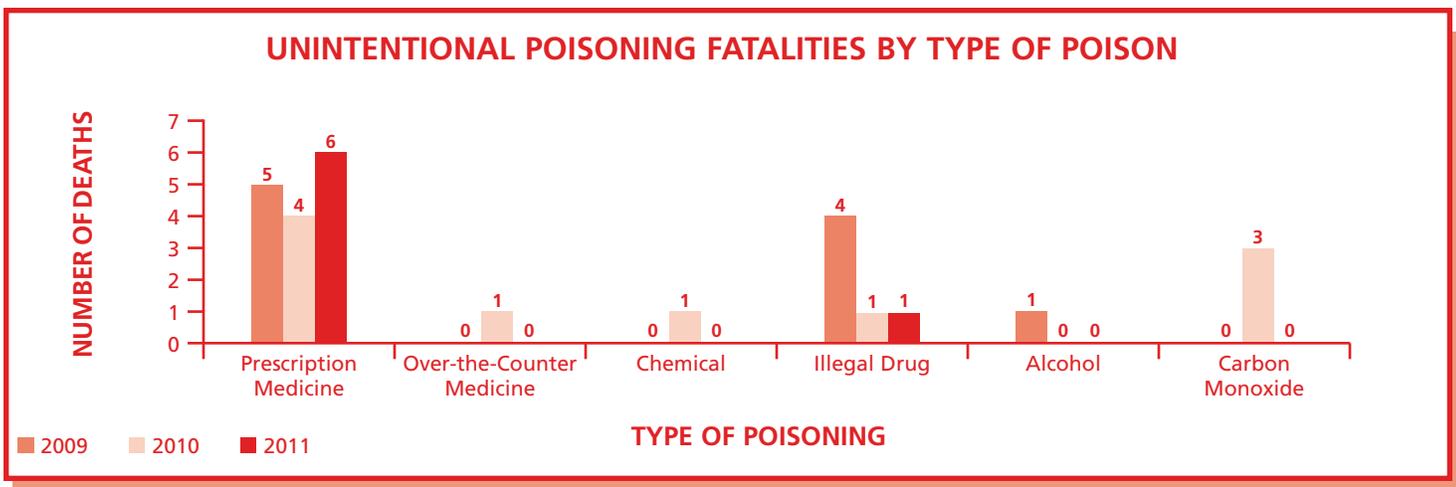
The Missouri Poison Center is an informational resource and provides statewide service 24-hours a day, 7-days a week, professionally staffed by nurses, pharmacists and physicians who are prepared to assist with exposures in all age groups. It is free service to the public and can be accessed, either on the internet at <http://www.cardinalglennon.com/Pages/missouri-poison-center.aspx> or toll free at 1-800-222-1222.



**Five** Missouri teens, ages 14-17, died of unintentional poisoning in 2011, **four** overdosed from prescription medications from various sources, and **one** died from illegal drugs.

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, the 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 101 percent in the period from 2004 to 2009.



## 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.

## UNINTENTIONAL FIREARM FATALITIES

By your child's first year, he can squeeze your finger with seven pounds of pressure. That is approximately the same amount of pressure needed to squeeze the trigger of a gun.

*Children's Defense Fund (CDF)*

**In 2011, eight children died of unintentional firearm injuries.**

### Representative Cases:

- **Handguns must be secured and locked away, not just hidden or placed out of reach, when there are small children around.**

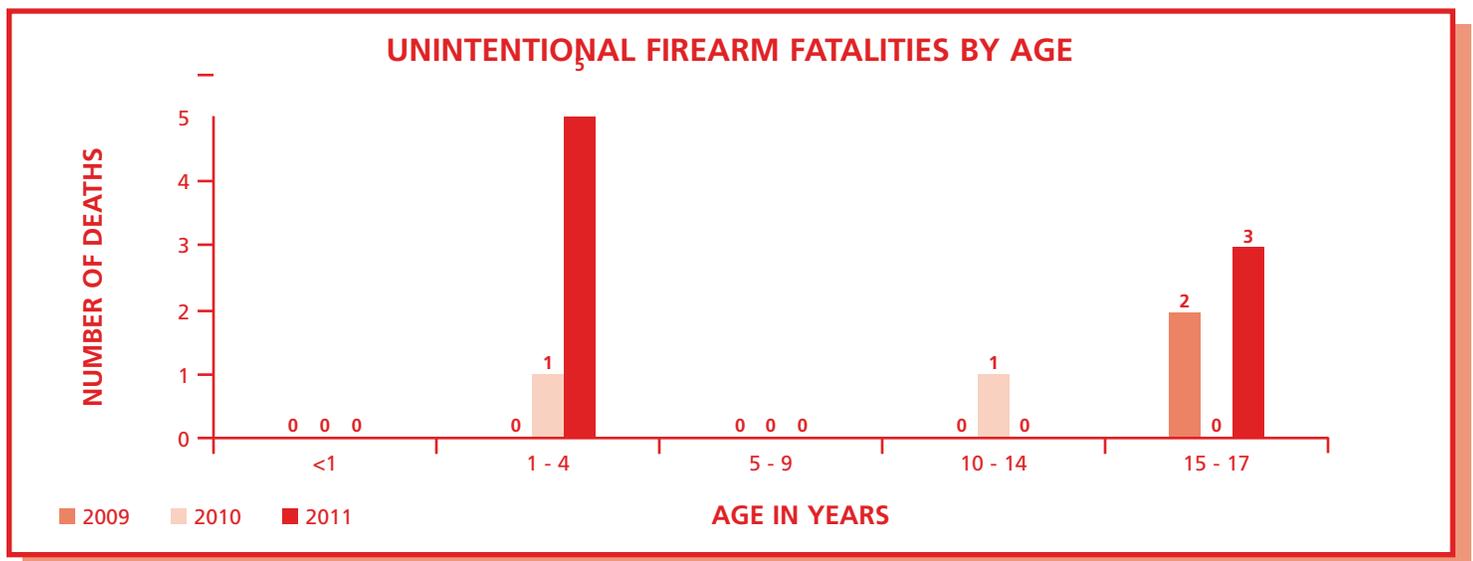
A two-year-old child climbed on a desk and got a handgun off the shelf in a closet, where it was stored loaded with a round in the chamber. The child shot herself in the face.

A three-year-old was visiting her father and found his girlfriend's gun, which was usually kept hidden under the mattress. The child died of a self-inflicted gunshot wound to the head at close range.

- **Teens often fail to respect the risk presented by firearms.**

A 16-year-old boy was with a group of his friends playing with a handgun. He did not think the gun was loaded and shot himself in the head.

According to the CDC, 98 children died and another 1,289 children were injured through the accidental discharge of firearms in 2010. In 2011, **eight** Missouri children died of unintentional firearm injuries.



In the United States, males are far more likely to be injured and die from unintentional shootings than females. Of children 17 and under who were killed by unintentional shootings, 85% were males. In Missouri in 2011, **six** of the victims of unintentional shootings were males, and the other **two** were females.

Nationally, more than 70% of unintentional firearm shootings involve handguns. In 2011, **seven** of the **eight** unintentional firearm deaths among children involved a handgun; **one** death involved a shotgun.

In 2004, it was estimated that there are firearms in 40% of the U.S. households with children under 18, and in 30% of these households, the firearms were stored unlocked and loaded. Of the **eight** unintentional firearm deaths reviewed by CFRP panels in 2011, **seven** of the weapons were owned by family members, while the owner of the last weapon is unknown. All of these weapons were stored loaded and unsecured.

## Unintentional Firearm Fatalities 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. **Seven** of the eight Missouri children, who died of a result of unintentional firearm injuries in 2011, 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% of first and second grade students knew where the gun was kept.
- Before age eight, 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 eight to 12, who found a real handgun, were unsure whether or not it was a toy.
- More than 90% of children who found and handled a gun, or pulled the trigger, reported having some previous type of firearm safety instruction.
- It is estimated that safety devices such as gun locks and load indicators, prevent more than 30% 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 deaths involving children, ensure that every effort is made to determine the source of the gun, circumstances of the event, consider the responsibility of the gun owner in the incident and promote firearm safety within the local community.

**Resources and Links:**

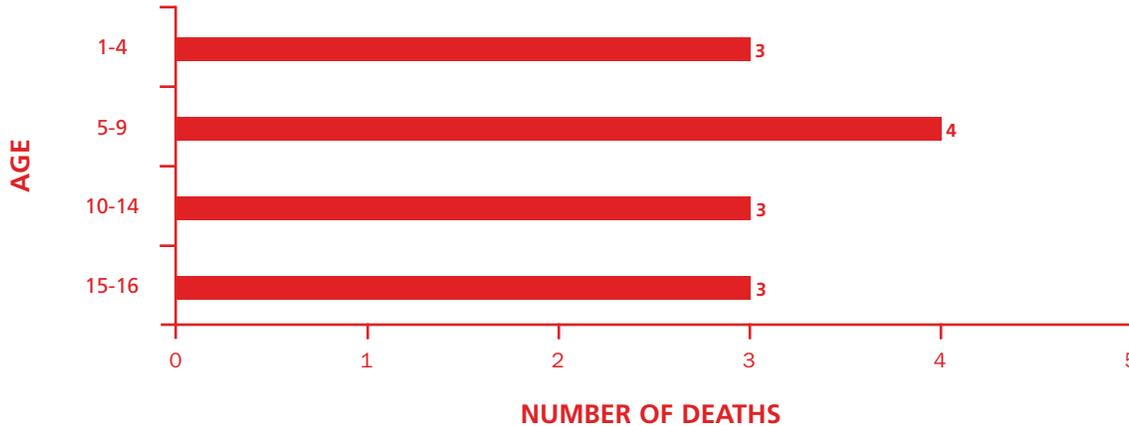
- National SAFE KIDS Campaign ..... <http://www.safekids.org/>
- National Rifle Association “The Eddie Eagle GunSafe Program”  
..... <http://nrahq.org/safety/eddie/>
- Missouri Department of Conservation Hunter Education Program  
..... <http://mdc.mo.gov/hunting-trapping/learn-hunt/hunter-education>

## UNINTENTIONAL CRUSH – JOPLIN TORNADO

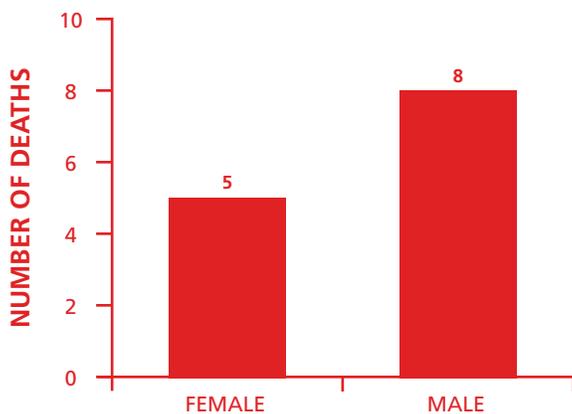
On May 22, 2011, a category EF5 tornado swept through the town of Joplin, Missouri, leaving 161 people dead in its wake. The deadliest US tornado in 60 years and the seventh deadliest in U.S. history, the Joplin tornado changed the way hazardous weather warnings are issued, and hopefully, how people respond to such warnings. Due to the enormity of the event and the totality of the destruction, specific statistical information concerning circumstances of each death will never be known. This section is in recognition of all of those (especially the children) who lost their lives during this tragic event.

There were a total of 13 children who died in the Joplin tornado.

