



Preventing Child Deaths **in Missouri**

**The Missouri Child Fatality
Review Program
Annual Report for 2012**



**THIS REPORT IS PROUDLY PRESENTED BY THE
STATE TECHNICAL ASSISTANCE TEAM**

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

**Cheryl Morgan, Child Fatality Review Program Specialist
Theresa Murrell, Child Fatality Review Program Research Analyst
Laura Schnoebelen, Kansas City Area Metro Case Coordinator**

**Emerson “Skip” McGuire, Investigations Manager
Brian Bailey, Investigator
James “Derrick” Balmer, Investigator
Susan Clevenger, Investigator
Michael Gray, Investigator
Stacy Minze, Investigator
John Pehle, Investigator
Cory Stoff, Investigator**

Douglas Beal, M.D., STAT Medical Consultant

**Kathleen Hargrave, St. Charles, Jefferson, Franklin County
Medical Examiner’s Office, CFRP Coordinator
Suzanne McCune, St. Louis County Medical Examiner’s Office, CFRP Coordinator
Rose Psara, St. Louis City Medical Examiner’s Office, CFRP Coordinator**



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State of Missouri

Brian Kinkade, Acting Director
Missouri Department of Social Services



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PREVENTING CHILD DEATHS IN MISSOURI

THE MISSOURI CHILD FATALITY REVIEW PROGRAM

ANNUAL REPORT FOR 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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State Technical Assistance
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Harold Bengsch
Greene County
Commissioner
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Teresa Hensley
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Brian Keedy
Camden County Prosecutor
Camdenton

Jason Lamb
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Kathi Alizadeh
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Clinton County
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Franklin and Jefferson
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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. 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. Since the late 1980's, research continues to prove that prevention or significant reductions of child abuse and neglect fatalities, as well as other serious and fatal injuries, cannot be achieved without more complete information about how and why children are dying. Without such thorough information, many child abuse and neglect deaths would go under-reported and/or misclassified. Scholars, professionals and other officials around the nation agree that a system of comprehensive Child Death Review Teams has made 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.

Through its continued evolution, Missouri Child Fatality Review Program (CFRP) succeeds 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 county-based 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 40% merit review. To come under review, the cause of the child's death must be unclear, unexplained, or of a suspicious circumstance, to include all accidental, homicidal or suicide deaths. All sudden, unexplained deaths of infants one week to one year of age are specifically required to be reviewed by the CFRP panel. (This is the only age group for which an autopsy is mandatory.)

In 2011, Missouri CFRP converted from a paper data collection system to the Internet-based National Center for the Review and Prevention of Child Deaths' (NCRPCD) – Child Death Reporting (CDR) Case Reporting System. The system allows for multistate local and state users to enter more statistical case data than previously collected, enabling users to generate standardized statistical reports. The additional statistics will further enhance knowledge and 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)

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 CFRP panel spokesperson. Failure to observe this procedure may impede an investigation and/or 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 an 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.

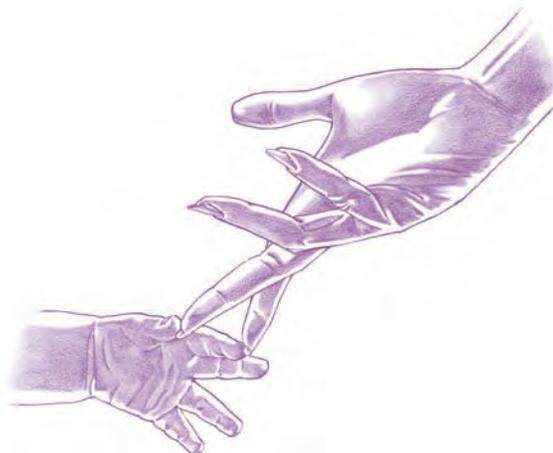
WHEN A CHILD DIES

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, 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 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, along with thorough death scene investigation, medical and social reviews. 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 criteria for review, 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 disciplines on the panel have the responsibility to contribute information that will lead to a more accurate determination of the cause of death. They also address service needs for the family and community, and 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, as 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”.) All injuries, natural (non-injury) causes and births occurring within federal military installations, although located in Missouri, are handled the same as out-of-state incidents. Statistical data would be reported to the Child Death Review Case Reporting System, but the death would be deemed non-reviewable.

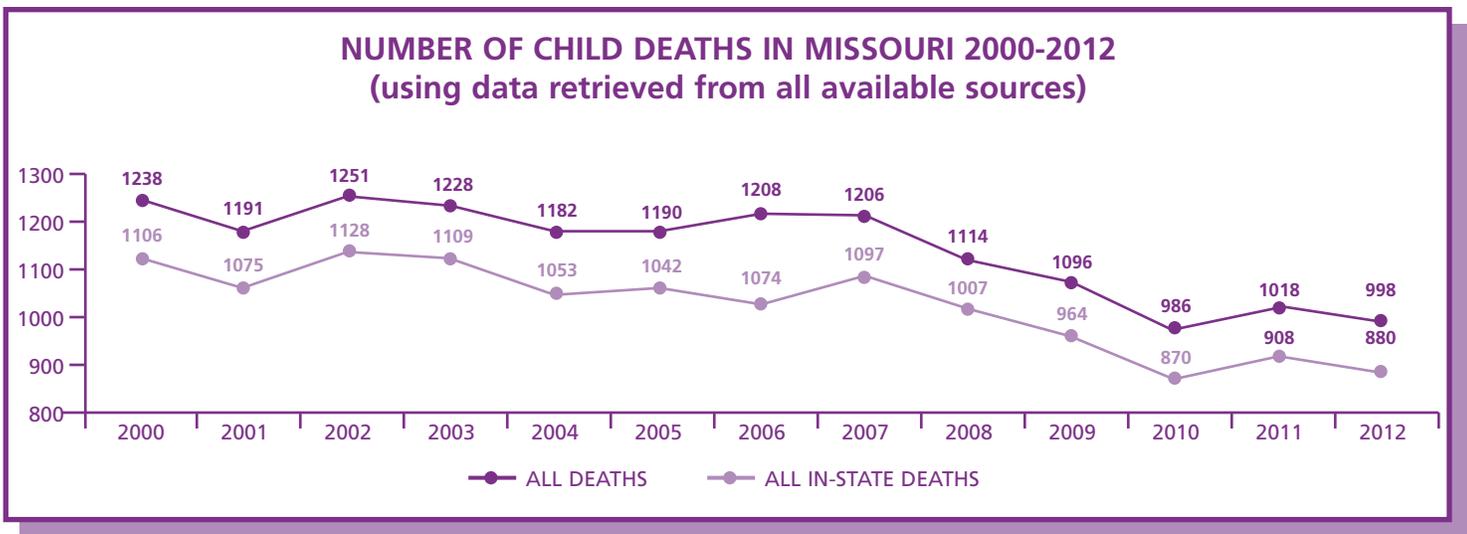
Missouri Incident Fatality refers to a fatal illness, injury or event, which occurs within the state of Missouri. (This is not necessarily the county or state in which the child resided.) If the death meets the criteria for panel review, it is reviewed in the county in which the fatal injury, illness 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, 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 the county CFRP panel chairperson to determine if death meets the criteria for review. The findings of this initial review are reported on the NCRPCD CDR Case Reporting System.
- All child deaths that are *unclear, unexplained, or of a suspicious circumstance (which includes all injury events, homicides, suicides and sudden unexpected deaths of infants one week to one year of age)* are required to be reviewed by the county-based, multidisciplinary CFRP panel. Upon completion of the panel review, the CDR 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 CFRP data management unit links data collected on the CDR Case Reporting System, with the Department of Health and Senior Services (DHSS) Bureau of Vital Records 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 2012, although some cases may not have been brought to county panel review until 2013. Additionally, in a small number of

cases, panels did not complete all of the information requested on the Child Death Review Case Reporting System.

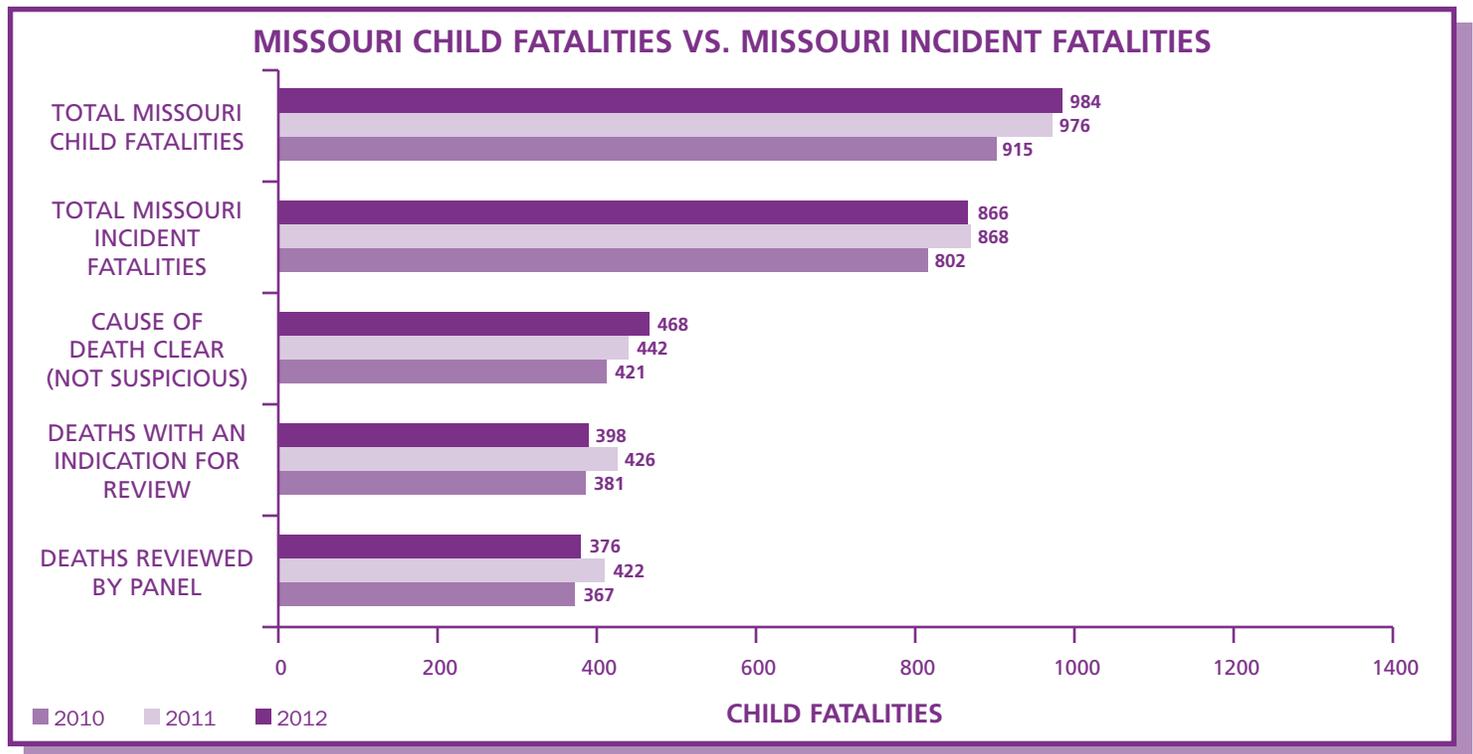
- **One Hundred Eighteen** Missouri Incident Fatalities are due to events that occurred in either other states or on federal installations in Missouri. Although documented in the CDR Case Reporting System and a part of the total number of Missouri Child Fatalities, these deaths are not considered Missouri Incident Fatalities and are not otherwise addressed in this report.
- Of **398** Missouri Incident Fatalities with indication for review as reported in Child Death Review Case Reporting System in 2012, **22** did not receive required CFRP panel review, or panel findings were not entered. These fatalities are included in this 2012 CFRP Annual Report, because the data, though incomplete, is useful and accurate within the limitations of the information provided.
- **Fourteen** Missouri Incident Fatalities were not reported in the CDR Case Reporting System, but were reported to the CFRP by death certificates from the Department of Health and Senior Services. From information provided by the death certificates, **seven** of those **14** fatalities (50%) had at least one indicator for review, to include **three** motor vehicle fatalities, **one** fire/burn, **one** undetermined, **one** firearm 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 CDR Case Reporting System information submitted by the county-based CFRP panels. Compliance for overall Missouri Incident deaths is 98.4% and county child death reviews is 92.1%. 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 2012.

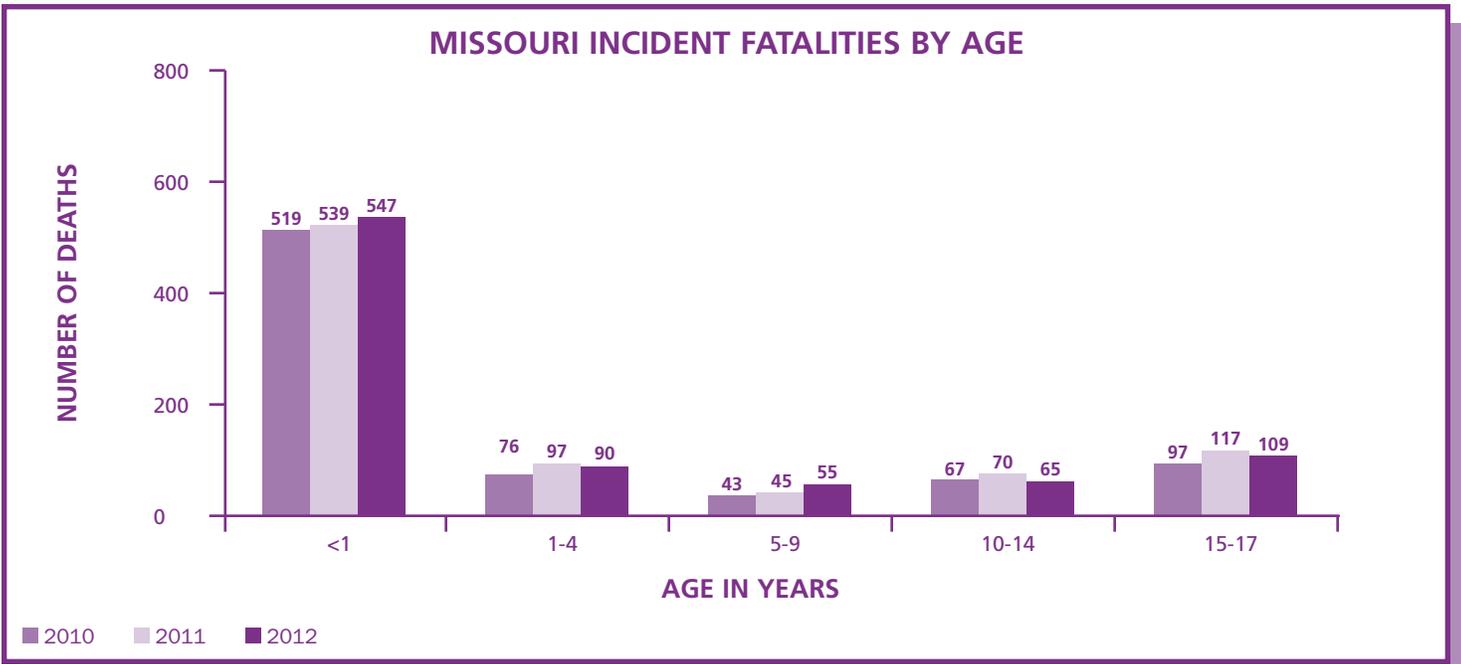


SUMMARY OF FINDINGS

Missouri Incident Fatalities

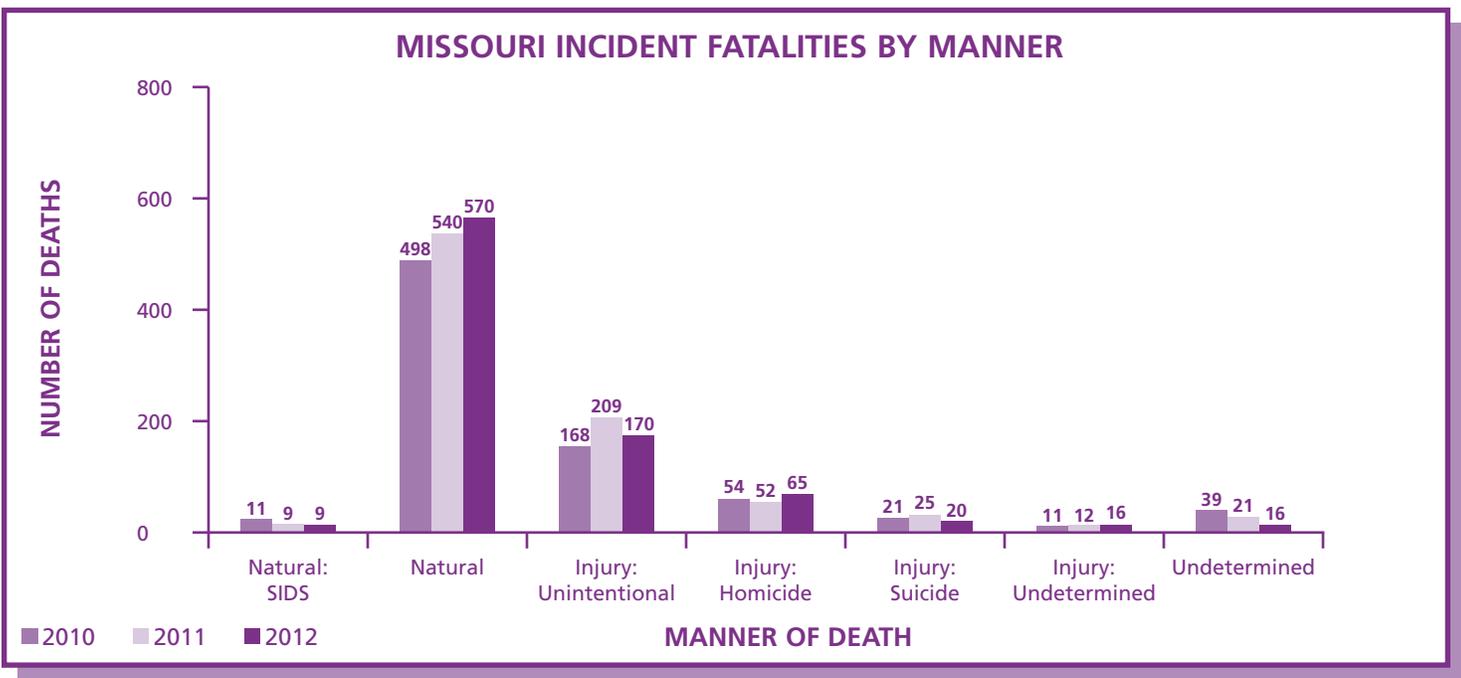
In 2012, STAT received information on **984** children age 17 and under, who died in Missouri. **One hundred eighteen** deaths were due to events out of state or on federal installations. The remaining **866** deaths were determined to be “Missouri Incident Fatalities” and therefore, subject to initial review by the coroner or medical examiner and county CFRP chairperson, with **468** (54%) determined to have not met criteria for detailed panel review. The remaining **398** (46%) had indicators for review and of those, **376** (94%) were reviewed by the county panels.

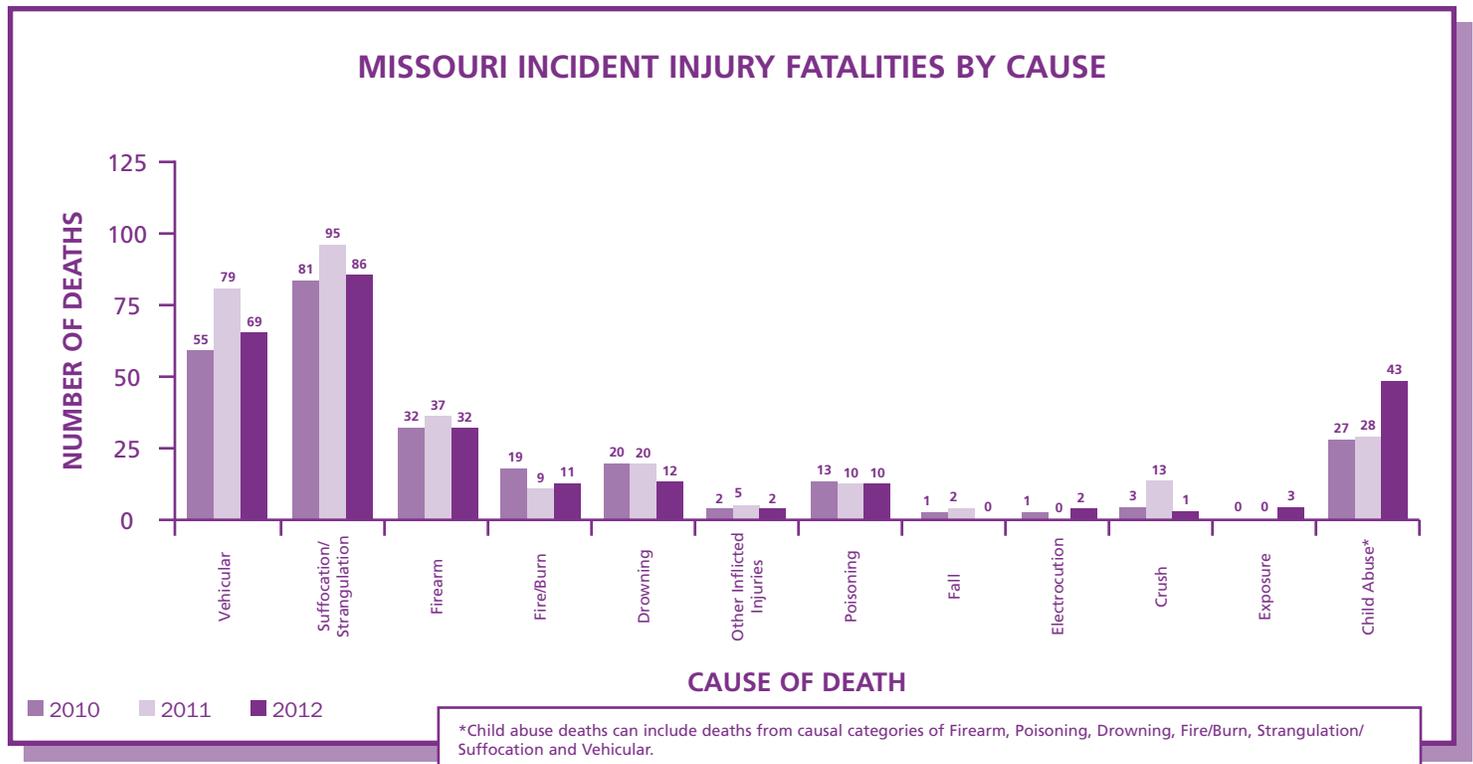




MISSOURI INCIDENT FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	317	351	365	WHITE	563	573	601
MALE	485	517	501	BLACK	197	231	215
				OTHER	42	64	50
	802	868	866		802	868	866





Missouri Death Certificates identify deaths by Manner and Cause. *Manners of Death* 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 by type of Injury; Intentional, Unintentional and Undetermined; Could Not Be Determined classified as 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. 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 sleep surface sharing, 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 a fatal 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*

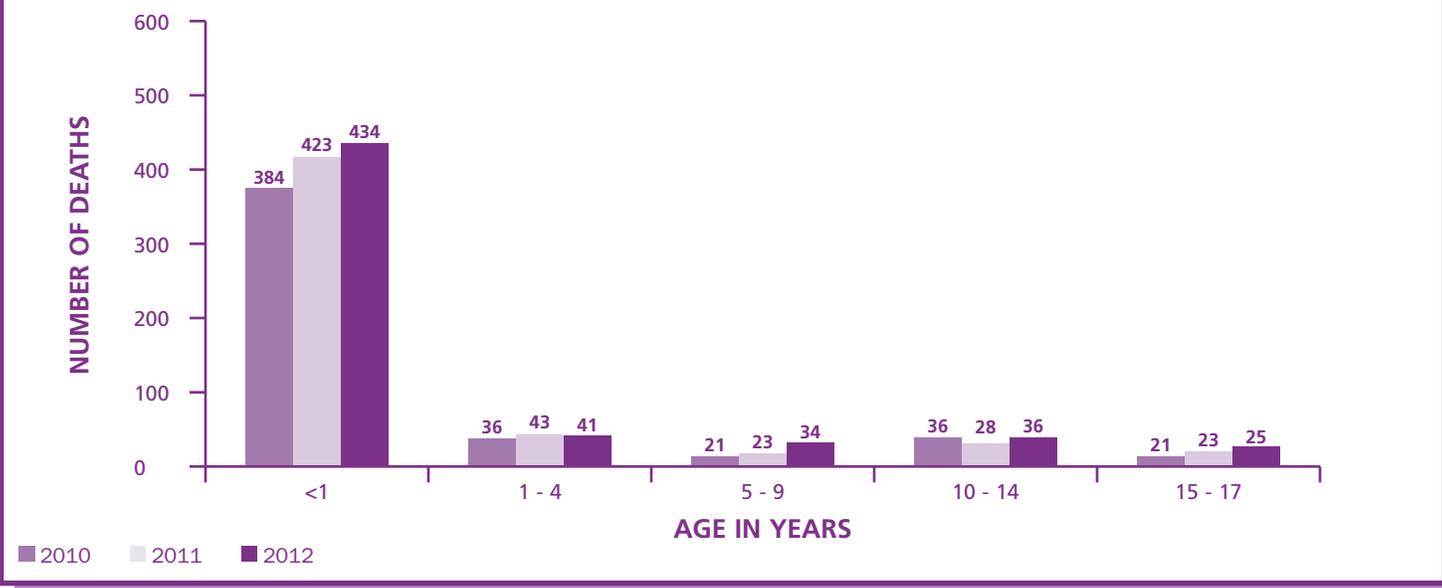
Natural fatalities, other than SIDS, were responsible for the deaths of 570 Missouri children in 2012, representing 66% of all Missouri incident fatalities.