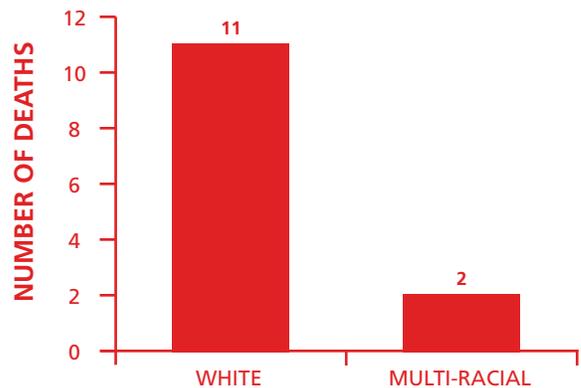
UNINTENTIONAL CRUSH FATALITIES



UNINTENTIONAL CRUSH FATALITIES BY SEX



UNINTENTIONAL CRUSH FATALITIES BY RACE



Unlike most deaths, fatalities from acts of nature do not show a large discrepancy between ages. The majority of deaths are believed to have resulted from either flying debris or structural collapse from the locations (homes, churches, nursing homes, hospitals and businesses) where people took shelter from the estimated mile wide tornado, which had a total path of just over 22 miles.

The tornado destroyed approximately one third of the city of Joplin. Community response to the tornado was quick and decisive. Federal, state, regional, local and private emergency response personnel had just concluded participation in the “National Level Exercise 2011” three days prior to the tornado, so they were well prepared to respond. Within hours of the disaster communications was restored to local emergency operations centers, and a field triage and medical treatment center was established in the center of town. Within 24 hours of the tornado, more than 800 law enforcement vehicles, 300 ambulances, 400 fire trucks, 1,100 first responders, along with federal and state agencies, and numerous volunteers arrived in Joplin, to contribute to response operations.

Analysis of the event has revealed several issues which contributed to the disaster. First of all, the rocky soil under Joplin made building basements difficult, so many people were forced to huddle in bathrooms and closets. Today many of the homeowners rebuilding in Joplin are adding “safe rooms” to their plans giving themselves somewhere to go in case of another tornado. Secondly, many people in town did not respond to the initial warnings, instead they waited until they could confirm that there was a real problem from a secondary source. One of the main reasons cited for this was that “sirens go off all the time and nothing happens”. To combat such lack of response, the National Weather Service has created a three tiered “impact based warning system.” This system uses stronger language to try and “spur immediate action” in the case of a severe storm.

Another issue was confusion about where the actual danger was located. When the initial warning siren was sounded, the danger was north of Joplin. When the second siren sounded, many residents thought that it was still sounding for the area north of town and didn’t realize that they were in danger. To combat this, some communities are installing new warning systems that combine the capability of sirens with the ability to broadcast prerecorded voice messages over the sirens, or even live messages from city emergency personnel. In this way the warnings can be better tailored for the areas which are served by each individual siren.

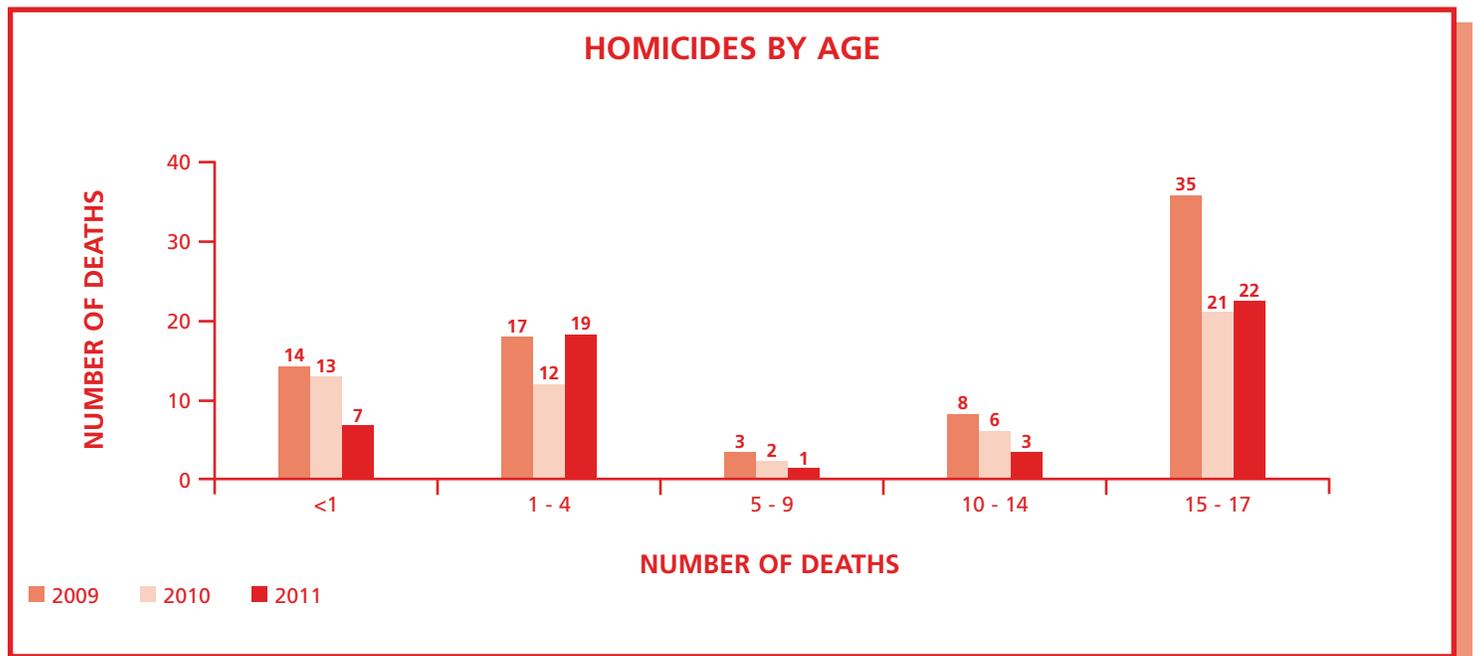
It has now been just over a year since the disaster. Recovery is still in progress, but through the efforts and assistance of volunteers; national, regional, state and local agencies, and enduring spirit of the citizens of the Joplin community, 80% of the businesses have reopened and two-thirds of destroyed homes are being rebuilt. Joplin is coming back stronger.

## HOMICIDES

In 2011, homicide was listed as the death certificate manner of death for 52 Missouri children.

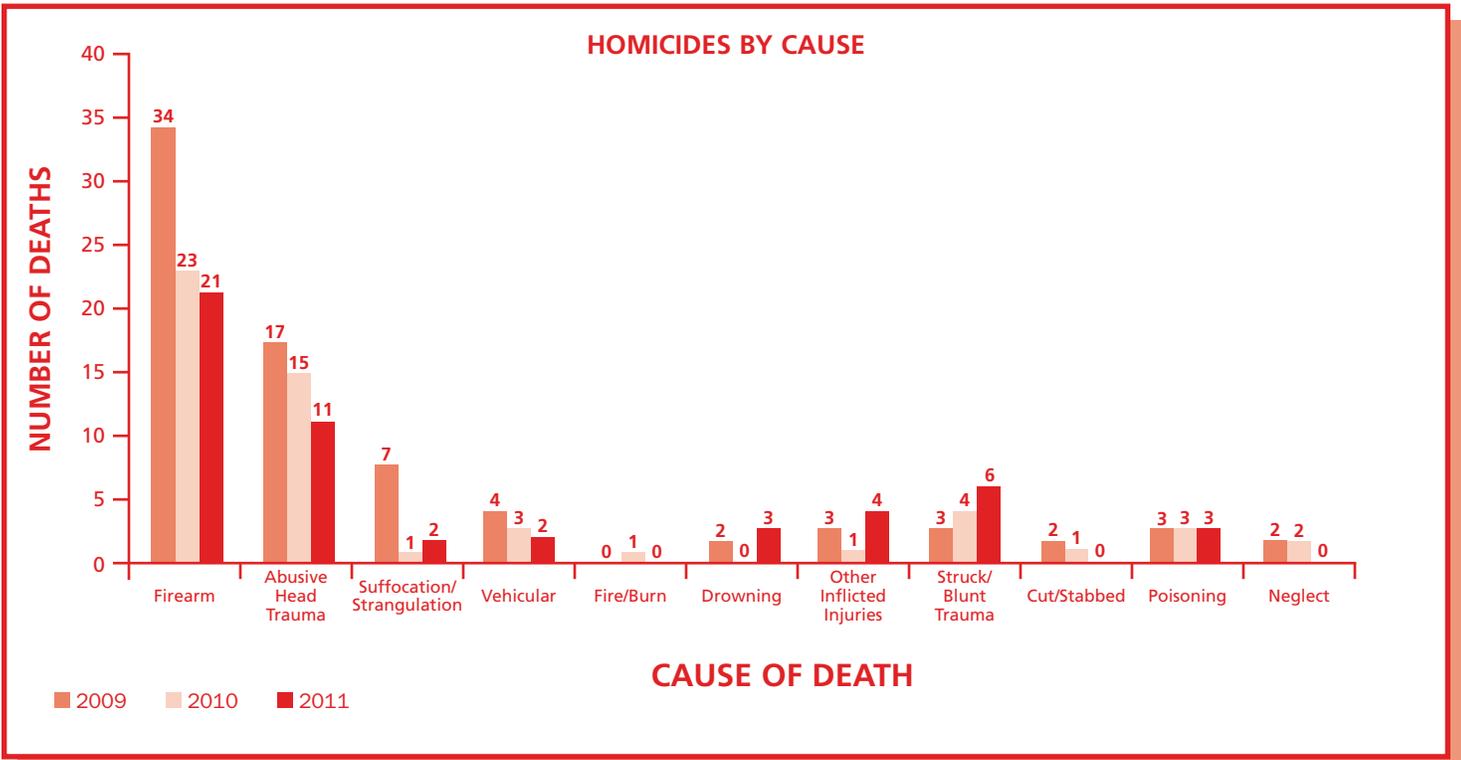
**Fatal Child Abuse and Neglect:** Child death resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent. This includes, but is not limited to, children whose deaths were reported as homicide by death certificate. In 2011, a total of 65 Missouri children were identified by CFRP panels, as victims of Fatal Child Abuse and/or Neglect; of those, 28 were reported by death certificate as Homicide.

**Other Homicides:** Child death in which the perpetrator was not in charge of the child, was engaged in criminal or negligent behavior, and the child may or may not have been the intended victim. These homicides include teen violence and events such as motor vehicle deaths involving drugs and/or alcohol. There were 24 such fatalities in Missouri in 2011. Of those, the CFRP panels identified one child death in which parental negligence was a contributing factor.



**HOMICIDES BY SEX AND RACE**

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	25	20	17	WHITE	32	27	24
MALE	52	34	35	BLACK	44	23	25
				OTHER	1	4	3
	77	54	52		77	54	52



when **STRESS** HEATS UP

keep your *Cool*

Parent *with* Patience

**Children's Trust Fund**  
Missouri's Foundation For Child Abuse Prevention

[www.ctf4kids.org](http://www.ctf4kids.org)   *Strong Families, Safe Kids*

## FATAL CHILD ABUSE AND NEGLECT

**In 2011, 65 Missouri children were victims of Fatal Child Abuse and Neglect. Of those, 28 were reported as homicide by Death Certificate.**

NOTE: Due to changes to the Child Death Review’s Case Reporting System, and the subsequent changes in criterion used to define these deaths, the numbers may not correlate well with reported previous years’ information. Where possible, we have attempted to address these differences.

### Representative Cases:

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

An eight-month-old was taken to the hospital due to seizures. Upon examination, the child was found to have abrasions on both arms and severe head injuries. The child’s father confessed to shaking the baby.

A father decided to give his nine-month-old a bath and fell asleep with the infant on his chest, while in the tub. He awoke to find the baby face down in the bathtub. The father admits to being intoxicated at the time.

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

A three-month-old was left with her uncle, while the child’s mother was at work. The man became frustrated, shaking and twisting her violently, causing major internal injuries, because the baby would not stop crying.