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

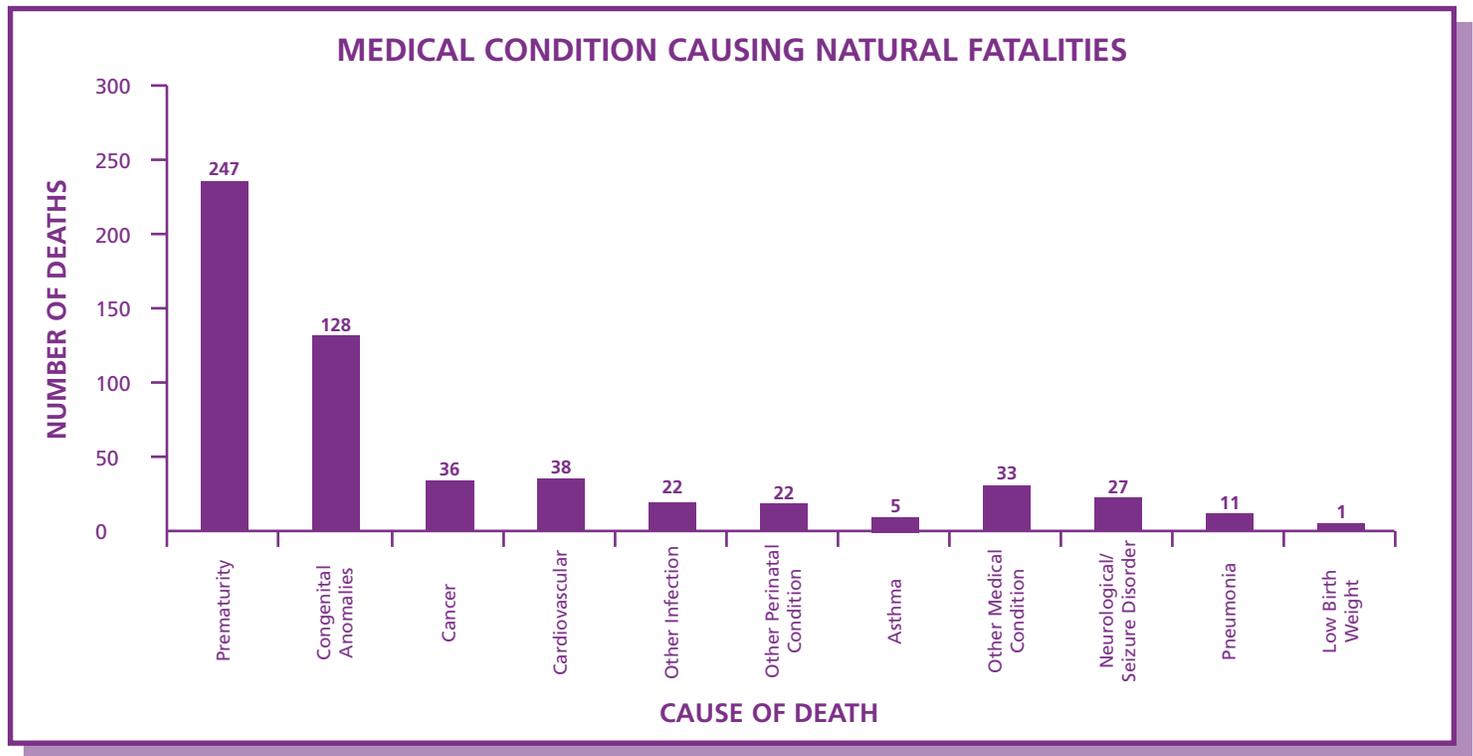
NATURAL FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	208	231	249	WHITE	334	344	402
MALE	290	309	321	BLACK	142	153	134
				OTHER	22	43	34
	498	540	570		498	540	570

NATURAL CAUSE FATALITIES BY AGE



Children die from a variety of medical conditions, but premature birth is the leading cause. Of the **570** natural deaths of children in Missouri in 2012, **247** (43%) were from premature birth.



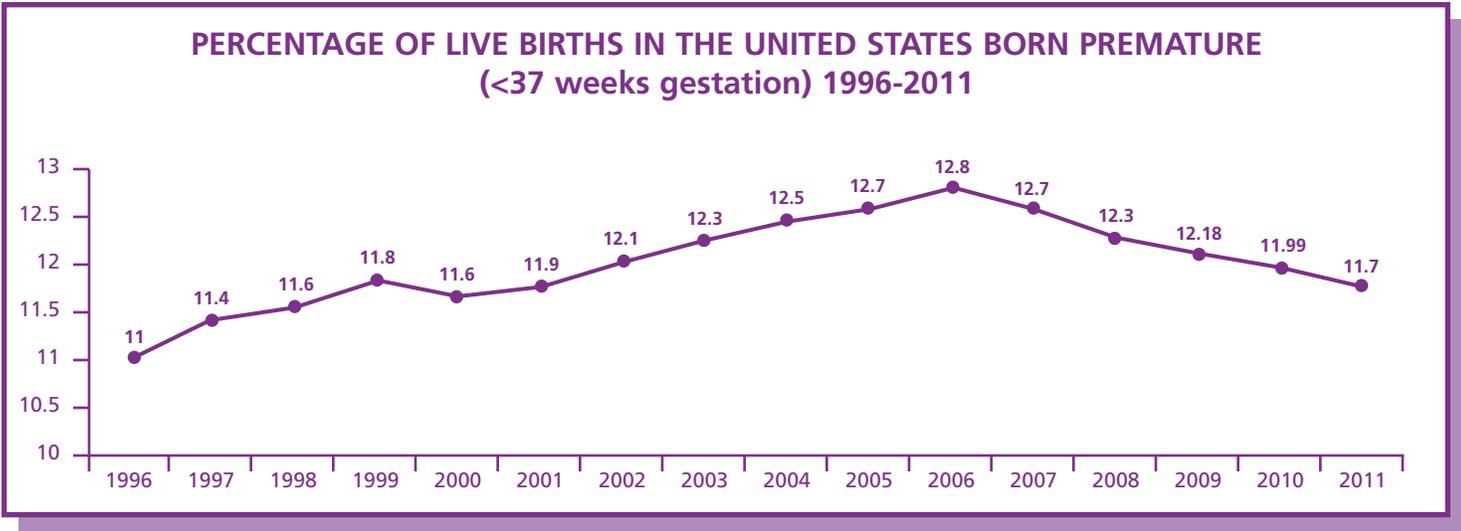
Statistics do not necessarily reflect how many children were born with fatal congenital defects, since such defects can fall under the cardiovascular or neurological/seizure disorder medical conditions. Even with the breakout of these medical conditions, congenital anomalies are by far the second largest 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 51st in the world for infant mortality, being behind such countries as Taiwan 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.

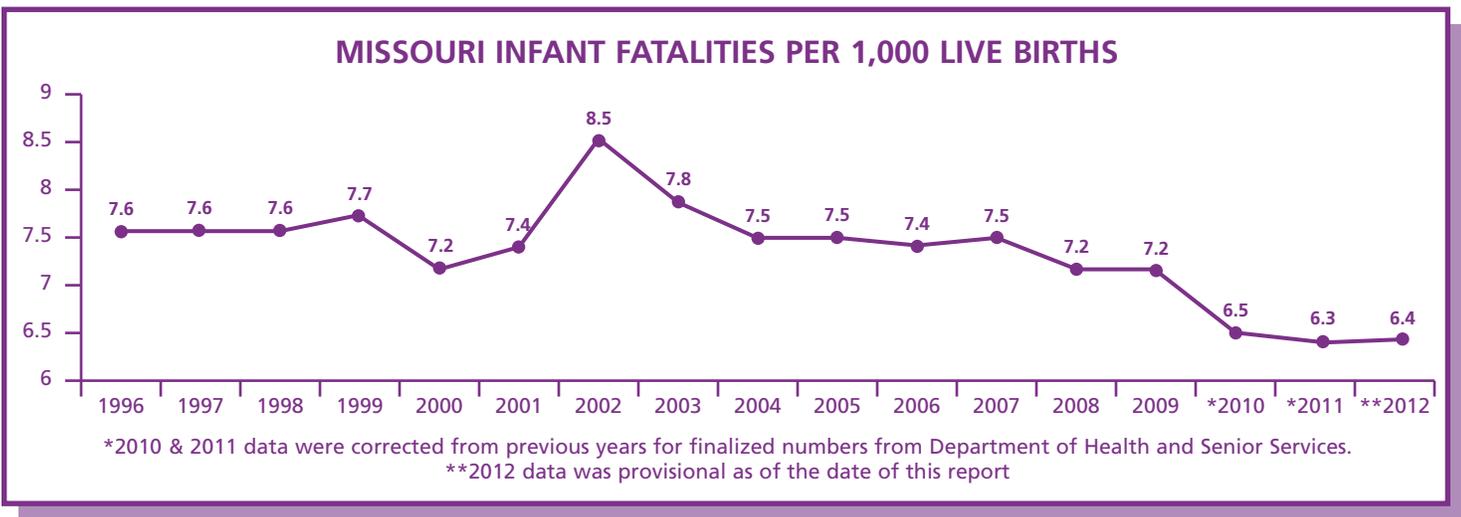
Data suggests that the main reason for the United State’s high infant mortality rate is the significant rate of preterm births, which rose from 11% in 1996, to 12.8% in 2006. The March of Dimes states that in the past decade, obstetric practices such as non-medically indicated early induction, cesarean delivery are risk factors for preterm birth and iatrogenic prematurity. To help counteract this issue, the March of Dimes and its partners developed a toolkit to help hospitals eliminate non-medically indicated deliveries before 39 weeks gestational age. A study published by Obstetrics and Gynecology shows that early elective deliveries in a group of 25 hospitals that used the toolkit, fell 83% during a one-year period.

Prematurity is also the leading cause of death in the first month of life and those that survive could potentially face lifelong serious health issues. Preterm birth rates have been dropping since 2006, with the largest decrease seen in the late-preterm births (34 to 37 weeks gestation). For 2011, the Center for Disease Control and Prevention (CDC) reports that the preterm rate is down to 11.7% of all births. Missouri’s rate for 2011 is even lower at 11.6%, according to data provided by the March of Dimes in their 2012 Premature Birth Report Card.



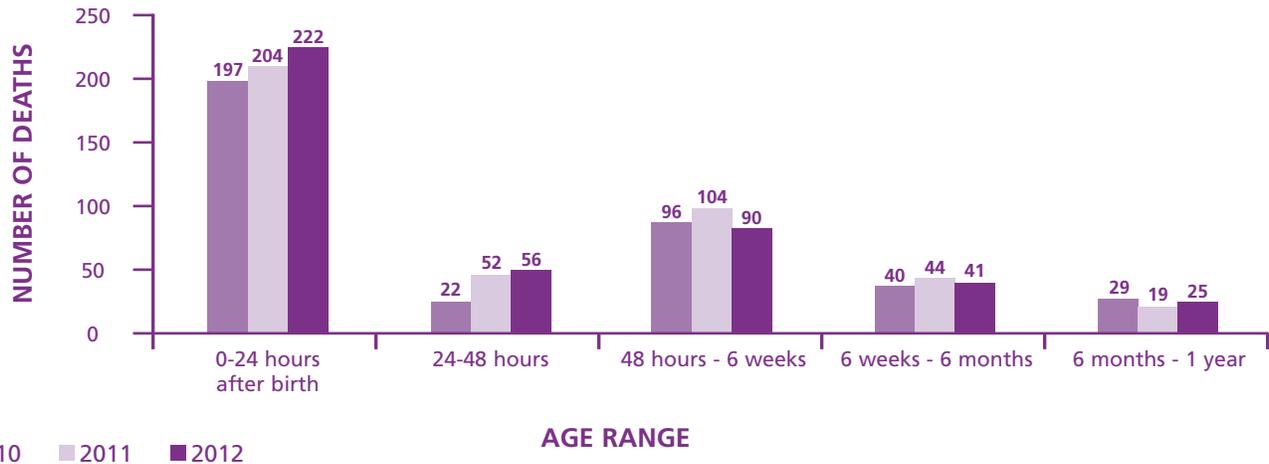
According to the CDC National Center for Health Statistics, the earlier a baby is born, the greater the risk of death. Babies born late-preterm, have a death rate three times higher than babies born at full term. By reducing the number of children born prematurely, even by just a few weeks early, could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

In Missouri, the infant mortality rate increased from 6.3 to 6.4 deaths per 1000 live births, which is higher than the national rate of 5.9 deaths per 1000 live births.



Infants less than one year of age comprise the majority of natural cause deaths in 2012, with **434** (76%). Of the **278** deaths that occurred within the first 48 hours, **222** (80%) occurred within 24 hours after birth.

NATURAL FATALITIES AGE LESS THAN ONE YEAR
BY AGE AT DEATH

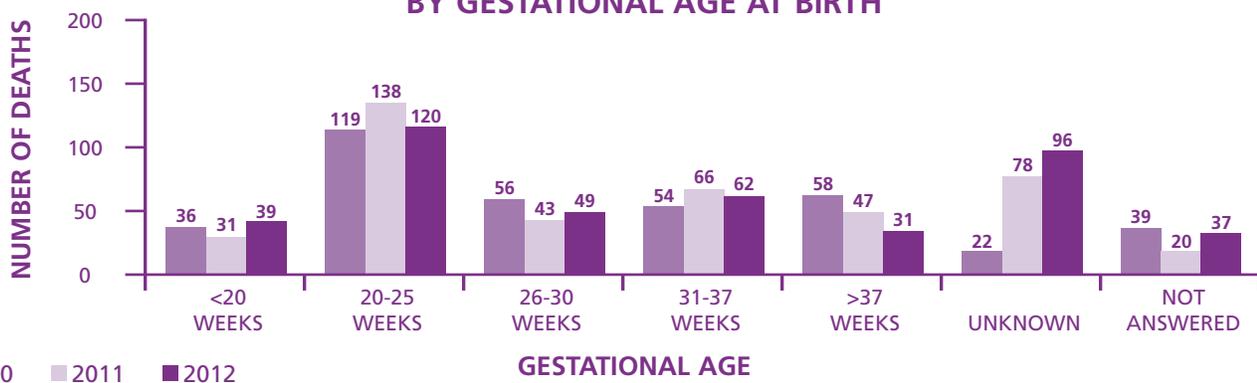


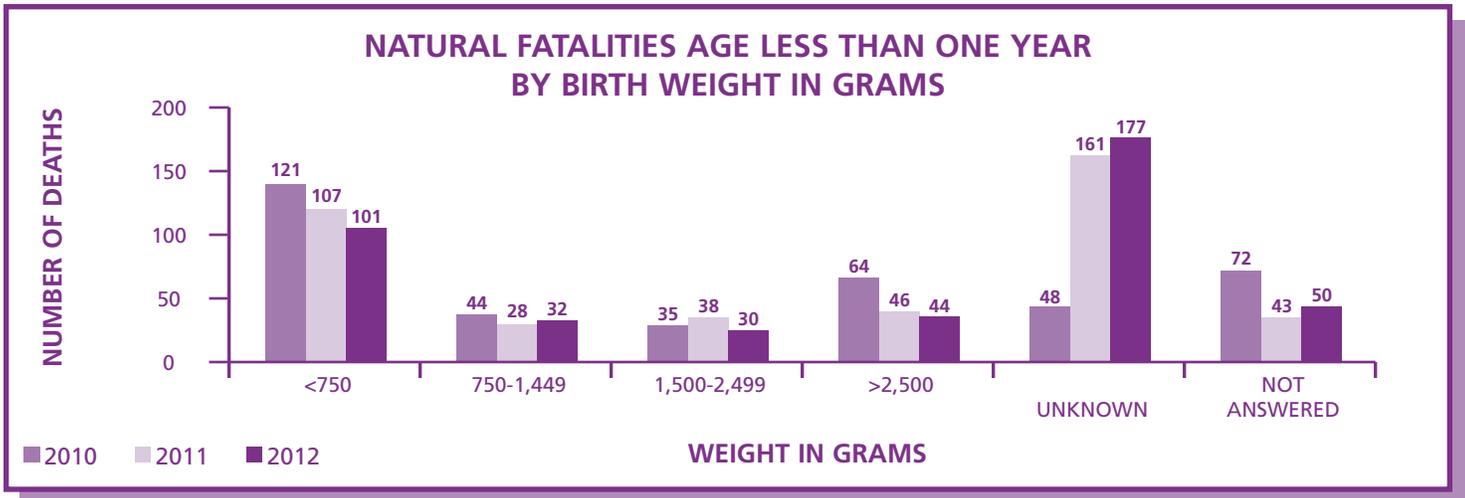
NATURAL FATALITIES AGE <1 YEAR BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	155	179	189	WHITE	251	264	299
MALE	229	244	245	BLACK	114	128	108
				OTHER	19	31	27
	384	423	434		384	423	434

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 2012, **270** infants were reported to be born preterm on the CDR Case Reporting System, while **163** low weight births were reported during that same period.