The father admitted to shaking a five-month-old baby, because she was crying and he did not like the child as much as her twin sibling.

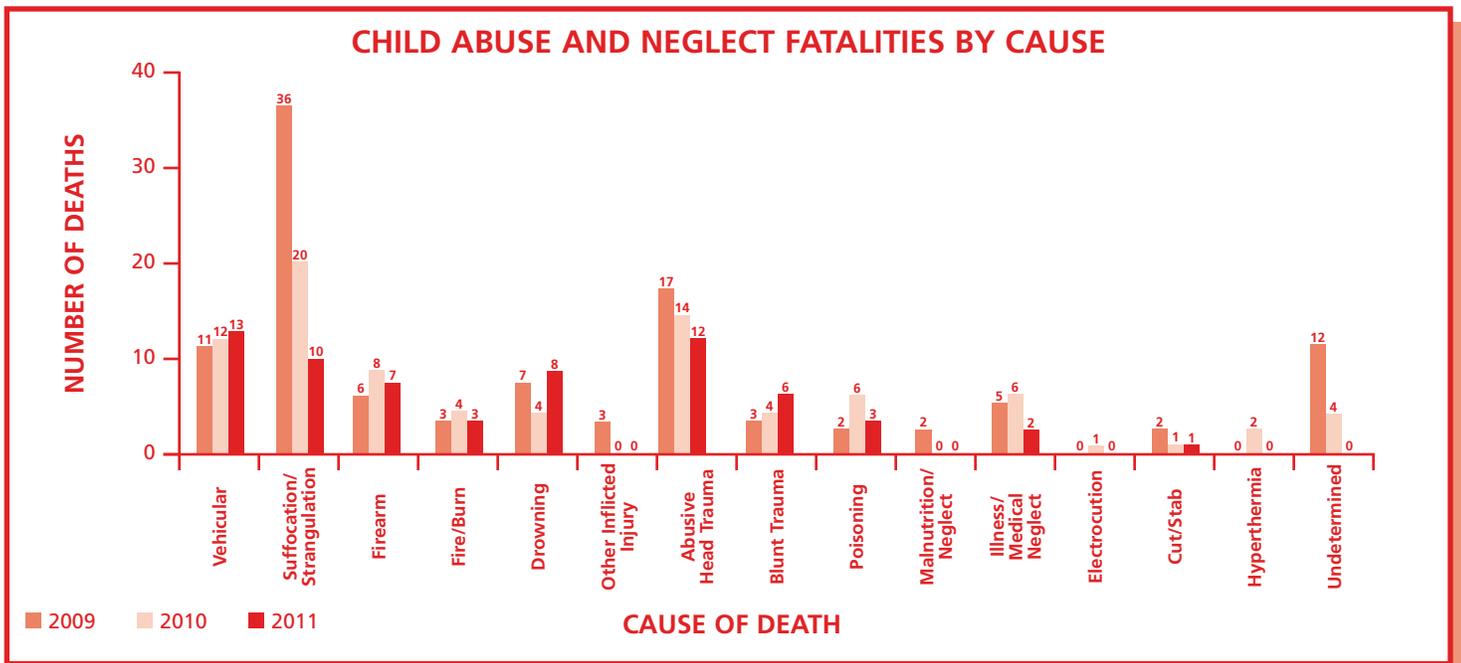
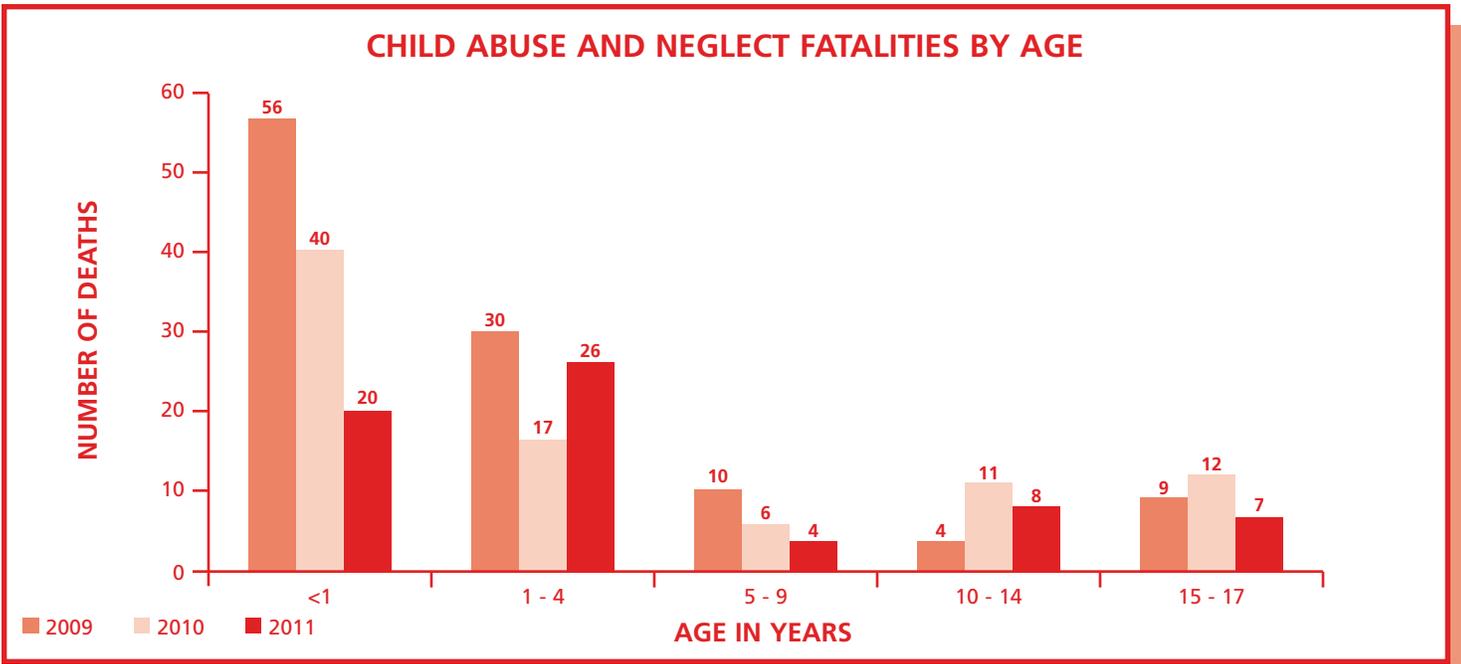
- **Domestic violence issues between adults often spills over onto children.**

The parents were having ongoing relationship discord, frequently arguing, and were in the process of separation, when angered, the husband shot his wife, his 16-year-old step-daughter and then himself.

A 16-year-old teen was visiting her Godmother’s home, when the Godmother’s husband shot and killed the woman and teen. Responding to the scene, the police shot and killed the man when he fired at them, as well.

### CHILD ABUSE AND NEGLECT DEATHS BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	43	37	23	WHITE	66	61	43
MALE	66	49	42	BLACK	42	19	19
				OTHER	1	6	3
	<b>109</b>	<b>86</b>	<b>65</b>		<b>109</b>	<b>86</b>	<b>65</b>



Child fatalities are the most tragic consequences of child abuse and neglect. The National Child Abuse and Neglect Data System (NCANDS) reported an estimated 1,560 child fatalities in 2010. 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 CDC has funded an effort to develop a standardized national surveillance system capable of accurately investigating and 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 systems. 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

A 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 210.110, RSMo, for children under the age of 18, for whom the perpetrator has care, custody and control.

Since August 2000, all child deaths are to be 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 CFRP is immediately notified by the Children's Division Central Registry Unit of all reported fatalities. The division is also responsible for protecting any other children in the household, to include removal by order of the court, if applicable, 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 there was a *preponderance of evidence* to believe that this child was the victim of neglect, specifically lack of supervision.

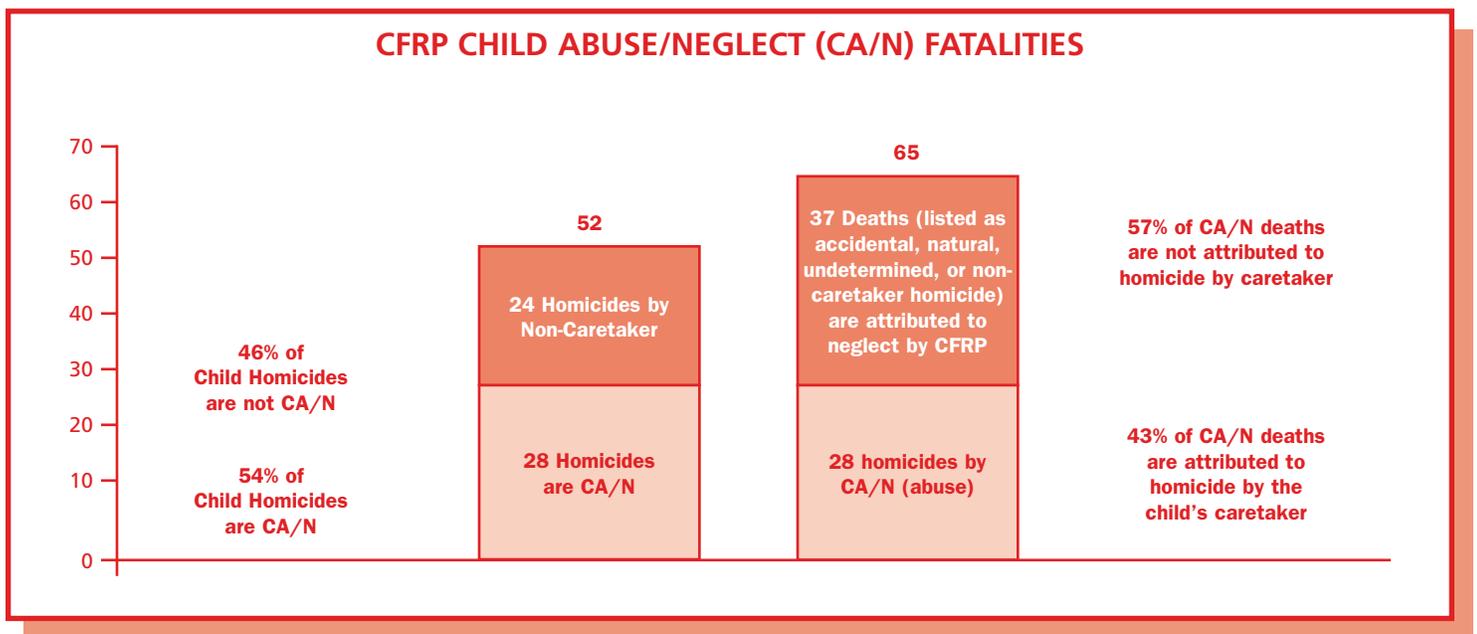
## The Missouri Child Fatality Review Program: Fatal Child Abuse and Neglect

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.

In 1999, CFRP 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. The conversion in 2011, to the Internet-based NCRPCD Case Reporting System has also further enhanced these processes, allowing us 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 2011, 28 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 abusive head trauma. Infants and younger 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 2011, **24** of the **28** Missouri children (86%) who died from inflicted abuse or neglect at the hands of a parent or caretaker were four years of age or younger. Of those, **7** (29%) were infants under the age of one year.

In 2011, **five** 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 2011, **12** Missouri children were victims of fatal Abusive Head Trauma, formerly known as Shaken Baby Syndrome (SBS).