NATURAL FATALITIES AGE LESS THAN ONE YEAR
BY GESTATIONAL AGE AT BIRTH





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 2012, **21** mothers had medical complications such as diabetes or preeclampsia, **13** admitted to smoking during pregnancy, **13** abused prescription drugs, **one** abused over the counter drugs, **one** was injured in a car accident and **two** were the victims 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 2012, **11** of the children who died from natural causes within the first year of life had no prenatal care. **Seven** of these children are known to have been born before the 37th week of gestation and **four** of them were known to be 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 145 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 158 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 2012, Sudden Infant Death Syndrome (SIDS) was the cause of death of nine 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** an examination of the death scene, a thorough case investigation, performance of a complete autopsy and review of medical and social histories. 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	2010	2011	2012	RACE	2010	2011	2012
FEMALE	3	5	4	WHITE	10	7	5
MALE	8	4	5	BLACK	1	2	3
				OTHER	0	0	1
	11	9	9		11	9	9

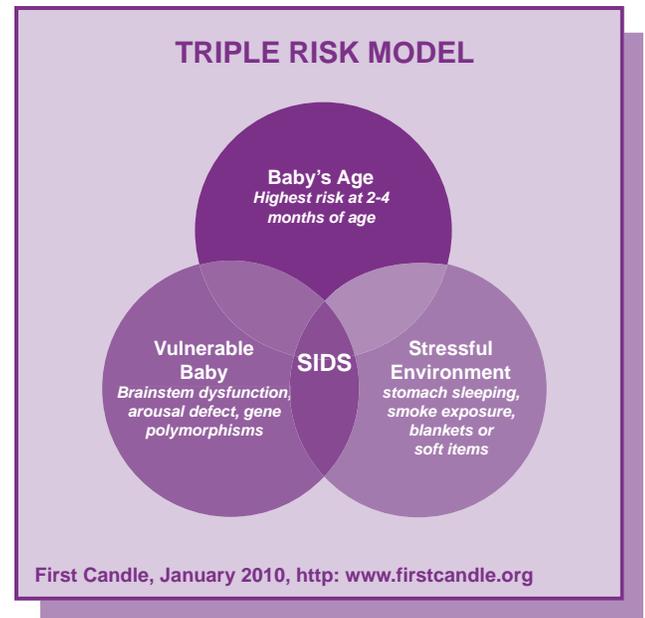
SIDS FATALITIES BY AGE



Current Research Findings and Theories

In 2010, the National Institutes of Health stated that scientists 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 dies 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.

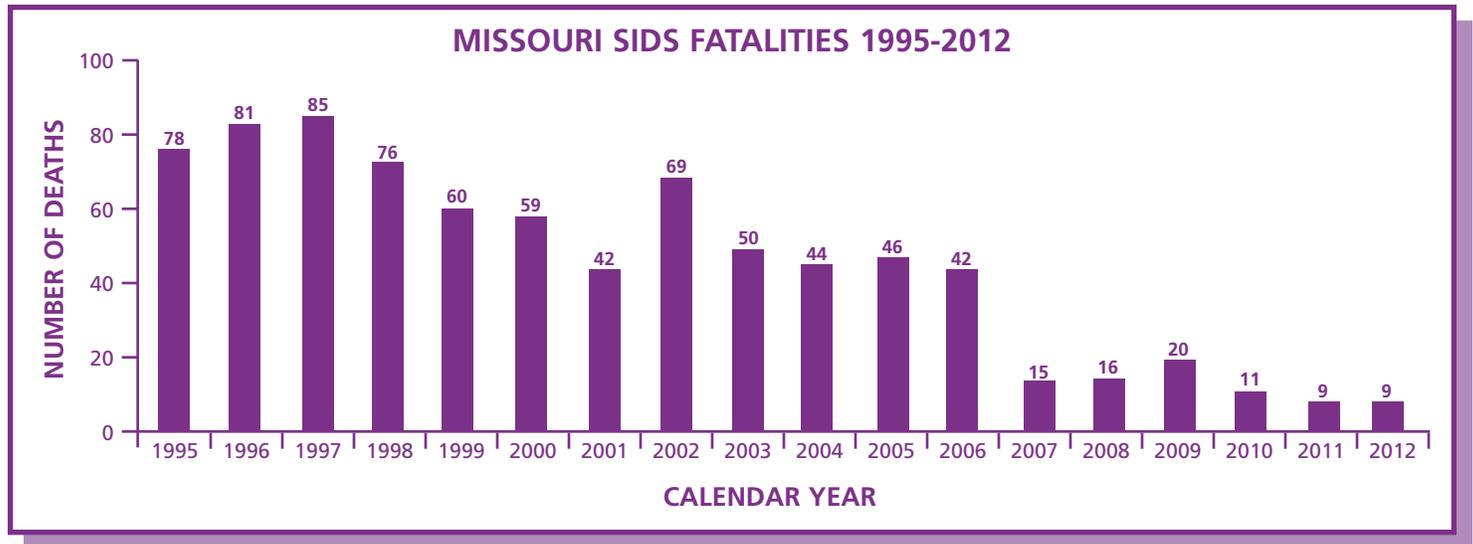
Other Risk Factors

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.

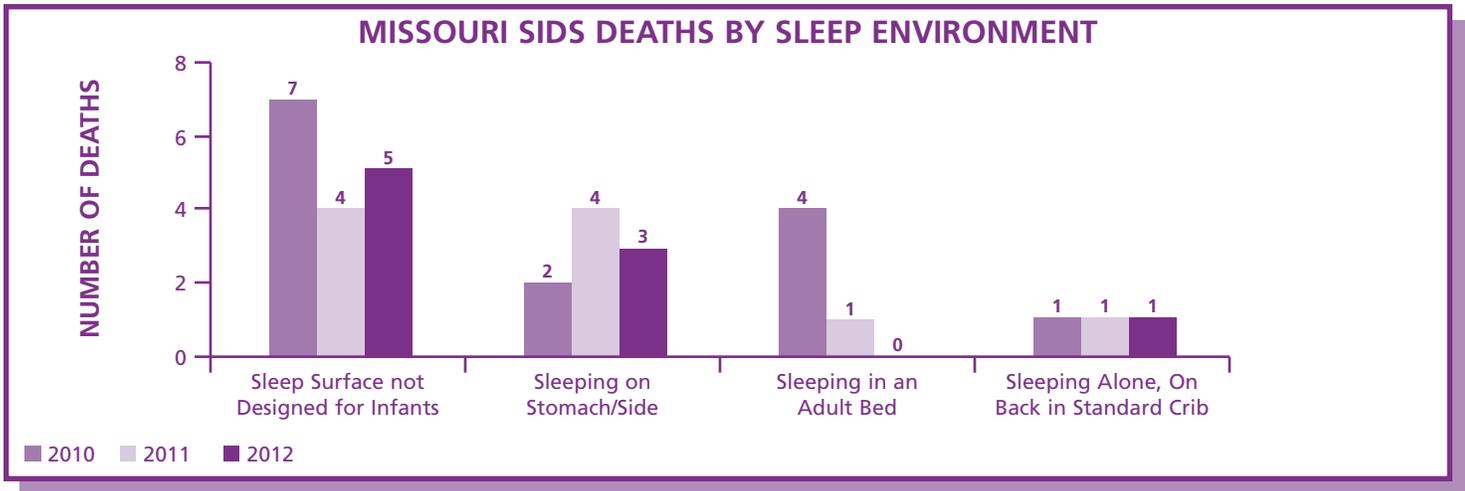
- Prone or side sleeping
- Soft sleep surfaces
- Loose bedding
- Same sleep surface sharing
- Overheating
- Exposure to tobacco smoke



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 2012, of **nine** sudden unexpected infant deaths reviewed by county CFRP panels and diagnosed as SIDS, **three** (33%) infants were known to be sleeping on their stomach or side, though **two** 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. **Five** of the **nine** were not sleeping in a standard crib on a firm mattress. 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 crib. 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 2012, **eighty-four** infant deaths were determined by the county CFRP panels to be sleep-related, of which **nine** were diagnosed as SIDS, **four** as natural, **three** as undetermined manner, **one** as exposure to excessive heat and **67** as suffocation. In summation, **71** infant deaths (25% of all non-natural deaths – injury, homicide, suicide and both undetermined categories 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 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

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 thorough 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, complete autopsy, along with 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.

Five New Federal Safety Standards for Cribs

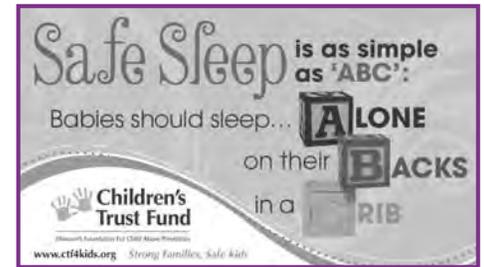
Beginning June 28, 2011, the Consumer Product Safety Commission (CPSC) set new standards that all cribs sold in the United States must meet for overall crib safety.

- Traditional drop-side cribs cannot be made or sold; immobilizers and repair kits not allowed.
- Wood slats must be made of stronger woods to prevent breakage.
- Crib hardware must have anti-loosening devices to keep it from coming loose or falling off.
- Mattress supports must be more durable.
- Safety testing must be more rigorous.

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 alone, in a crib, on his or her back. The crib should be devoid of soft bedding to include bumper pads and pillows, and toys of any kind. Unfortunately, many parents have not received this information, are instructed differently by family members, or for a variety of reasons, are unable to provide a safe crib for their infant.

The Safe Cribs for Missouri program provides portable cribs and safe sleep education to low-income families who have no other resource for obtaining a crib. The program is administered by the Department of Health and Senior Services through federal funding from the Maternal Child Health Block Grant (Title V) and by Children’s Trust Fund. The program is implemented through participating Local Public Health Agencies (LPHAs). The LPHAs initiate referrals and provide the safe sleep education to the families. To qualify for the program, the mother must be at least 35 weeks gestation or no more than three months postpartum. She must be eligible for WIC or Medicaid, or have income below 185% of the federal poverty level. The LPHA provides one-on-one safe sleep education to the parents before the family receives the crib. A follow-up home visit is made to reinforce the education and assess the family’s implementation of safe sleep practices. This visit is conducted four to six weeks after the crib is received, or when the infant is four to six weeks old. The overall goal of this project is to support families and reduce the risk of sleep-related infant mortality.