FATAL ABUSE INFLICTED INJURIES BY AGE	
<1 year	7
1-4 years	17
5-9 years	0
10-14 years	1
15-17 years	3

FATAL ABUSE INFLICTED INJURIES BY SEX	
Females	10
Males	18

FATAL ABUSE INFLICTED INJURIES BY RACE	
White	16
Black	10
Other	2

FATAL ABUSE INFLICTED INJURIES BY CAUSE			
Abusive Head Trauma	12	Firearm	3
Blunt Trauma	6	Poisoning	2
Cut/Stabbed	1	Suffocation	1
Drowning	2	Vehicular	1

### Abusive Head Trauma

Of the **28** Missouri children who died from inflicted injury at the hand of a parent or caretaker in 2011, **12** (43%) were victims of abusive head trauma (or inflicted brain injury), formerly known as Shaken Baby Syndrome.

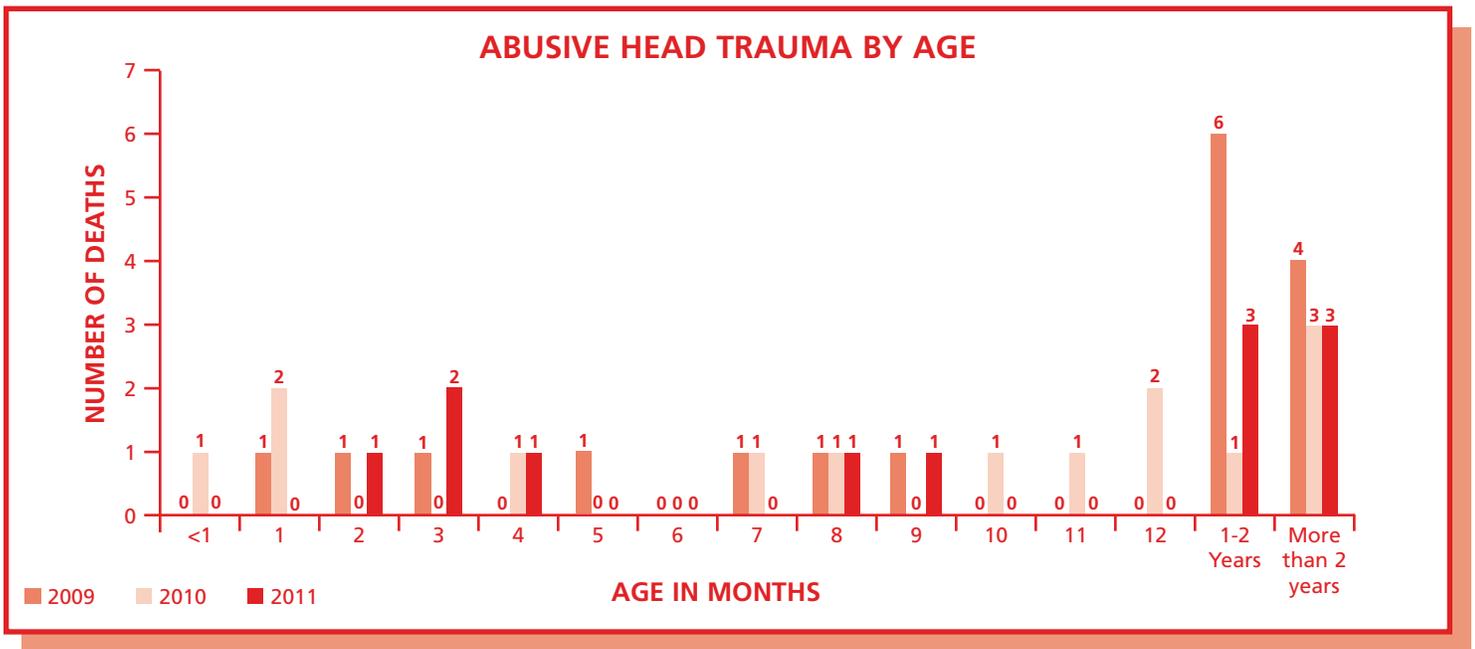
According to the CDC, pediatric abusive head trauma is defined as an injury to the skull or intracranial contents of an infant or young child, under five years of age, due to inflicted blunt impact and/or violent shaking. The signs and symptoms that a child exhibits after having been subjected to this kind of trauma

range from minor (irritability, lethargy, tremors, vomiting) to major, (seizures, coma, stupor, death), which are caused by neurological changes related 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)

Not all abusive head injury is fatal. According to Dr. Mary Case, St. Louis County Medical Examiner and Forensic Pathologist, 7-30% of children who suffer abusive head injuries die, 30-50% suffer significant cognitive or neurological deficits, and 30% may recover. Recent data also indicates that babies who appear well at discharge may show evidence of cognitive or behavioral difficulties later on, possibly by school age.

For abusive head injuries, 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 characteristics. 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. When an infant is shaken, the head rotates wildly on the axis of the neck creating multiple forces within the head, which lead to tearing of veins and arteries.

In Missouri over the past few years, there has been a decrease in shaking or other abusive head trauma in infants and an increase in older children. It is unknown whether this is due to the better reporting of the deaths of the older children, or a lack of understanding that prevention message of "Never shake a baby", also applies to toddlers.



**ABUSIVE HEAD TRAUMA FATALITIES BY SEX AND RACE**

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	7	9	6	WHITE	10	8	7
MALE	10	5	6	BLACK	6	4	4
				OTHER	1	2	1
	17	14	12		17	14	12

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 tend 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, in fact all breast-feeding animals seem to actually go through this same developmental stage of crying more in the first months of life as human babies do. This is known as the “period of **PURPLE** crying, “**Peak of Crying.**” It **Peaks**, is often **Unexpected**, **Resists** soothing, the child looks like they are in **Pain**, is **Long** 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 **Evening**. Of the **12** children who died of abusive head trauma, crying is listed as the triggering event in **six** deaths (NOTE: **Three** of the other deaths have “unknown” listed under triggering event, possibly due to the lack of cooperation from the perpetrator.)

National research has established that 60-70% of perpetrators of abusive head trauma are male. Birth fathers account for the majority, followed by mothers, and mother’s boyfriends. In 2011, perpetrators of abusive head trauma fatalities in Missouri included **five** birth fathers, **two** mother’s boyfriend, **one** male babysitter, **one** uncle, **one** female babysitter, **one** birth mother and **one** undetermined as of the time of this report.



## 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, 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 2011, CFRP panels found that Grossly Negligent Treatment had contributed to the deaths of **65** Missouri children; of those **28** were designated as Homicide by death certificate. For data purposes, the remaining **37** 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
		Poor/Absent Supervision	Child Neglect	Other Negligence	Other	
2	Natural Cause	1	0	1	0	One child died because of maternal drug abuse and one child with genetic issues died from respiratory arrest after a trachea tube was removed.
12	Vehicular	6	1	5	0	Three children died because they were riding with an impaired adult, one died because he was riding with an impaired teen and one died because the car he was in was hit by another impaired driver. One young child was killed while out riding an ATV unsupervised. Three children died because they were unrestrained in a vehicle crash and three others died because they were not seen and a vehicle backed over them.
10	Suffocation	7	3	0	0	Two children suffocated wrapped in blankets, while their mothers slept. Two children died of suffocation while sleeping with their parents and four died from being placed in unsafe sleep environments (beanbag chair, futon, broken-down loveseat and recliner), and two children died because pillows and soft bumpers had been placed in their cribs.
1	Poison	1	0	0	0	One teen died from an overdose of heroin. He was going into rehab the next day and spent the night drinking with relatives.
4	Firearm	3	0	1	0	Two toddlers and a teen died from unsupervised access to firearms. One child died when she was struck by a stray bullet, while outside playing with sparklers.
5	Drowning	5	0	0	0	Four children died when they were left alone in the bathtub. One was left unsupervised near a swimming pool and drowned.
3	Fire/Burn	3	0	0	0	Two children died because a three year old was left unsupervised and started a fire. One other child died when he went back inside their burning residence after his mother.
Total Child Deaths = 37		26	4	7	0	

## 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 from child protection agencies for assistance in the complex and highly technical field of child abuse, neglect and exploitation. Besides managing the Child Fatality Review Program, STAT also provides hands-on assistance, training and expertise, **1-800-487-1626**, website: [www.dss.mo.gov/stat](http://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](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 the newly revised, “Never Shake-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.ctf4kids.org](http://www.ctf4kids.org).

## Prevention Recommendations:

### For parents:

- Report child abuse and neglect (**1-800-392-3738**).
- 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 . . . . .	<b>1-800-392-3738</b>
The National Center on Shaken Baby Syndrome . . . . .	<a href="http://www.dontshake.org/">http://www.dontshake.org/</a>
US Department of Justice Office of Juvenile Justice and Delinquency Prevention . . . . .	<a href="http://ojjdp.gov/">http://ojjdp.gov/</a>
Centers for Disease Control and Prevention . . . . .	<a href="http://www.cdc.gov/">http://www.cdc.gov/</a>
Missouri Department of Social Services, Children’s Division . . . . .	<a href="http://www.dss.mo.gov/cd/">http://www.dss.mo.gov/cd/</a>
National Center for Missing and Exploited Children . . . . .	<a href="http://www.missingkids.com">http://www.missingkids.com</a>
State of Missouri Office of Child Advocacy . . . . .	<a href="http://www.oca.mo.gov/">http://www.oca.mo.gov/</a>
National Council of Juvenile and Family Court Judges . . . . .	<a href="http://www.ncjfcj.org/">http://www.ncjfcj.org/</a>
Child Welfare Information Gateway . . . . .	<a href="http://www.childwelfare.gov/">http://www.childwelfare.gov/</a>

## OTHER HOMICIDES

Of the 52 child homicides in Missouri in 2011, 24 involved perpetrators who were not in charge of the child; engaged in criminal or negligent behavior; or the child may or may not have been the intended victim; of those 18 (75%) involved firearms.

### Representative Cases:

- **Teens engaging in illegal activities increase their risk of being killed.**

The body of a seventeen-year-old with a history of selling meth and pot was found in a field. He had been stabbed multiple times. The suspect stated that he had thought the victim was a snitch and deserved to die.

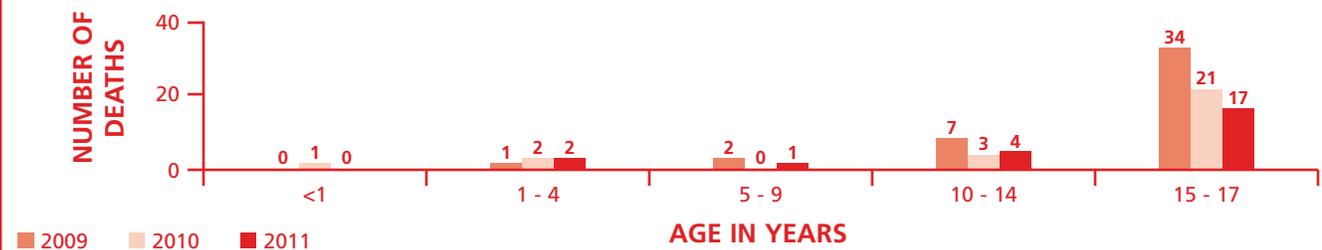
A seventeen-year-old and his friend were attempting to rob a drug dealer at a drug house. The friend panicked and fired his gun, striking and killing the victim.

- **Gang violence and reckless gun play can be fatal to bystanders.**

A seven-year-old was playing with her cousins outside her grandmother’s apartment, when she was caught in the crossfire of a random shooting that had resulted from an argument over drugs.

An eleven-year-old child was outside playing with sparklers, when he suddenly dropped to the ground with a bullet wound to his neck. Later, a man came forward and confessed that he was shooting a gun into the water and a bullet ricocheted off the water and stuck the child.