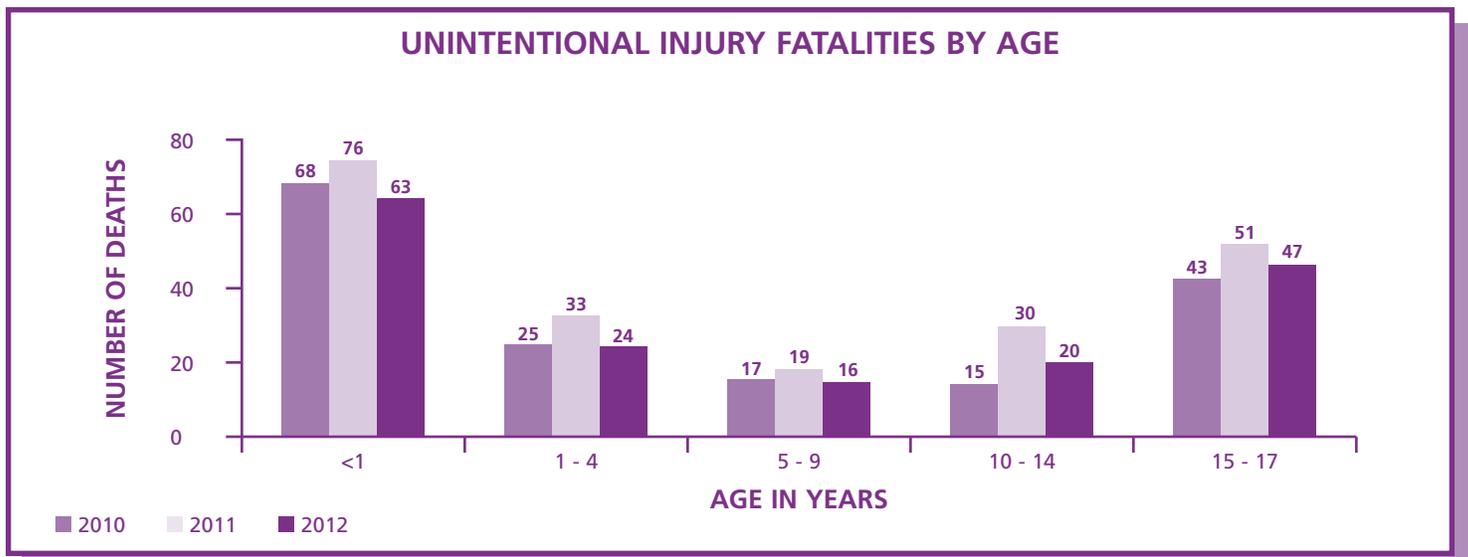
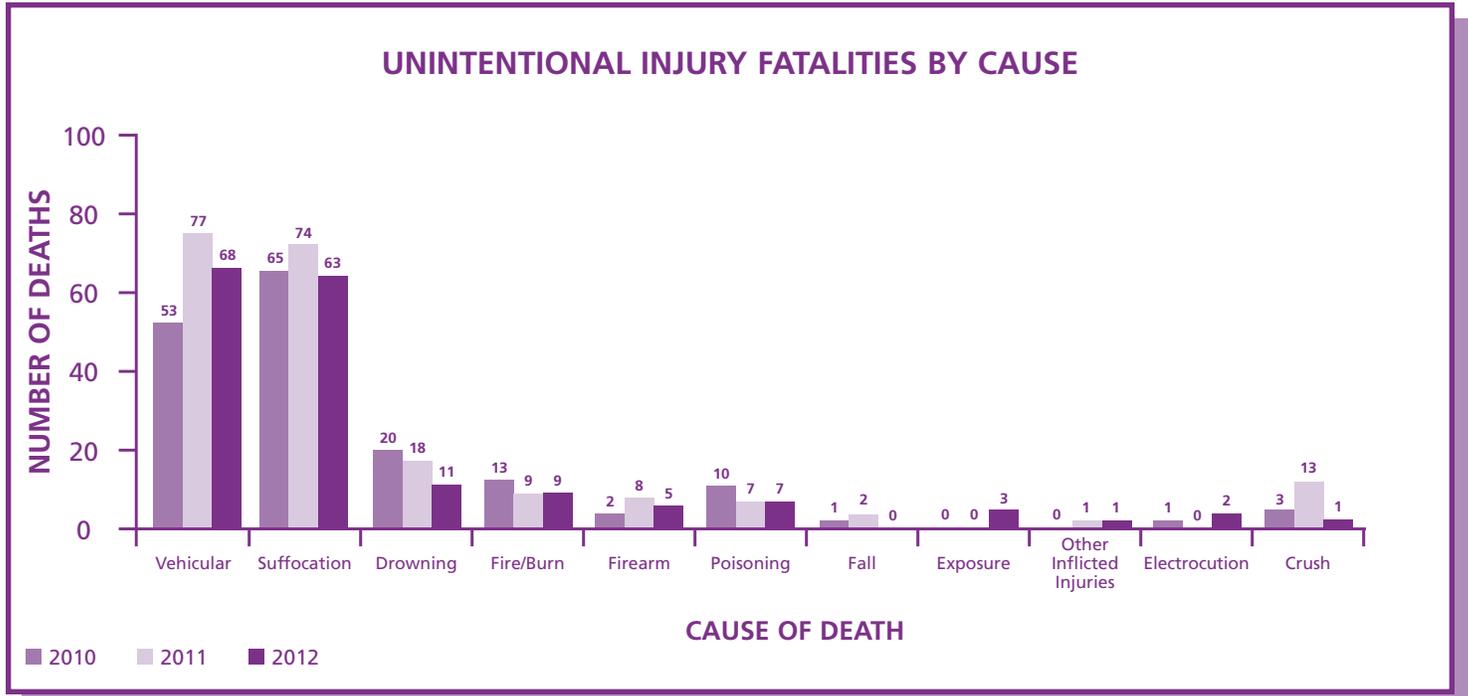
Resources and Links:

- 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/>
 Consumer Product Safety Commission <http://www.cpsc.gov/onsafety/2011/06/the-new-crib-standard-questions-and-answers/>

UNINTENTIONAL INJURY FATALITIES

In 2012, there were 170 unintentional injuries fatalities among Missouri children.

In 2012, **170** Missouri children died of unintentional suffocation injuries, making up 20% of all Missouri incident fatalities. The leading causes of unintentional injuries are vehicular deaths at **68** (40%) and suffocations at **63** (37%) and drowning at **11** (7%).



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	2010	2011	2012	RACE	2010	2011	2012
FEMALE	58	80	68	WHITE	135	156	127
MALE	110	129	102	BLACK	22	40	34
				OTHER	11	13	9
	168	209	170		168	209	170

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 (**five**), or moving vehicles (**11**), allowing toddlers access to loaded weapons (**one**), or leaving lighters and matches where young children can find them (**three**), and placing babies in unsafe sleeping environments (**59**) are all ill advised, yet these actions resulted in the deaths of **79** children in Missouri, in 2012, making up 46% of all unintentional injury fatalities. Some people believe that vehicular crash deaths (a more appropriate term adopted from the Missouri State Highway Patrol) cannot be prevented, but it is well known that appropriate road maintenance, following laws, avoiding distractions, correctly using seatbelts and child safety seats save lives. In 2012, **20** (38%) of the **53** children who died while either *driving or riding* in a motor vehicle, were unrestrained at the time of the crash.

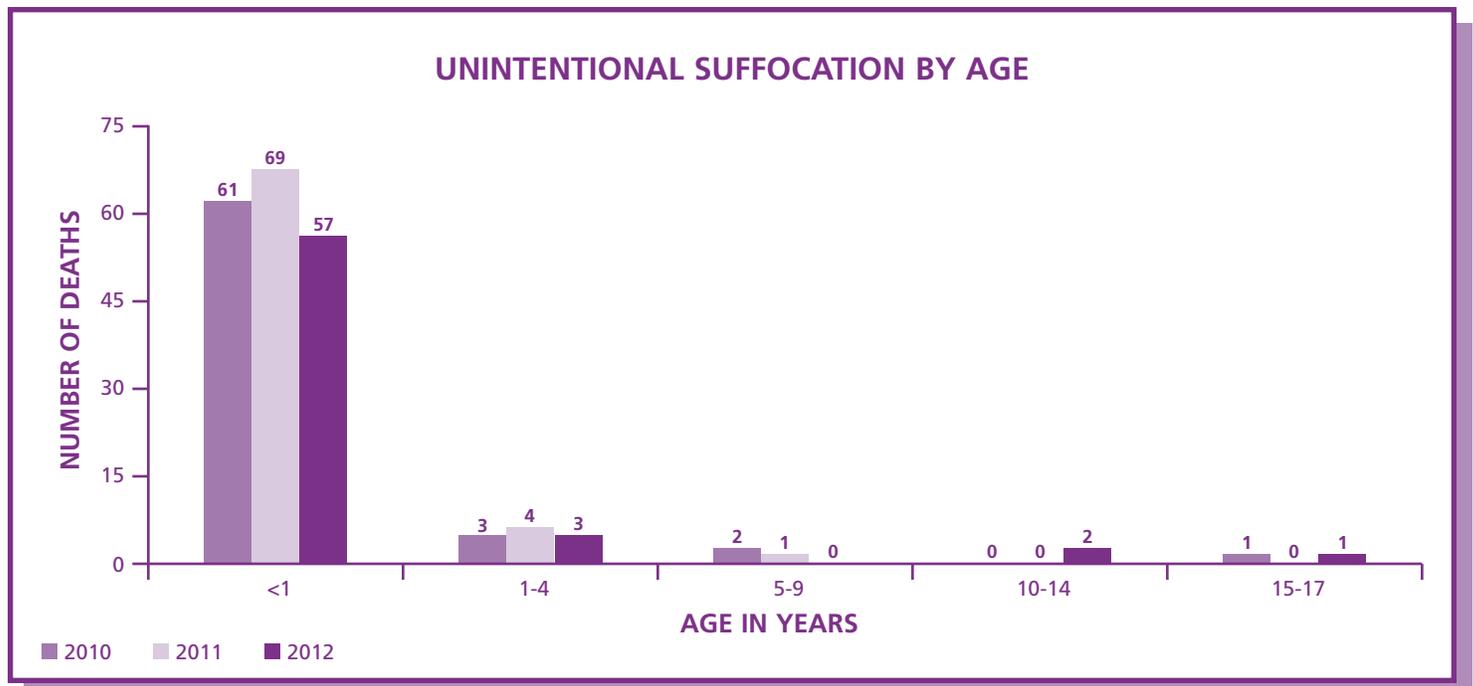
UNINTENTIONAL SUFFOCATION

“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

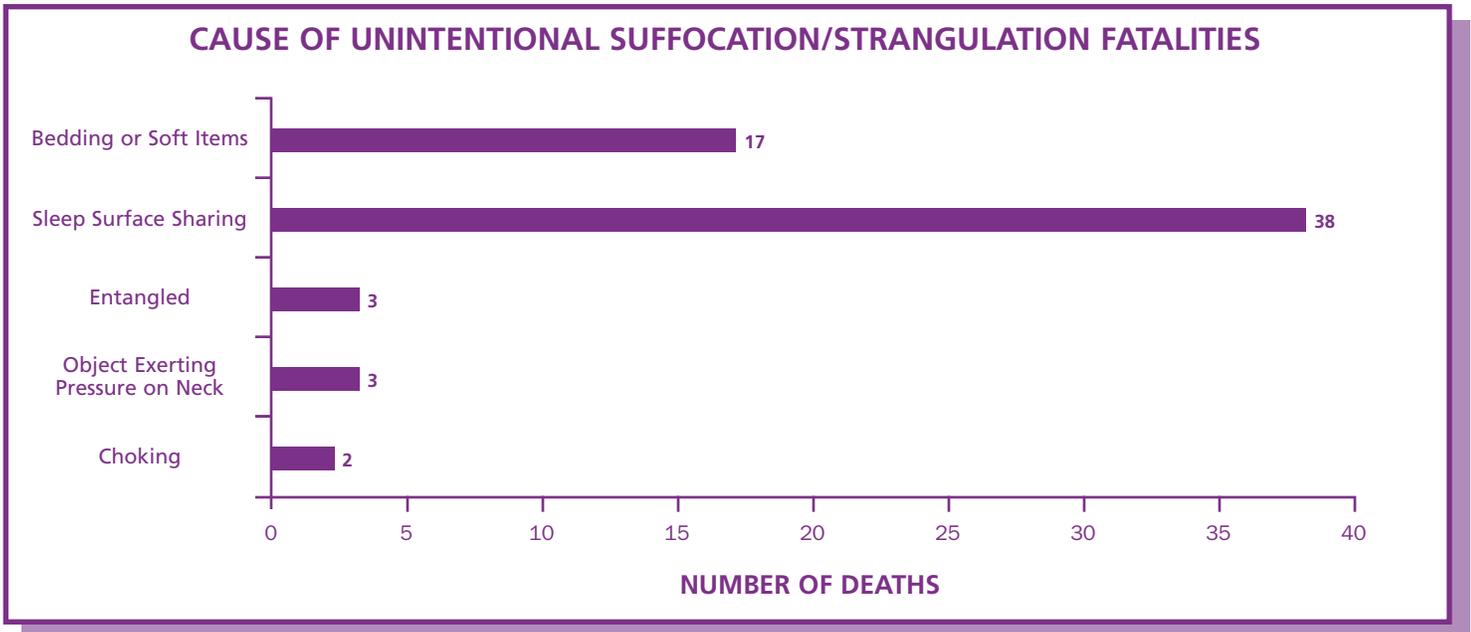
In 2012, unintentional suffocation was the cause of death of 63 Missouri children.

Deaths by unintentional suffocation are much more prevalent among children under one year of age, than from any other age range. In 2012, **57** (90%) of the unintentional suffocation deaths of children were under one year of age, **three** (5%) were one to four years of age and **three** were teenagers.



UNINTENTIONAL SUFFOCATION BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	27	30	19	WHITE	46	45	38
MALE	40	44	44	BLACK	11	22	20
				OTHER	8	7	5
	67	74	63		67	74	63



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, by means of smothering or rebreathing, suffocate when placed in compromising positions, such as with a soft mattress, cushion, pillow, comforter or bumper pad, or when their faces, noses and mouths become covered by soft bedding, such as pillows, quilts, comforters and sheepskins. Sleeping surfaces such as being propped by a pillow, being placed in a waterbed or bean bag chair can cause an infant to rollover and these surfaces have the ability to form around the child's face, if placed face down.