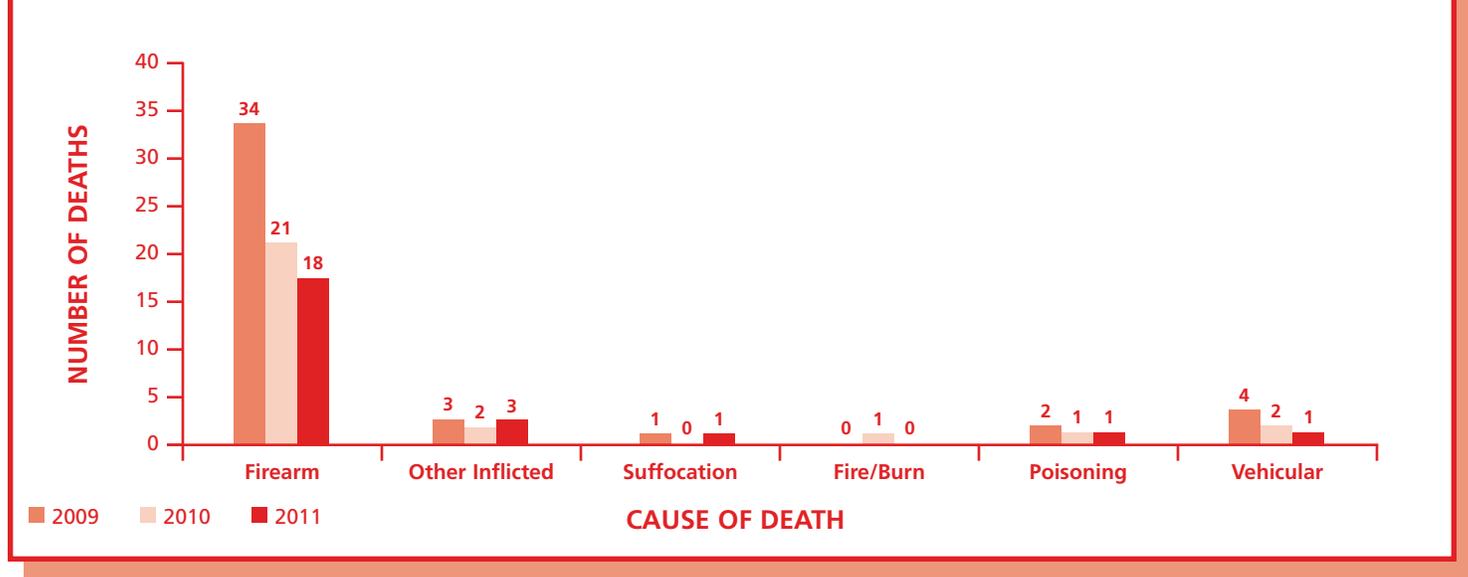
### OTHER HOMICIDE DEATHS BY AGE



### OTHER HOMICIDES BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	10	5	7	WHITE	12	8	8
MALE	34	22	17	BLACK	32	17	15
				OTHER	0	2	1
	<b>44</b>	<b>27</b>	<b>24</b>		<b>44</b>	<b>27</b>	<b>24</b>

## OTHER HOMICIDES BY CAUSE



**Seventeen** of these deaths were related to youth violence where the victim was involved in harmful behaviors which put them at risk. 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:

## Risk Factors for the 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 for the Perpetration of Youth Violence**

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.

Most research is preliminary. Studies propose the following protective factors (DHHS 2001; Resnick et al. 2004):

**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:

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

### For community leaders and policy makers:

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

### For professionals:

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

### For child fatality review panels:

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

## Resources and Links:

- 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.gov/>
- Veto Violence (violence education tools online) ..... <http://www.vetoviolence.org/basics-overview.html>
- Missouri Juvenile Justice Association ..... <http://www.mjja.org/>

## SUICIDE

In 2011, 25 Missouri children committed suicide.

**“Suicide is not chosen; it happens when pain exceeds resources for coping with pain.”**

**- D. L. Conway**

### Representative Cases:

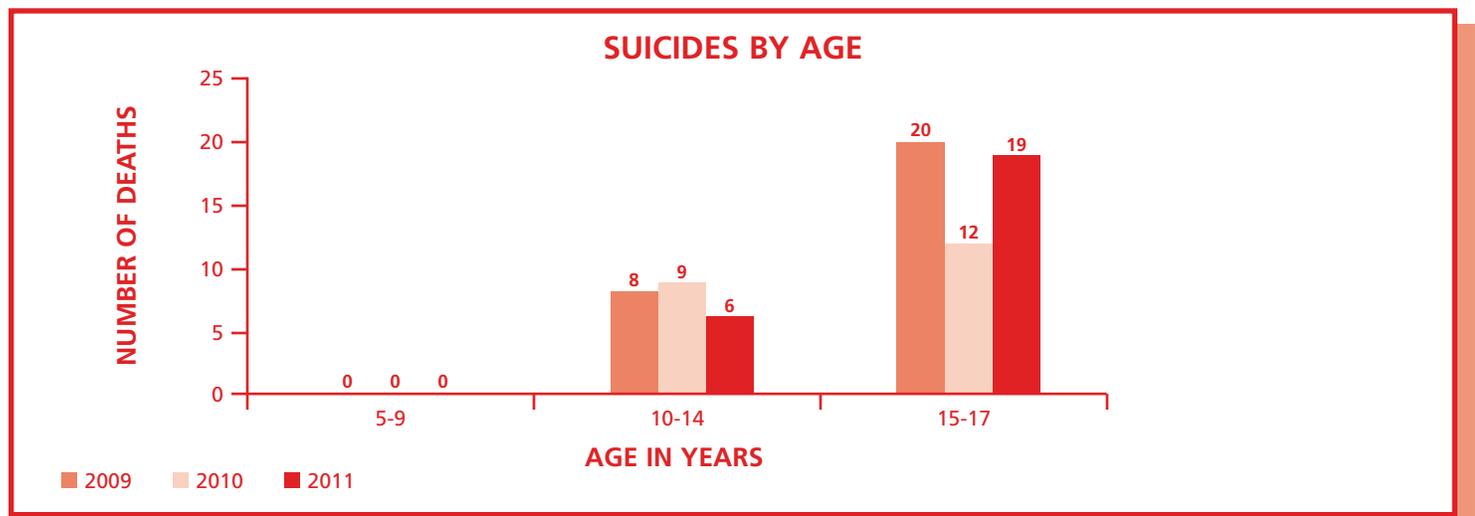
- **Parents and professionals that are responsible for children must be educated to recognize and respond to risk factors for suicide.**

An eleven-year-old boy with past anger issues hung himself in his closet. His mother had died several years earlier and he had put in his note that he wanted to be with his mother. There were no indications of suicide ideation or previous attempts.

A fourteen-year-old teen had made statements in the past that if he had to live with his step-father, he would harm himself. He had an argument with his mother, went to his room and hung himself with his belt. It was discovered that the child was being sexually abused by his step-father.

A fifteen-year-old teen had broken up with her boyfriend the night before. She gave no indications that she was thinking about harming herself. The next morning after her parents left for work, she took a loaded pistol from the parents' bedroom. She left a suicide note for her parents and ex-boyfriend on table, and another note to the ex-boyfriend on the door to her house, telling him where to find her, since he was supposed to be picking her up for school that morning. She then shot herself in the head, killing herself instantly.

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 2011, **25** children died of self-inflicted injuries; **19** were ages 15-17; the remaining **six** were children ages 10-14.



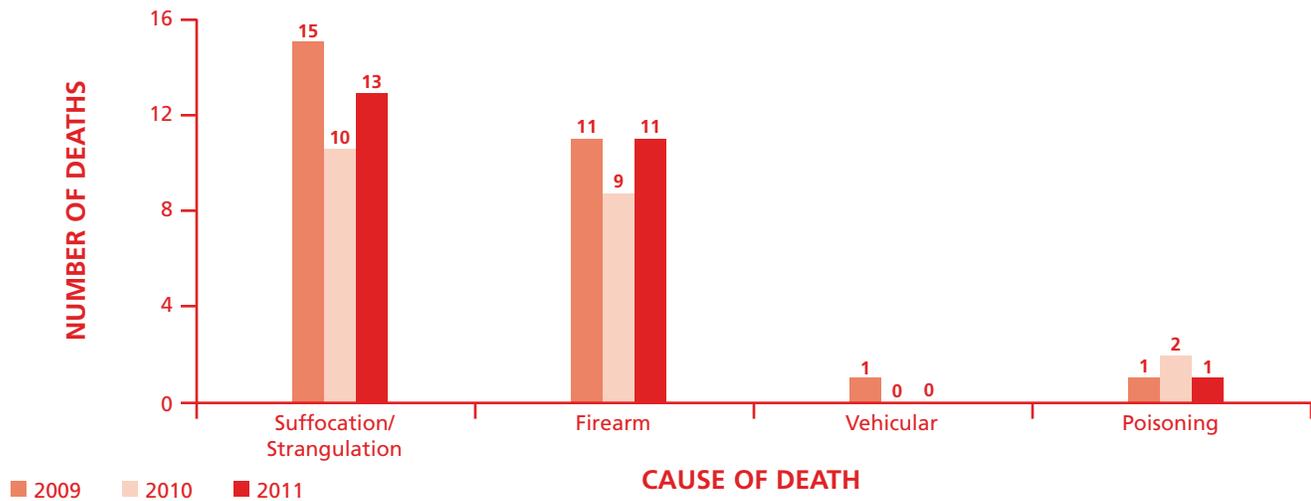
White males comprise the majority of adolescent suicide victims in Missouri. Although more females attempt suicide than males, males are approximately three times more likely to die from suicide.

SUICIDES BY SEX AND RACE

SEX	2009	2010	2011	RACE	2009	2010	2011
FEMALE	9	7	6	WHITE	27	20	23
MALE	19	14	19	BLACK	1	1	1
				OTHER	0	0	1
	<b>28</b>	<b>21</b>	<b>25</b>		<b>28</b>	<b>21</b>	<b>25</b>

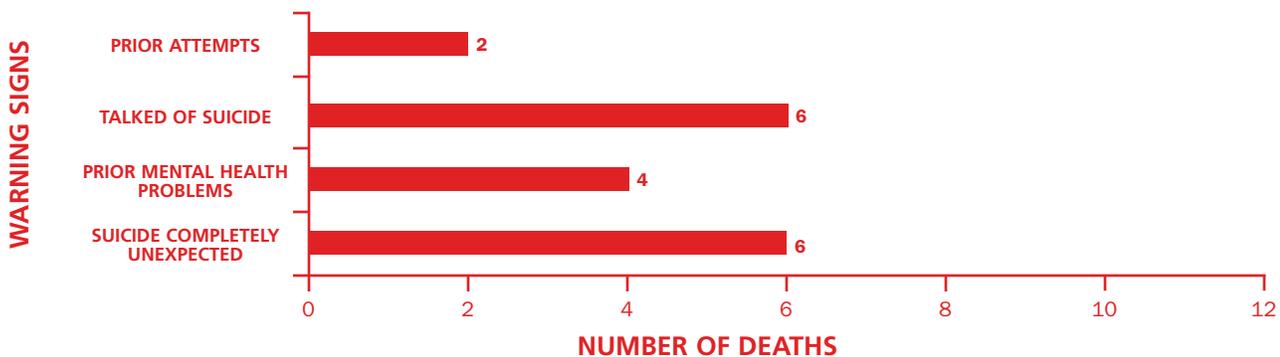
Suffocation/strangulation and firearms are the most common mechanism of suicide among Missouri children.

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 **25** Missouri children who committed suicide in 2011, **12** had displayed one or more warning signs.

WARNING SIGNS OF SUICIDE



While suicide is rarely spontaneous, many times it is brought about due to a personal crisis. **Thirteen** of the children who committed suicide in 2011, had a recent history of one or more personal crises.