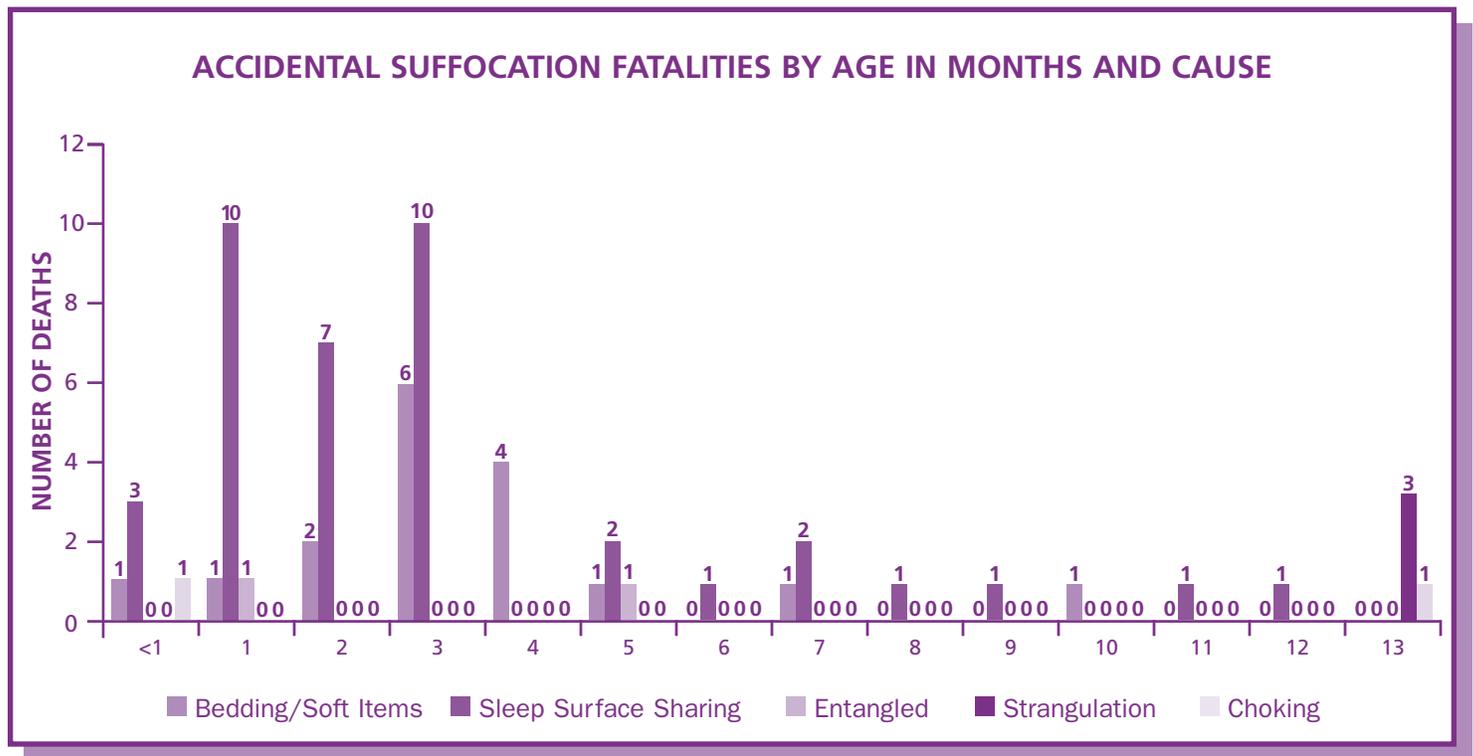
As infants get older and become more mobile, the risks of entanglement or wedging become more problematic. According to the American Academy of Pediatrics, wedging deaths most often occur between three to seven months, when infants have developed motor skills giving them the ability to move to corners 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.

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 either rolls over on or entraps the infant such as 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 an adult bed.

Furthermore, room sharing without bedsharing allows close proximity to the infant, which facilitates feeding, comforting and monitoring of the infant. Unfortunately, many Missouri parents continue to share a sleeping surface with their infants. Of the **57** babies, less than one year of age, that died of unintentional suffocation in 2012, **38** (67%) of the infants were sharing a sleep surface with one or more individuals. Of those, **28** were sleeping in an adult bed, **eight** were sleeping on a sofa, **one** was sharing a crib with its twin and **one** was sleeping in a chair.

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** 13-year-old boy died as a result of an anoxic brain injury that he received at the age of 18 months from something getting caught in his windpipe, and **one** baby laying prone, aspirated stomach’s contents.



Unintentional suffocation deaths in older children are often related to circumstances associated with choking, aspiration and/or strangulation. **Three** older children died of unintentional strangulation in 2012, **one** three-year old, **one** eleven-year old and **one** fifteen-year old.

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 <http://www.cpsc.gov>
SAFE KIDS Worldwide <http://www.safekids.org>
American Academy of Pediatrics <http://www.aap.org>
Missouri Children’s Trust Fund, “Safe Crib-Safe Sleep” Campaign. <http://www.ctf4kids.org>
American College of Surgeons “Injury Prevention” <http://www.facs.org/trauma/injuryprevent.pdf>

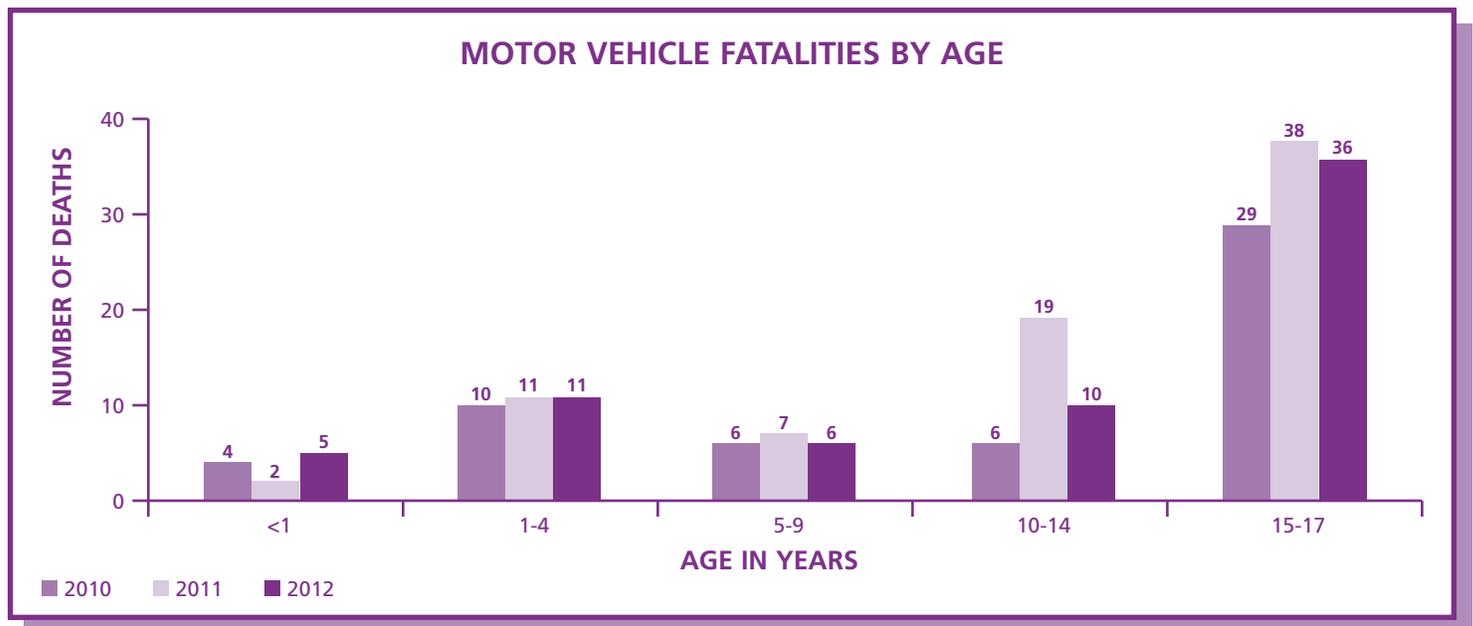
UNINTENTIONAL MOTOR VEHICLE FATALITIES

There were **72** motor vehicle fatalities among Missouri children in 2012. Of those, **69*** were reported to the CFRP on the Child Death Review Case Reporting System.

*Note: One vehicle death was determined to be homicide. This death will be discussed in the pertinent sections of this report.

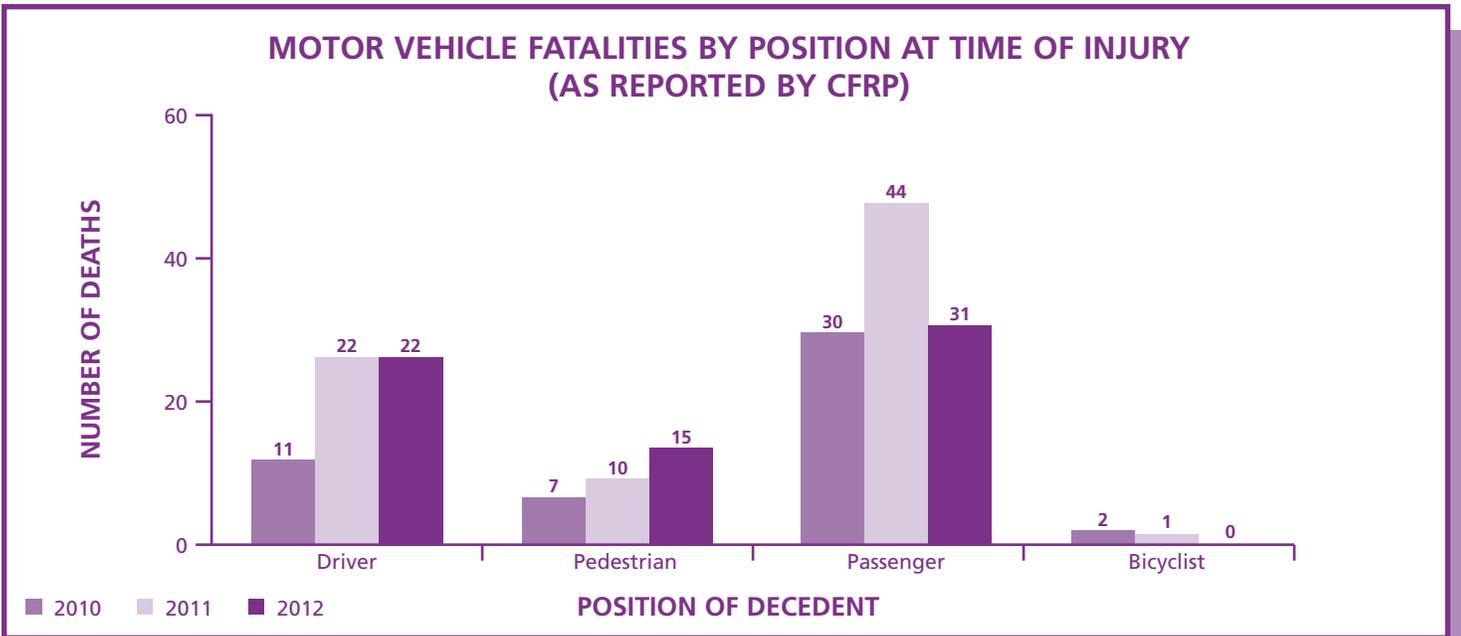
In the United States, motor vehicle crashes are the leading cause of injury deaths for children and adults and the second leading cause of injury death for children ages birth to one. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles,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

Of the **72** motor vehicle deaths among Missouri children in 2012, **68** were reported to the Child Fatality Review Program as unintentional; of which **61** were reviewed by local CFRP panels.



MOTOR VEHICLE FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	20	36	34	WHITE	47	63	54
MALE	35	41	34	BLACK	6	12	11
				OTHER	2	2	3
	55	77	68		55	77	68



NOTE: Due to differences in data collection systems, 2010 numbers were obtained from deaths reviewed; whereas, 2011 and 2012 numbers were obtained from all motor vehicle fatalities reported to CFRP.

TYPE OF VEHICLE			
Car	35	Airplane	3
Truck	7	ATV	4
SUV	11	Tractor	1
Motorcycle	1	Train	2
Van	1	Unknown	2
Semi/Tractor Trailer	1		

CONTRIBUTING CAUSE OF CRASH*			
Driver Inexperience	14	Racing	4
Speeding Over the Limit	14	Other Driver Error	4
Recklessness	12	Driver Distraction	3
Unsafe Speed for the Conditions	9	Poor Tires	3
Rollover	8	Poor Weather	3
Other Cause	8	Changing Lanes	3
Poor Sight Line	6	Ran a Stop Sign/Red Light	2
Drug or Alcohol Use	8	Cell Phone Use While Driving	2
Back Over	5	Mechanical Failure	1
Poor Visibility	4	Unknown Cause	12

*This chart lists all causes which contributed to the crash. In some cases, there were multiple causes.

ROAD CONDITIONS**			
Normal	42	Inadequate Lighting	2
Wet	4	Fog	1
Gravel	3	Other condition (such as hills, or off-road driving)	4
Snow	2	Unknown Condition	13

**In some cases more than one condition was indicated.

LOCATION OF CRASH			
Highway	23	Train Tracks	4
Rural Road	11	Parking Area	2
City Street	10	Residential Street	1
Off Road	9	Farm	1
Driveway	5	Unknown	2

RESTRAINTS – LAP BELT	
Not needed	28
Needed, but none present	2
Present, used correctly	6
Present, not used	17
Unknown	15

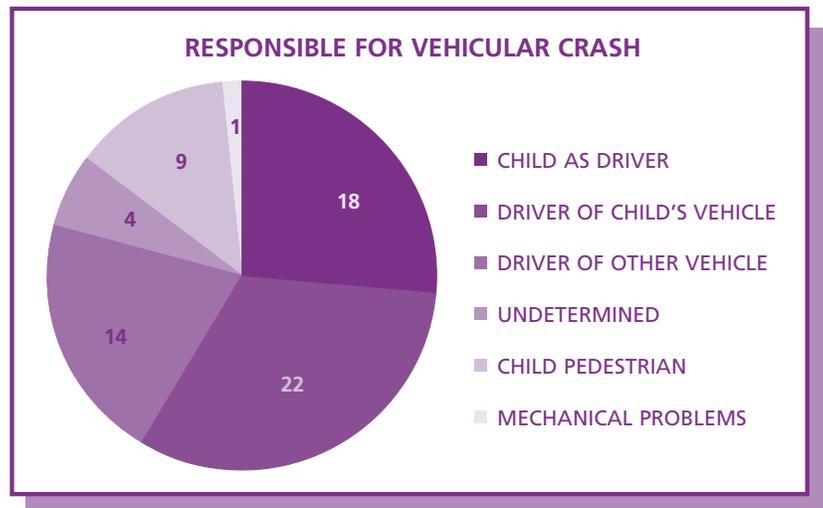
RESTRAINT – CHILD SEAT	
Not needed	60
Present, used correctly	5
Present, used incorrectly	1
Unknown	2

ALCOHOL AND/OR OTHER DRUG USE	
Decedent as driver impaired	1
Driver of decedent's vehicle impaired	2
Driver of other vehicle impaired	1
Not applicable	64

HELMET USE	
Not needed	63
Needed, but none present	1
Present, used correctly	1
Present, used incorrectly	1
Unknown	2

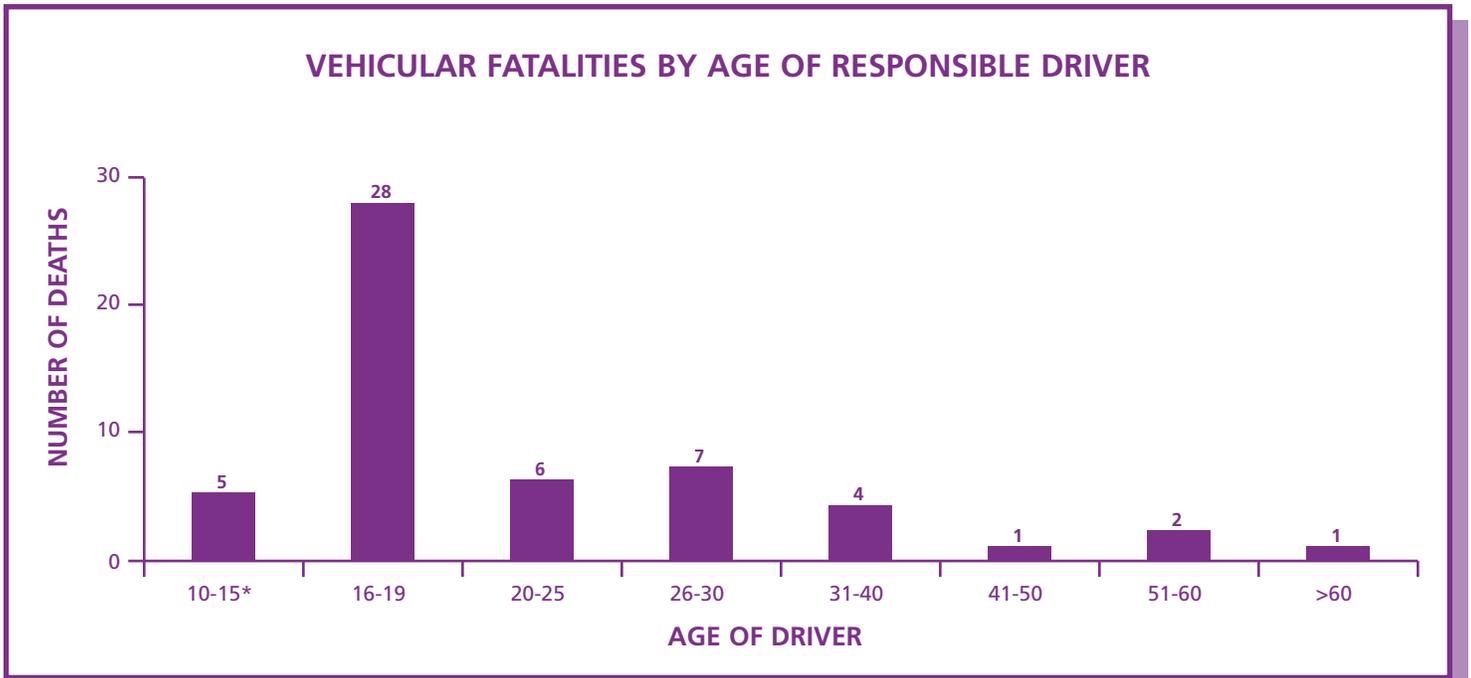
Most vehicle crashes occur due to the actions of one or more persons, be it recklessness, impaired driving, inattention or simple inexperience.

Of the **68** reported motor vehicle fatalities, only one death was caused by problems with the vehicle. In **22** (32%) deaths, the driver of the child's vehicle was responsible for the accident; in **18** (26%) it was the child as the driver. **Fourteen** (21%) deaths were caused by the driver of another vehicle and in **four** cases the exact cause of the crash had not



been able to be determined. The last **nine** deaths were pedestrians who, through their own actions, caused the accident which took their lives.

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 **54** vehicular deaths in which a driver was determined to be responsible for the accident, **33** (62%) were under the age of 20, with **28** (85%) 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 **68** reported motor vehicle deaths in Missouri in 2012, **53** (78%) involved drivers and passengers.

Representative Cases:

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

A two-year-old child was sitting in the back seat of a car that left the roadway, striking a rock embankment. The unrestrained child was thrown forward when the accident happened. The driver of the child's vehicle was on the cell phone at the time of the accident and subsequently was charged with careless and imprudent driving.

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

A 17-year-old driver was speeding through a residential neighborhood on his way home. He was driving 98 mph in a 25 mph zone, when he ran off a curve and struck a tree. He died at the scene. The autopsy found that the teenager was under the influence of alcohol and cannabis.

A 16-year old was driving a car home from school with four passengers in the vehicle, which is a violation of Missouri's graduated driver license law. Driving too fast, he crashed into a tree and ripped the car in half. The driver died and the other teens were injured, three critically.

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. SAFE KIDS Worldwide 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 2012, **12** of the **31** 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 **68** reported motor vehicle fatalities, **eight** involved either a victim or a driver who was impaired. In 2012, CFRP panels determined that **five** of these deaths involved a teen victim who was impaired, **four** of those were drivers of a vehicle that crashed, and **one** was a pedestrian. There was **one** death in which an impaired friend was the driver of the vehicle in which the victim was a passenger. The last **two** 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 risk-taking behavior due to inexperience and immaturity, along with greater risk exposure are 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 both 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%. In 2012, there were **36** teenagers, age 15-17, that died in motor vehicle fatalities; **two** were pedestrians, **15** were passengers, and **19** were drivers. Of these **34** teen driver and passenger deaths, **16** (47%) were known to be unrestrained at the time of the crash.

Pedestrian Fatalities

Of the **68** reported motor vehicle fatalities among Missouri children in 2012, **15** were pedestrians. Of these children, **nine** were age four and under, **two** were between the ages of five and nine, **two** were between 10 and 14, and **two** were between the ages of 15 and 17.

Representative Cases:

- **Young children require constant supervision.**

A one-year-old child was in a vehicle with her mother, aunts and siblings. They got out of the vehicle in a large parking lot. The child was told to wait, but darted off towards the building, running out in front of a car.

- **Teens need to be more aware of their surroundings.**

In two separate instances, teens, ages 15 and 14, were walking on train tracks with headphones on. In both events, the child failed to hear the approaching train until it was too late.

- **Driveways and other parking areas can be dangerous places.**

A father thought the two-year-old child was in a fenced-in area playing. He was backing the truck, when the child's mother called to the child who ran behind the moving truck and was struck.

Five children died in 2012, when they were backed over in their own driveway. This makes up **33%** of all pedestrian deaths. Unfortunately, this is not a rare occurrence. According to KidsandCars.org, every year thousands of children are killed or seriously injured, because a driver backing up did not see them. Larger-sized vehicles such as SUV's and vans make it more difficult for the driver to see a small child behind them.

According to SAFE KIDS Worldwide:

- 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 **15** pedestrian deaths were children ages 14 and above. **Two** of these children were struck by trains, **one** was trying to jump into a moving vehicle and the last **one** was sitting in the roadway.

All-Terrain Vehicle Fatalities

Four of the **68** reported motor vehicle fatalities in 2012, involved all-terrain vehicles (ATV's). **Two** children were known to have not been wearing helmets and the other **two** were listed as helmet usage unknown.

Representative Cases:

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

An eleven-year-old boy was riding an ATV without a helmet. He was the only one on the vehicle at the time, though there were other children in the area. The ATV overturned and landed on top of him causing extreme head trauma.

- **ATV's are heavier than most people realize and a child may not be able to get it off them if they crash.**

A thirteen-year-old teen was riding an ATV, when the machine rolled down a hill, causing serious injury and trapping the child beneath it.

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. **None** of the four ATV-related child fatalities in 2012, were known to have been 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. SAFE KIDS Worldwide 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, ATVs, etc.
- Never allow children under 12 years of age to cross streets alone.
- Always model and teach proper pedestrian behavior.
- Children under 16 years of age 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 four to 15 years of age 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.
- Train and make available trained public safety staff (i.e., law enforcement and firemen) that, when requested by concerned citizens, can check to determine if child safety seats are properly installed and secure.

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	http://www.aap.org/
Children’s Safety Network.	http://www.childrenssafetynetwork.org
SAFE KIDS Worldwide.	http://www.safekids.org/
National Center for Injury Prevention and Control	http://www.cdc.gov/injury/index.html
Harborview Injury Prevention and Research Center.	http://depts.washington.edu/hiprc/
National Highway Transportation Safety Administration.	http://www.nhtsa.gov/
Missouri Coalition for Roadway Safety.	http://www.savemolives.org/
The Think First Injury Prevention Foundation	http://www.thinkfirst.org/
Missouri Department of Transportation	http://www.modot.org/safety/index.htm

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 recommended 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 potential tragedy that can be prevented. For additional information, or to order education materials, contact CTF at 573-751-5147 or visit 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.

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



UNINTENTIONAL FIRE/BURN FATALITIES

In 2012, 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 two and seven, and their father died in a house fire. While the exact cause of the fire was unable to be determined, the seven-year old was known to play with matches.

A four-year-old boy died when he started a fire with a cigarette lighter. He was in his room with the door closed and could not get out once the fire started. His father was in the shower and only made it out of the house in a towel.

- **Fire alarms can save lives.**

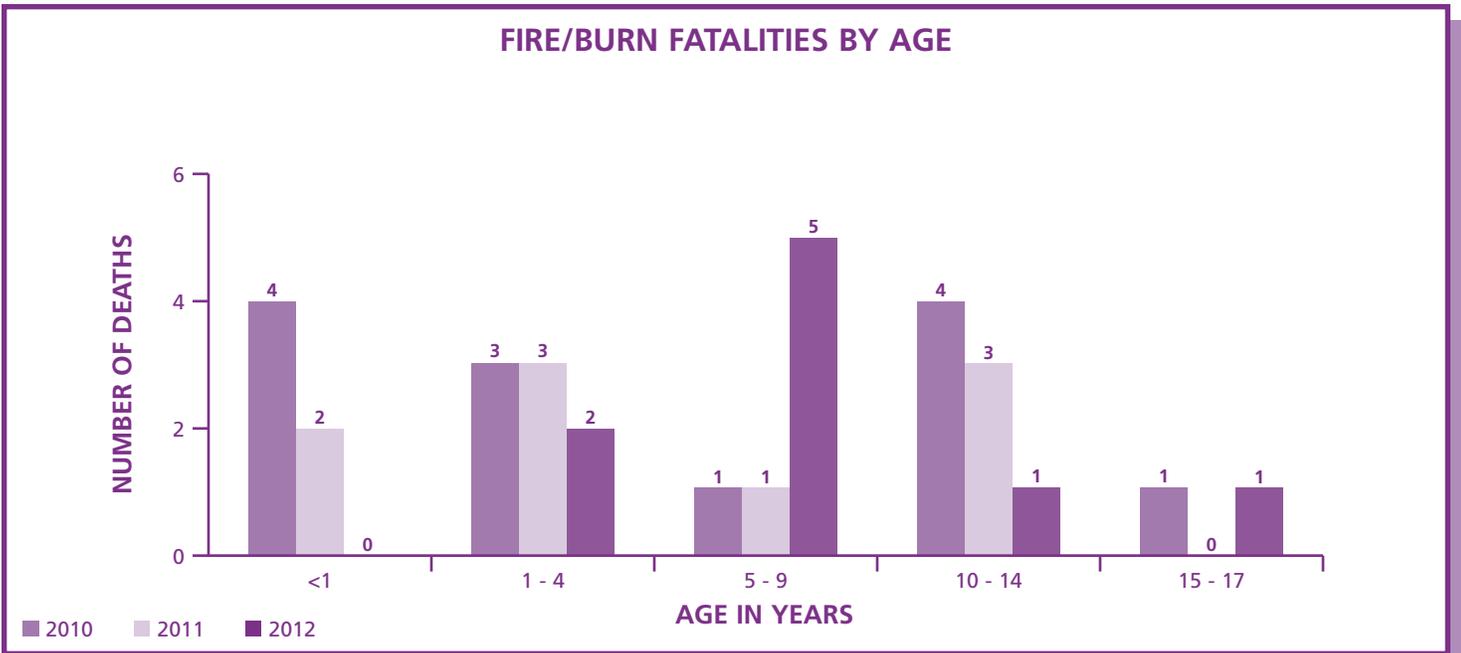
Two children, ages 12 and 16, died in a house fire that was thought to have been started by faulty electrical wiring. There were no smoke detectors in the home.

According to the SAFE KIDS Worldwide-US Fact Sheet (2013), fires and burns were the third leading cause of unintentional death among children one to nine years of age, in 2010, and fourth among ages 10-14. Approximately 308 children, age 14 and under, died in residential fires, nationwide. Children ages one to four were at much higher risk than any of the other age groups in children.

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

Fire/Burn Fatalities Among Children

Based on 2010 data, U.S. Fire Administration states that male children are at greater risk of death than females, and 57 percent of all child fire deaths occurred to those four years of age or younger. Of the **nine** fire/burn fatalities among children in Missouri in 2012, **two** 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.