<b>RECENT HISTORY OF PERSONAL CRISES</b>			
Family discord	4	Physical abuse/assault	1
Parents' divorce/separation	1	Rape/sexual abuse	2
Argument with parents/caregivers	5	Problems with the law	1
Argument with boyfriend/girlfriend	2	Drugs/alcohol	2
Breakup with boyfriend/girlfriend	7	Other (accused of sexual abuse)	1
Other death of friend or relative	1		

**“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, issued a Call to Action to Prevent Suicide, introducing an initial blueprint for reducing suicide in the United States, summarized as AIM - **A**wareness, **I**ntervention and **M**ethodology. 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/docs/mentalillness/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 encourage 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/mentalillness/>
- Access Crisis Intervention (AIC) Hotline . . . . . <http://dmh.mo.gov/mentalillness/progs/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](http://www.dese.mo.gov/divcareered/guide_crisis_counseling.htm)
- Offers suicide prevention training to school personnel.

### 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 Foundation for Suicide Prevention . . . . . <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.”**

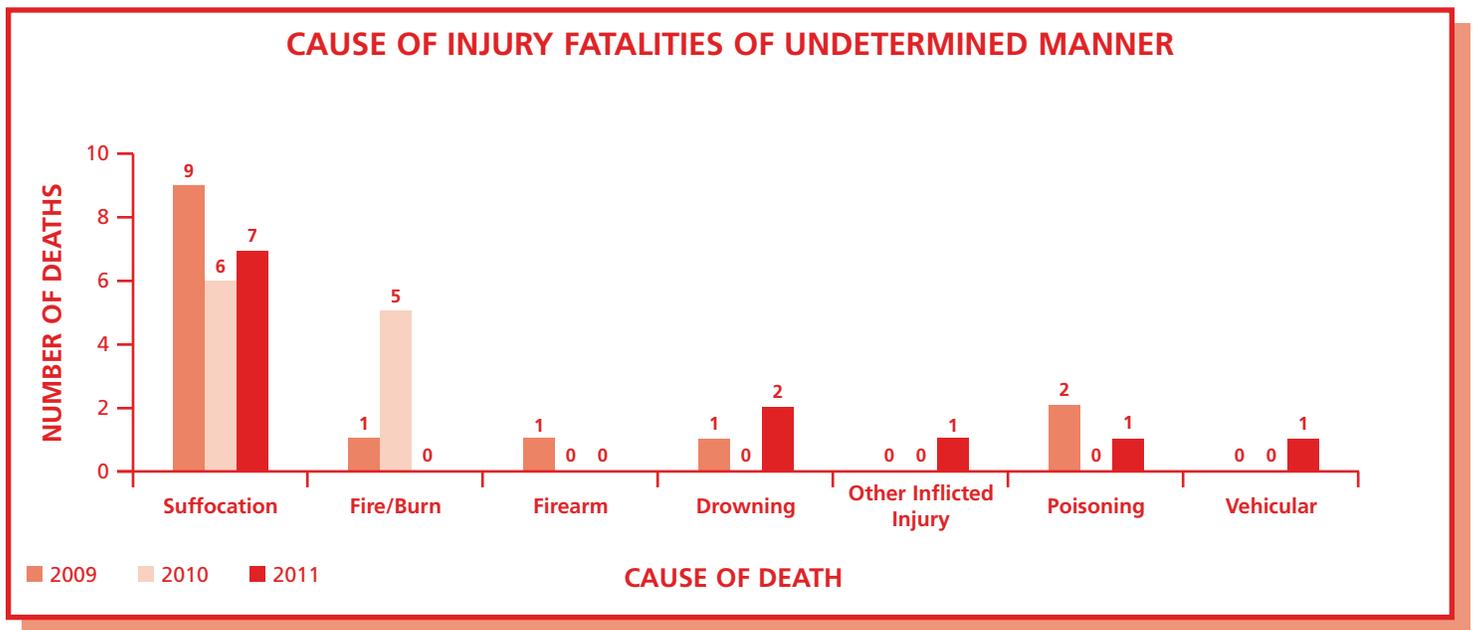
***-National Strategy for Suicide Prevention***

## UNDETERMINED INJURY

In 2011, 12 children died of injuries whose manner could not be determined.

When a child dies, the cause of death is often evident, but the actual intent might not be readily determined. For example, when a teenager dies from suffocation, poisoning, pedestrian injury or vehicle crash, the difference between the event being intentional or unintentional is sometimes impossible to determine. Or as another example, an apparent fire death can either have resulted from faulty wiring in a residence or by arson to cover up a homicide.

One of the main objectives of the child fatality review process is to assist those making this determination of how and why a child died, by providing a process that allows for a more thorough investigative, social and medical review of all known information surrounding the circumstances of death. Even after a thorough investigation and review, there are still some deaths where there is not enough information and/or evidence to prove either way that the death was intentional or unintentional. In 2011, there were **12** injury deaths of undetermined manner.



## 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 almost two decades 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 of sudden unexpected infant deaths 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 knowledge gained.

### 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 allows for the opportunity to identify valuable national trends, risks, spikes and patterns. The National Center for Review and Prevention of Child Deaths (NCRPCD) 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 child death review 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 also 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 . . . . .	<a href="http://www.aap.org/">http://www.aap.org/</a>
Children’s Safety Network . . . . .	<a href="http://www.childrenssafetynetwork.org/">http://www.childrenssafetynetwork.org/</a>
Consumer Product Safety Commission . . . . .	<a href="http://cpsc.gov/">http://cpsc.gov/</a>
Harborview Injury Prevention and Research Center . . . . .	<a href="http://depts.washington.edu/hiprc/">http://depts.washington.edu/hiprc/</a>
Missouri Child Fatality Review Program . . . . .	<a href="http://www.dss.mo.gov/stat/mcfrp.htm">http://www.dss.mo.gov/stat/mcfrp.htm</a>
Missouri Child Death Pathologists Network . . . . .	<a href="http://www.dss.mo.gov/stat/cpn.htm">http://www.dss.mo.gov/stat/cpn.htm</a>
Missouri Children’s Trust Fund . . . . .	<a href="http://ctf4kids.org/">http://ctf4kids.org/</a>
Missouri Prevention Center . . . . .	<a href="http://education.missouri.edu/orgs/prevention/">http://education.missouri.edu/orgs/prevention/</a>
National Center for Injury Prevention and Control . . . . .	<a href="http://www.cdc.gov/injury/index.html">http://www.cdc.gov/injury/index.html</a>
National Center on Shaken Baby Syndrome . . . . .	<a href="http://www.dontshake.org/">http://www.dontshake.org/</a>
National Center for Review & Prevention of Child Deaths . . . . .	<a href="http://www.childdeathreview.org/">http://www.childdeathreview.org/</a>
National SAFE KIDS Campaign . . . . .	<a href="http://www.safekids.org/">http://www.safekids.org/</a>

## 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 public policy and involve the community in prevention initiatives that protect and improve the lives of children. In 2011, CFRP panels throughout our state reported their findings and prevention responses utilizing the Final Report and corresponding sections of the NCRPCD Internet-base Case Reporting System. The initiatives highlighted below demonstrate how a few volunteer professionals are working together to measurably reduce or eliminate threats to the lives and wellbeing of countless Missouri children.

### **Media Campaign:**

- A child died from birth complications that arose from being born at home with a midwife. The panel plans to write a newspaper article on the risks associated with home birth via midwife, and how such deaths could be preventable if an infant is born in a medical facility capable of handling any unforeseen complications.
- Two children, ages 10 and one, died in a house fire started by an unsupervised child. The CFRP panel asked the local fire department to do a media campaign reminding the public about the importance of smoke detectors and the need to periodically change the batteries in smoke detectors.

### **Legislation, Law or Ordinance:**

- A seven-year-old, unrestrained front-seat passenger died when his mother blacked out, the vehicle went off the roadway, became airborne and struck a tree. The panel discussed imposing an additional ordinance within the county that increased the fine for failing to have children in child safety restraints, and/or allowing them to sit in the front seat of the vehicle. Additionally, the county health department agreed to write an article regarding preventing child deaths and the importance of abiding by the

child restraint laws. There were also discussions about reporting protocols between doctors and Department of Revenue, with regard to those individuals with seizure disorders and/or on seizure medication.

### **Community Safety Project:**

- A fifteen-year-old, unrestrained passenger in a pickup died when the pickup struck a semi at a high rate of speed. The CFRP panel discovered that there had been a number of accidents at this intersection and arranged to get a flashing light installed and warning signage posted about the dangerous intersection.
- A seventeen-year old was found at the bottom of a rock quarry. He was last seen running from the police after being confronted by them in a local park where several teenagers were seen drinking alcohol and smoking a substance. The fence around the quarry was found to be damaged, so it was repaired, and trespassing and warning signs were placed on the fence and quarry property.
- Two teens, age 17 and 14, died because the 17-year old was unable to stop the vehicle in time, when the vehicle in front of them stopped. They clipped the other vehicle, spun into oncoming traffic, and were struck broadside. In response, the panel drafted a letter to the Missouri Department of Transportation (MODOT) to re-evaluate that part of the highway, due to the many accidents that have occurred in that area.

### **Educational Activities In School:**

- A sixteen-year-old driver of an ATV collided with a second 4-wheeler and turned over. No one was wearing a helmet. The other child involved in the accident has been giving presentations at local schools, discussing ATV accidents and preventative measures, as well as the impact that this death has had upon him personally, and for the family.
- A sixteen-year-old driver was late for school, ran off the road, over corrected and ran into a dump truck. The panel recommends reinstating/enhancing Drivers Education programs. They are also promoting that schools adopt a parking policy, whereby only upper-class students are eligible for parking privileges, and requiring a fee for parking which would be used to subsidize Drivers Education programs. They also believe that the schools should review their attendance policy regarding tardiness.

### **Changes In Agency Practices:**

- A three-month old with multiple health issues was found dead at a day care provider. The infant had been placed on its side in a playpen. The CFRP panel discovered that in Missouri, back sleeping for infants was a recommendation, not a rule, for licensed child care providers. In July 2011, the Department of Health and Senior Services' Code of State Regulations 19 (CSR) 30-61.175 Child Care Program (Family Child Care Homes) and 19 CSR 30-62.182 Child Care Program (Group Homes and Centers) were both implemented that all children under the age of 12 months of age must be placed on their backs to sleep, and their heads are to remain uncovered during sleep.
- A two-year-old child died as a result of blunt abdominal trauma. The CFRP panel evaluated and addressed operational concerns involving local multidisciplinary protocol, procedures and coordination associated with the investigation of the fatality. The county health department stepped up to be a collateral contact for children receiving WIC subsidy for periodic physicals in an effort to earlier

detect signs of abuse, and will now include information concerning the risks of abuse associated with paramours as caregivers, in their pamphlet “Know Your Caregiver”.

- An eight-year-old autistic child was left alone in the tub and drowned. It could not be established that the foster mother had ever been told that this child could not be left alone in the bathtub. The CFRP panel recommended that a detailed written safety plan be provided for all children, each time they are placed in foster care.

### **Education – Provider Education:**

- A one-month-old child died of suffocation after being placed in a crib on a pillow. The CFRP panel drafted a letter to local pediatricians concerning suffocation deaths of infants in sleep situations, giving them information about the availability of educational material for new parents on safe sleep and asking the doctors to “Please join in this important prevention initiative to save infant lives.”

### **Education – Parent Education:**

- An eight-year-old child was riding an ATV unsupervised when he was hit by a pickup truck. The child was not wearing a helmet, nor was there a caution flag on his ATV. The CFRP panel stressed the need for more state and community awareness concerning the dangers of children operating ATVs. They also felt that parents need to be held accountable for their actions, when it comes to allowing their children to operate ATVs.
- A five-month-old baby was sleeping on a sofa with her mom and a two-year-old sibling. The mother awoke to find the older child asleep on top of the baby. The county panel set up a multijurisdictional program in an attempt to better educate new parents of the dangers involved with unsafe sleep practices.

**Alone we can do so little;  
Together we can do so  
much.  
-Helen Keller**

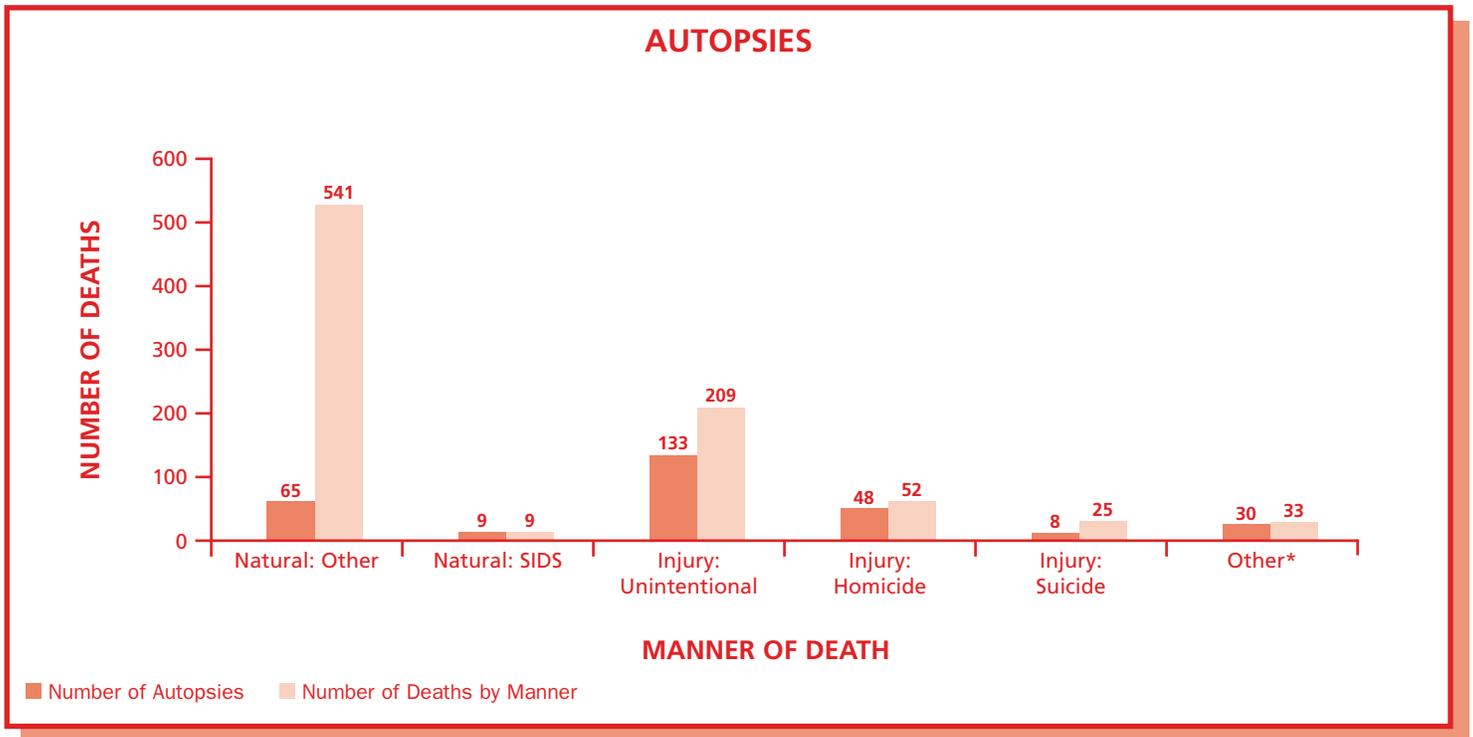


## APPENDICES

### APPENDIX 1. AUTOPSIES

The autopsy is a critical component in accurately determining the cause of death, especially in the case of sudden infant deaths. RSMo. 194-117 requires that an autopsy be performed for all children from one week to one year of age, who die “suddenly when in apparent good health”.

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



\*Manner of Death – Other, includes those deaths that are either Injury of Undetermined Intent, or Manner and Cause are Undetermined.

## 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 through 17, must be reported to the coroner/medical examiner.

By state statute, all children, age one week to one year, who die in a *sudden, unexplained* manner, are mandated to 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.

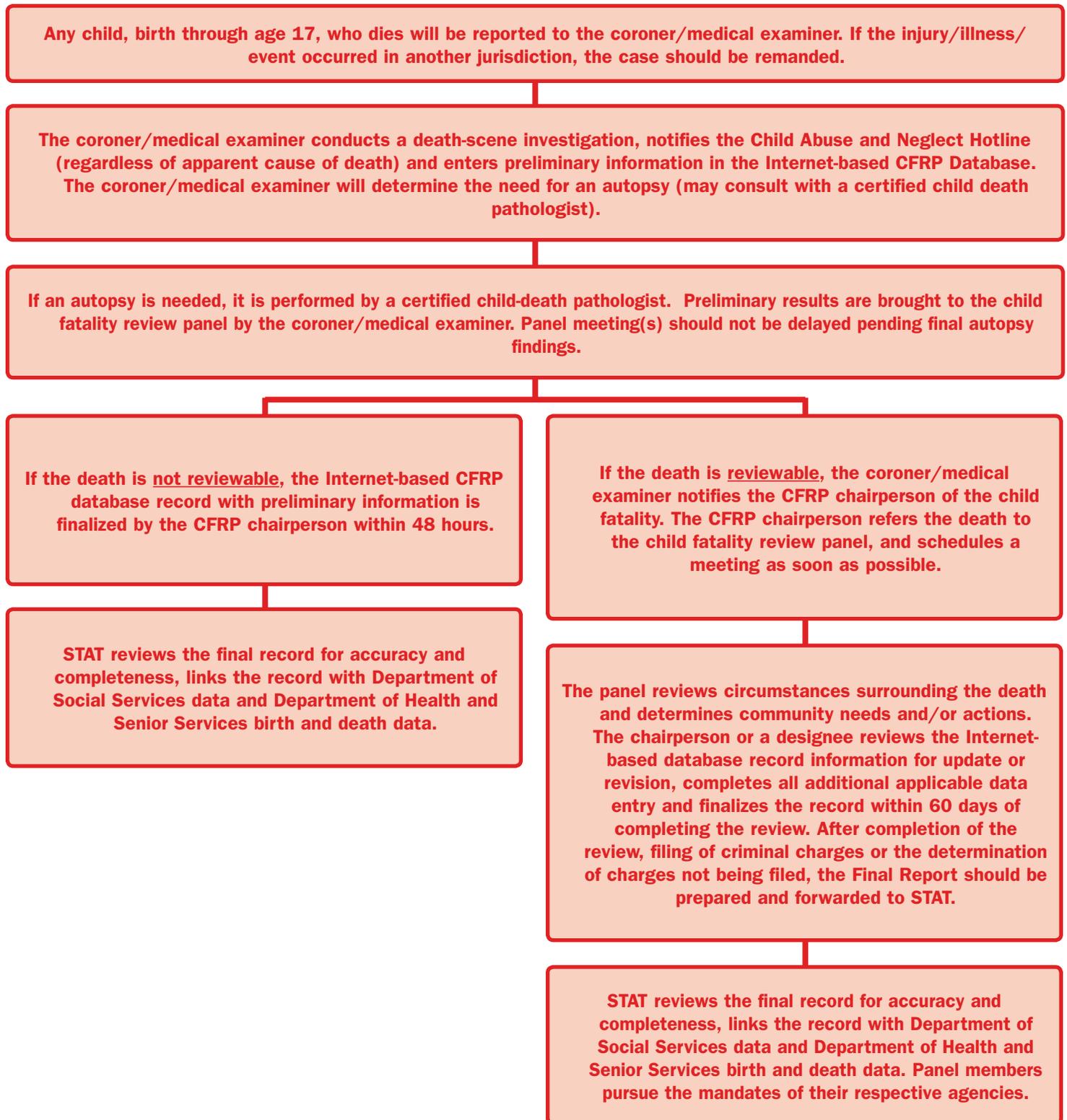
Panels must use uniform protocols and the NCRPCD Internet-based Case Reporting System for data collection.

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. A majority of panel members is required to be present (4 or more).

## 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 2009-2011

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Adair	1	1	3	2	1	3	1	0	2
Andrew	2	2	1	0	1	1	0	1	1
Atchison	0	0	0	0	0	0	0	0	0
Audrain	4	4	0	0	1	0	0	2	0
Barry	2	2	5	1	2	3	1	2	1
Barton	0	1	1	0	1	1	0	1	0
Bates	2	3	2	2	2	2	1	1	2
Benton	2	2	2	1	2	1	1	2	2
Bollinger	1	0	2	1	0	0	1	0	0
Boone	44	27	26	7	3	6	3	3	3
Buchanan	13	20	19	6	10	7	6	8	6
Butler	18	8	5	7	1	4	6	1	3
Caldwell	0	2	1	0	2	1	0	2	1
Callaway	13	2	6	12	1	3	11	1	3
Camden	7	6	2	3	3	1	2	1	1
Cape Girardeau	9	7	8	5	3	2	3	3	1
Carroll	3	4	2	2	3	2	2	3	2
Carter	3	4	1	0	4	1	0	2	0
Cass	6	11	5	5	6	4	3	5	3
Cedar	2	7	1	2	5	1	1	5	0
Chariton	0	1	0	0	1	0	0	1	0
Christian	6	5	3	5	4	2	4	4	1
Clark	1	1	1	1	1	1	1	1	1
Clay	18	19	24	9	9	11	4	4	5
Clinton	1	1	6	1	1	4	0	1	2
Cole	4	11	9	3	3	2	2	2	1
Cooper	1	0	1	0	0	1	0	0	1
Crawford	7	2	3	6	2	1	4	2	1
Dade	0	1	0	0	1	0	0	0	0
Dallas	3	2	2	3	1	2	3	0	2
Davies	1	0	2	0	0	1	1	0	1
DeKalb	1	1	0	1	1	0	0	1	0
Dent	4	2	2	3	1	2	3	0	2
Douglas	2	1	3	2	1	3	1	1	3
Dunklin	10	2	2	7	1	1	4	1	1
Franklin	14	16	13	9	11	11	9	9	9
Gasconade	3	0	1	3	0	1	3	0	1
Gentry	0	4	1	0	4	0	0	2	0
Greene	56	42	41	20	17	11	14	13	9
Grundy	2	1	2	0	0	1	0	0	0
Harrison	1	0	1	1	0	1	0	0	1
Henry	2	4	3	2	2	2	0	2	2

## APPENDIX 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2009-2011

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Hickory	0	2	3	0	2	3	0	2	1
Holt	0	0	0	0	0	0	0	0	0
Howard	0	0	1	0	0	1	0	0	0
Howell	9	7	4	2	3	3	2	3	2
Iron	2	0	1	2	0	1	2	0	1
Jackson	139	120	112	82	67	54	47	31	29
Jasper	10	9	19	8	6	16	4	6	16
Jefferson	15	20	17	10	14	14	8	8	11
Johnson	5	8	6	2	4	5	1	1	2
Knox	1	1	1	1	1	0	1	1	1
Laclede	6	4	5	4	2	4	4	4	1
Lafayette	1	3	2	1	3	1	1	1	0
Lawrence	4	1	5	1	1	4	2	1	2
Lewis	1	0	1	1	0	1	1	0	1
Lincoln	6	3	6	4	2	4	2	2	3
Linn	1	1	1	1	0	1	0	0	1
Livingston	2	0	1	2	0	1	1	0	1
McDonald	2	4	5	2	2	3	1	2	3
Macon	1	1	3	1	0	3	1	0	2
Madison	2	2	3	1	2	0	1	2	1
Maries	1	0	0	0	0	0	0	0	0
Marion	4	5	8	2	5	3	0	5	2
Mercer	0	0	2	0	0	2	0	0	2
Miller	1	0	6	0	0	6	0	0	5
Mississippi	0	1	1	0	1	1	0	0	1
Moniteau	1	3	2	0	2	2	0	0	2
Monroe	0	2	1	0	2	1	0	2	1
Montgomery	0	0	1	0	0	1	0	0	1
Morgan	1	3	2	0	3	2	0	2	1
New Madrid	3	5	7	3	4	7	0	3	5
Newton	10	11	7	2	8	2	1	7	2
Nodaway	1	0	2	1	0	0	1	0	0
Oregon	0	1	2	0	0	1	0	1	0
Osage	0	1	2	0	0	2	0	0	2
Ozark	2	2	1	2	2	1	1	2	0
Pemiscot	6	8	3	2	7	3	2	4	0
Perry	0	1	0	0	1	0	0	0	0
Pettis	6	9	2	4	7	1	4	5	1
Phelps	6	1	7	5	0	7	4	0	5
Pike	1	1	2	1	0	1	0	0	1
Platte	8	7	14	2	2	8	1	1	6
Polk	6	8	8	3	4	6	2	2	6

## APPENDIX 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2009-2011

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Pulaski	4	1	7	0	1	5	0	1	5
Putnam	1	0	0	1	0	0	1	0	0
Ralls	0	1	1	0	1	1	0	1	0
Randolph	1	1	3	1	1	3	0	1	2
Ray	3	1	2	2	1	2	1	1	2
Reynolds	3	0	2	3	0	2	2	0	1
Ripley	6	3	0	6	1	0	4	0	0
St. Charles	40	30	32	20	11	16	16	9	11
St. Clair	2	0	0	2	0	0	2	0	0
St. Francois	5	4	6	4	3	6	3	2	3
St. Louis County	193	155	172	55	31	43	36	19	32
Ste. Genevieve	4	1	1	2	0	0	2	0	1
Saline	5	1	2	3	1	1	0	0	1
Schuyler	0	0	1	0	0	0	0	0	0
Scotland	1	0	1	0	0	1	0	0	1
Scott	4	3	6	1	2	5	3	1	2
Shannon	1	1	1	1	1	1	0	1	1
Shelby	1	1	0	1	0	0	0	0	0
Stoddard	0	3	4	0	3	2	0	1	1
Stone	5	2	0	3	1	0	3	1	0
Sullivan	1	2	0	1	1	0	0	1	0
Taney	4	8	5	3	6	4	2	3	1
Texas	9	6	6	7	0	1	5	1	1
Vernon	1	1	2	1	1	2	1	0	0
Warren	3	4	1	3	3	1	2	3	1
Washington	1	1	1	1	0	1	1	0	1
Wayne	1	1	2	1	1	1	1	1	1
Webster	5	1	2	5	1	1	3	1	1
Worth	0	1	0	0	1	0	0	0	0
Wright	1	2	3	0	1	3	0	1	2
St. Louis City	88	83	117	44	25	43	32	20	32
<b>STATE TOTAL</b>	<b>926</b>	<b>802</b>	<b>868</b>	<b>455</b>	<b>367</b>	<b>422</b>	<b>310</b>	<b>254</b>	<b>298</b>

## APPENDIX 5. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY AGE, SEX AND RACE 2009-2011

Age	All Deaths			Reviewed Deaths			Injury Deaths		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
0	577	520	539	191	165	170	90	87	88
1	42	30	39	28	19	30	20	9	21
2	32	18	24	19	14	18	16	10	13
3	18	12	24	11	10	16	10	8	12
4	16	16	10	13	11	7	8	11	6
5	11	9	10	8	3	4	6	4	3
6	14	7	7	12	5	5	7	4	3
7	14	10	9	11	4	9	10	5	5
8	6	10	10	3	8	7	3	5	8
9	10	6	9	6	4	4	4	3	3
10	7	14	11	6	6	9	4	3	4
11	10	10	16	6	3	13	5	3	13
12	4	7	11	3	3	7	3	3	6
13	9	14	18	7	11	14	2	6	12
14	21	22	14	16	18	9	13	16	7
15	21	13	27	18	11	26	16	6	23
16	55	29	45	47	26	42	46	24	40
17	59	55	45	50	46	32	47	46	31
<b>TOTAL</b>	<b>926</b>	<b>802</b>	<b>868</b>	<b>455</b>	<b>367</b>	<b>422</b>	<b>310</b>	<b>253</b>	<b>298</b>

Sex	All Deaths			Reviewed Deaths			Injury Deaths		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Female	542	317	351	173	131	170	107	92	107
Male	384	485	517	282	236	252	203	161	191
<b>TOTAL</b>	<b>926</b>	<b>802</b>	<b>868</b>	<b>455</b>	<b>367</b>	<b>422</b>	<b>310</b>	<b>253</b>	<b>298</b>

Race	All Deaths			Reviewed Deaths			Injury Deaths		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
White	615	563	574	296	264	288	211	190	212
Black	268	197	230	140	85	106	92	47	67
Other	43	42	64	19	18	28	7	16	19
<b>TOTAL</b>	<b>926</b>	<b>802</b>	<b>868</b>	<b>455</b>	<b>367</b>	<b>422</b>	<b>310</b>	<b>253</b>	<b>298</b>

## 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, based on data from the NCRPD Case Reporting System Record, that 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 from the NCRPCD Case Reporting System Record. The record includes a category for medical causes which includes infectious diseases, cancers, congenital anomalies, perinatal conditions, Sudden Infant Death Syndrome (SIDS), and other medical conditions; sudden unexpected death and injuries from external causes classified by the type of agent or force which caused the injury (i.e., vehicular, drowning, firearm, fall, poisoning). The CFRP record 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, sections related to collecting in-depth data concerning circumstances surrounding the death, provision of services, prevention and panel findings are to be completed based upon the review. The record also captures information relevant to possible child abuse and neglect, and basic 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.

### **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.

- Mortality File SIDS: Death by SIDS, as defined operationally by being reported in the mortality file associated with the ICD-10 code R95.
- CFRP SIDS: Death by SIDS, as defined operationally by being reported in the CFRP file, from the NCRPCD Case Reporting System Record, 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, and review of social and medical history. Defined operationally by being reported as pending manner and unknown cause, prior to the CFRP panel review.

### **National Center for the Review and Prevention of Child Deaths-Case Reporting System:**

A national Internet-based statistical database that is managed by the National Center for the Review and Prevention of Child Deaths and currently used by 44 states, District of Columbia, and US territories to collect statistics on child deaths.

### **Reviewable Death:**

Death which has one or more applicable indicators for review, as reported by CFRP Policies and Procedures, requiring review by the CFRP panel, whether or not the review has yet been completed and reported. The NCRPCD Case Reporting System Record is required for all child deaths that occur in Missouri, and includes indicators of whether a review of that death will be required as noted in Section L, Question 3. If Section L, Question 3 indicates a reviewable death, all record sections should be completed after the review.

### **Reviewed Death:**

Death that has been reviewed by a local CFRP panel and reported on all sections of a NCRPCD Case Reporting System Record.

### **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 NCRPCD Case Reporting System Record or Death Certificate as the county in which the child was officially pronounced as deceased. Only deaths in Missouri are included in the CFRP database.

### **CFRP County of Incident:**

The county reported by the NCRPCD Case Reporting System Record under Section D – Incident Information, 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 known information under Sections A thru H are to be completed and Section L, Question 3 is to be marked N/A.

**CFRP County of Residence:**

The county, reported by the NCRPCD Case Reporting System Record under Section A – Child’s Information, 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:**

The seven geographic regions of Missouri 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 the NCRPCD Case Reporting System Record under Section E – Investigation Information, that the decedent was autopsied, and documented in the CFRP In-House Management Database as to how the autopsy was paid for.

## APPENDIX 7. DEATH CERTIFICATE MANNER OF DEATH

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

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

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

Manner of death is an American invention. A place to classify manner of death was added to the 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.



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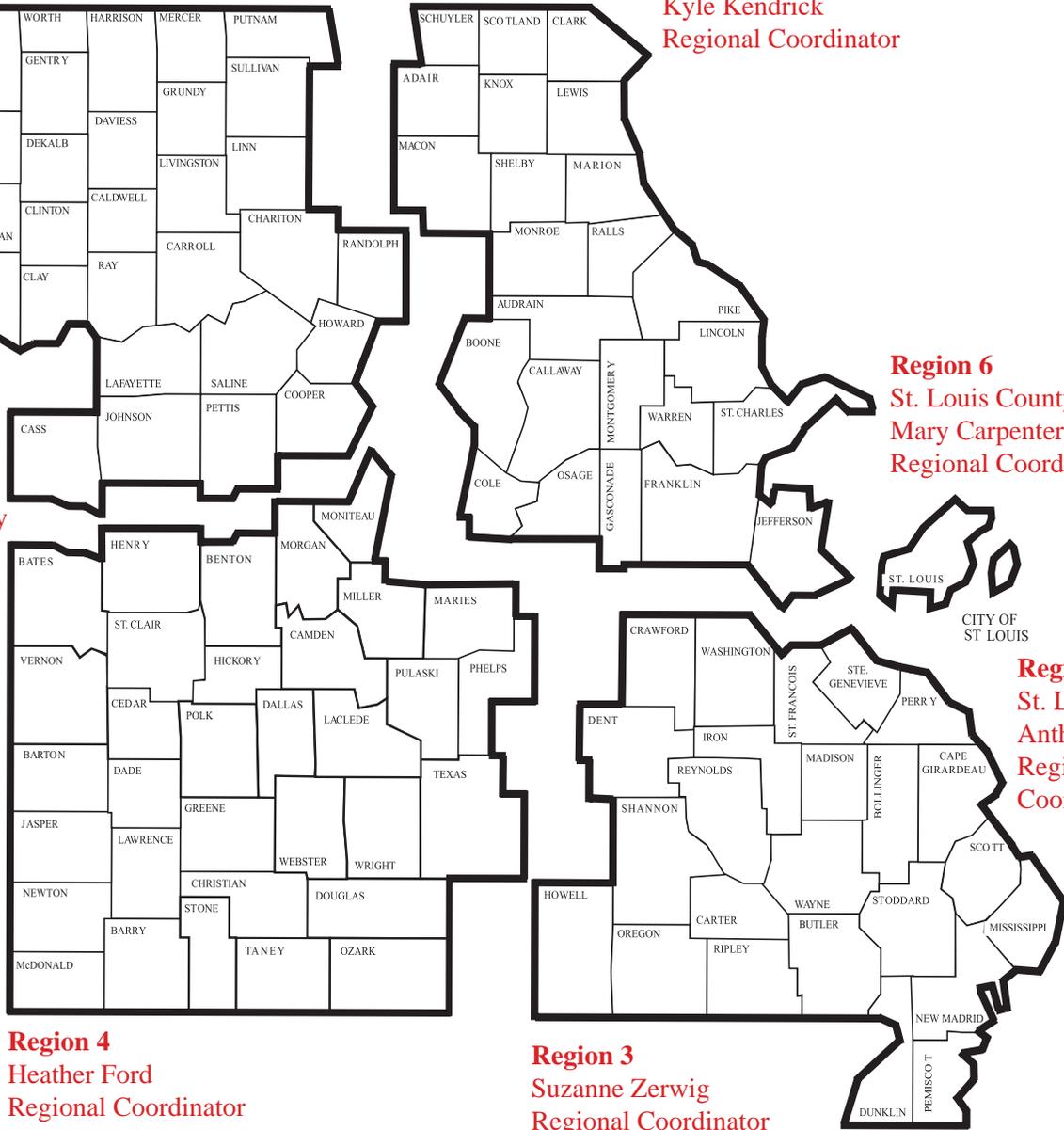
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