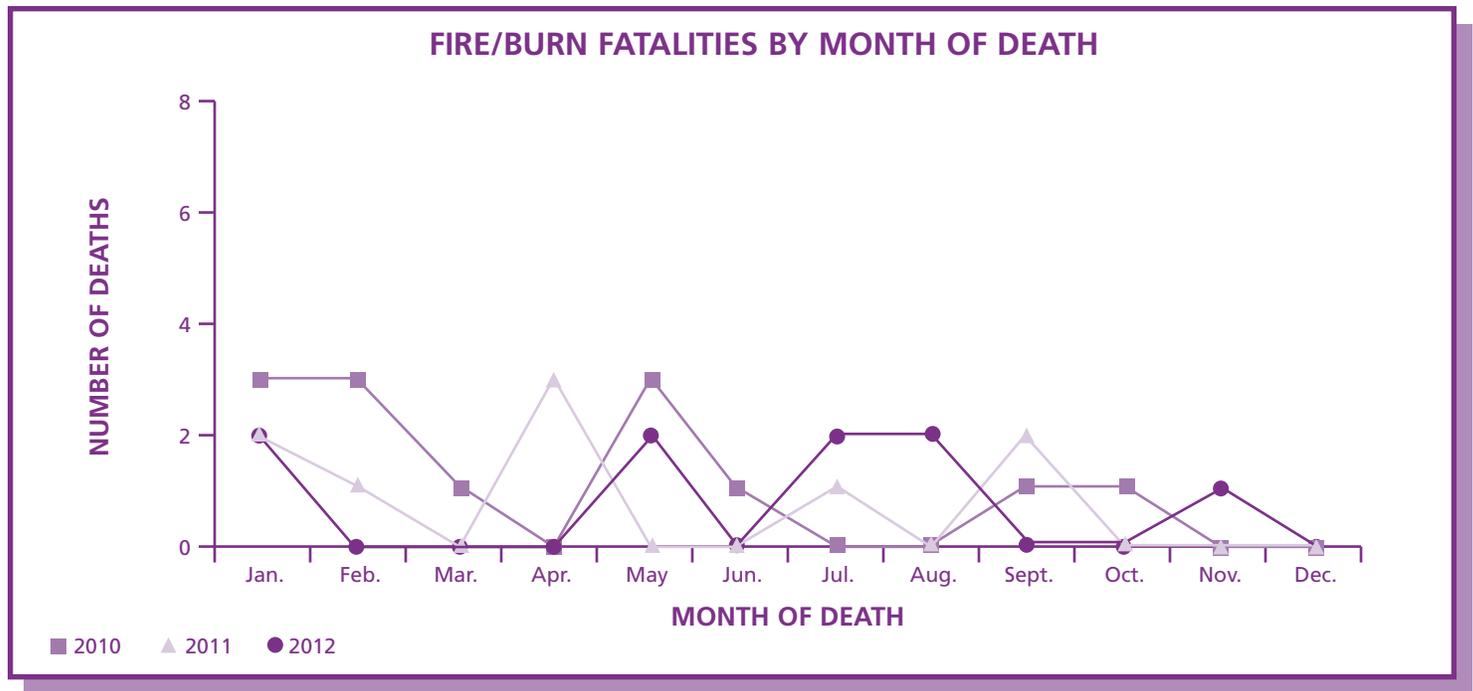
UNINTENTIONAL FIRE/BURN FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	10	4	3	WHITE	10	9	8
MALE	3	5	6	BLACK	2	0	0
				OTHER	1	0	1
	13	9	9		13	9	9

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. **Three** of the **nine** fire deaths in Missouri in 2012, were in rural areas.

None of the fatal Missouri fires reviewed by county CFRP panels in 2012, were reported to have smoke alarms present in the home. 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

The U.S. Fire Administration reported in 2001 that children playing with fire was the leading cause of child fire deaths. Most child-playing home structure fires begin in the bedroom, where children are often left alone to play. In Missouri in 2012, **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 U.S. 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	0
No	2
Unknown	7

FIRE STARTED BY	
Other Child	3
Unknown	2
No One	4

MULTIPLE FIRE DEATHS	
Yes	7
No	2

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

SOURCE OF FIRE	
Electrical Wiring	3
Cooking Stove	2
Lighter	1
Unknown	3

WAS STRUCTURE A RENTAL PROPERTY	
Yes	3
No	2
Unknown	4

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 residences, 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/>
- SAFE KIDS Worldwide <http://www.safekids.org/>
- Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc/>



UNINTENTIONAL DROWNINGS

In 2012, 12 children died from accidental drownings in Missouri.

Representative Cases:

- **Small children need constant supervision.**

A one-year-old child was outside with several siblings, while mother was inside her camper fixing supper. The child wandered off from the other children, opened a gate, fell into a swimming pool and drowned. The child was familiar with the pool, as the family went there often.

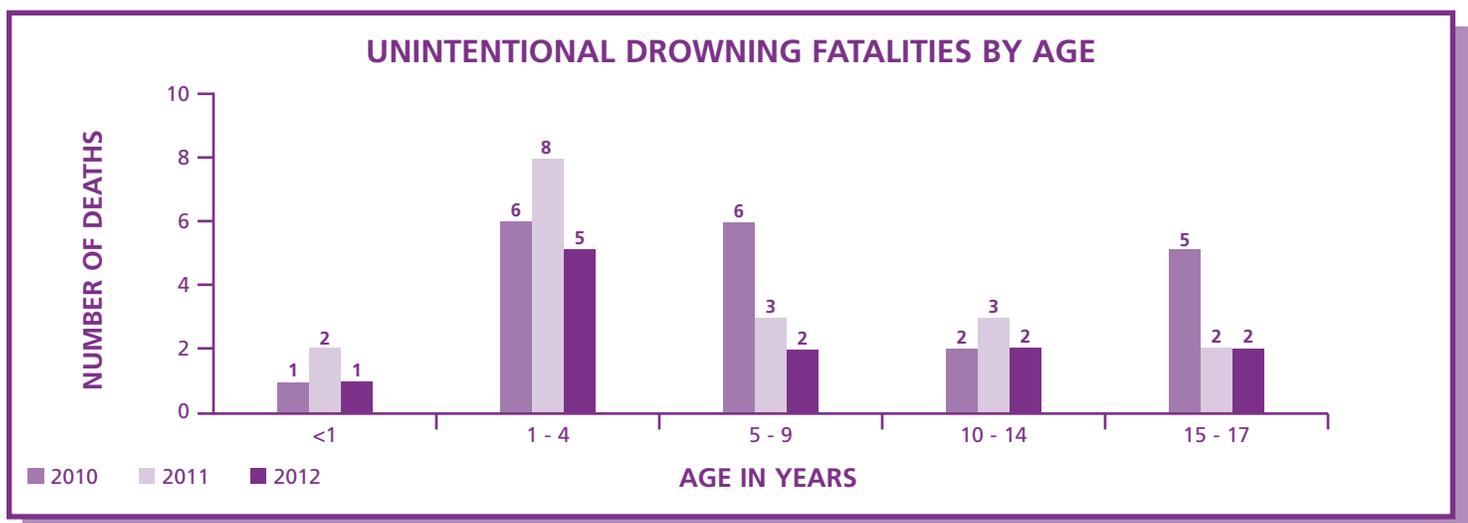
- **Children with disabilities should never be allowed near open water unsupervised.**

A six-year-old girl with various mental and physical disabilities was watching television, while her mother was upstairs cleaning. Her father and brother had gone for a walk. Without permission, the child also left the home and was found floating face down in a lake near the family's dock.

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

A fifteen-year-old boy and his friends were swimming in a lake. None of them were wearing personal flotation devices. One of the friends began having issues and the teen drowned saving his friend.

In the United States in 2010, drowning was the leading cause of unintentional injury-related death among children ages one to four, the second leading cause among children ages five to nine, and the third leading cause among children 10-14, according to the CDC. Of the **12** Missouri children who drowned in 2012, **six** (50%) were age four and under and **four** (33%) were ages five to 14.



DROWNING FATALITIES BY SEX AND RACE

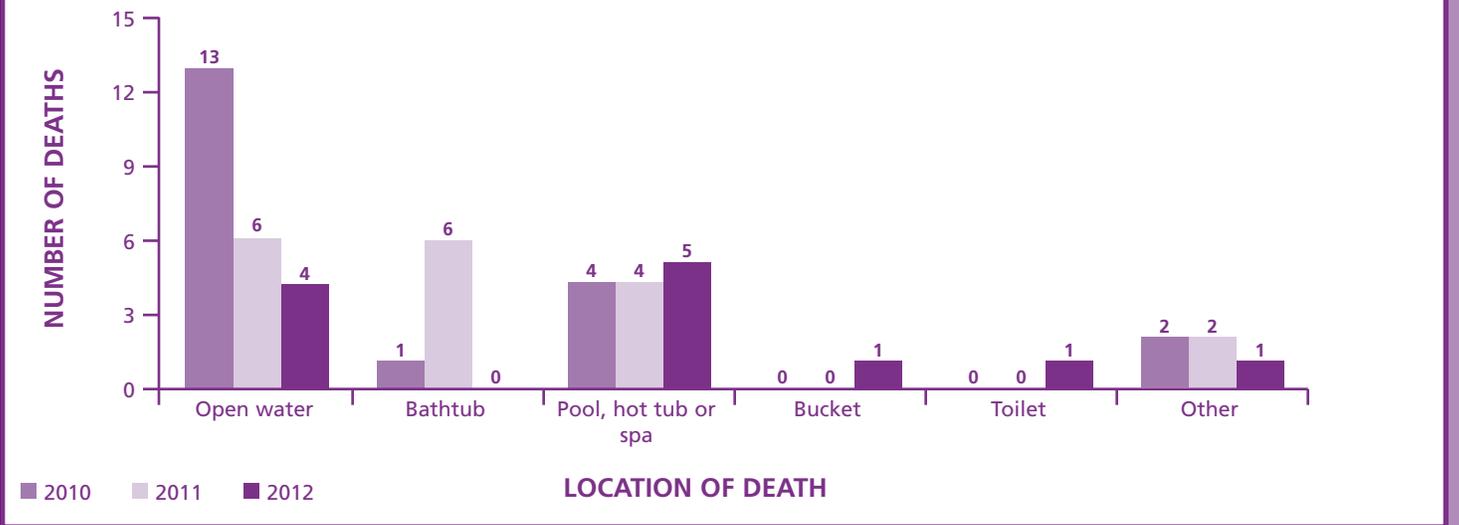
SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	2	2	6	WHITE	19	13	12
MALE	18	16	6	BLACK	1	5	0
	20	18	12		20	18	12

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 **12** Missouri children who drowned in 2012, **five** (42%) occurred in swimming pools, hot tubs or spas, **four** (33%) occurred in open water locations, **one** (8%) occurred in a bucket, **one** (8%) in a toilet and **one** (8%) occurred in an “other” location (in bed at residence).

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.

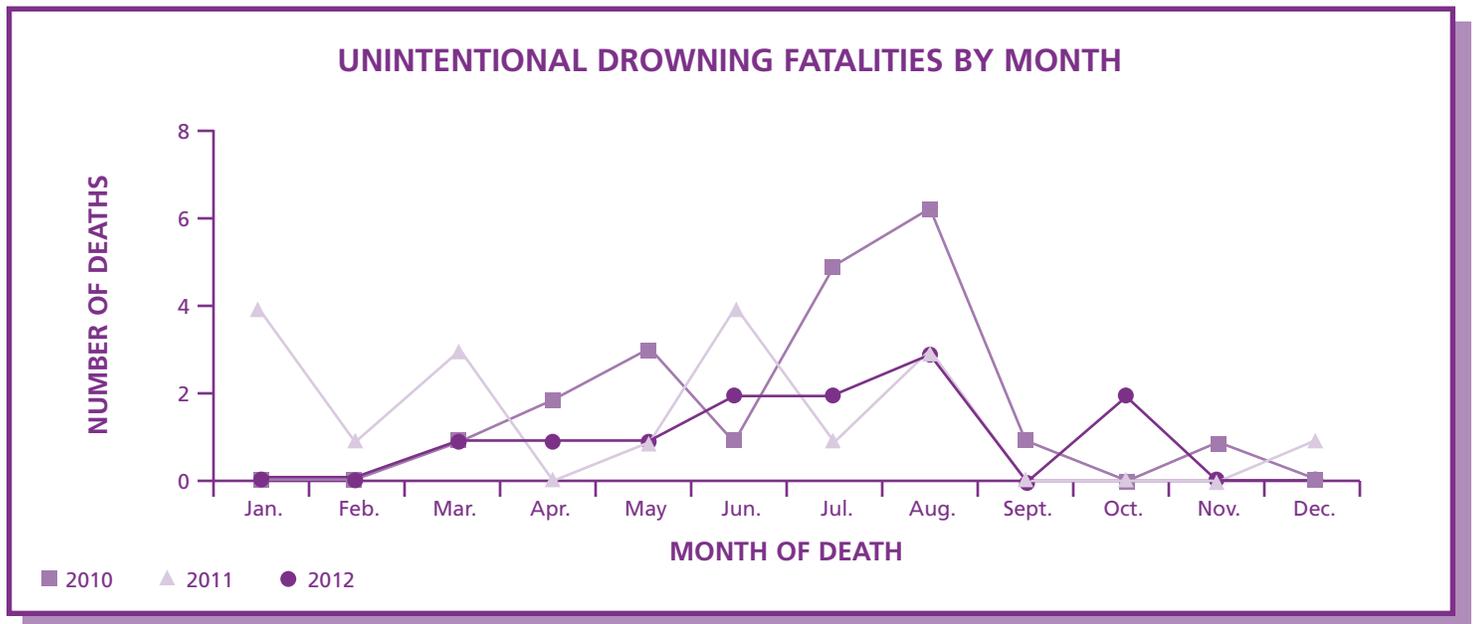
UNINTENTIONAL DROWNINGS BY LOCATION



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 2012, 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.
- Enroll children in swimming classes and water safety courses.
- 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 and are under direct adult supervision.
- 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:

- SAFE KIDS Worldwide <http://www.safekids.org/>
National Center for Injury Prevention and Control <http://www.cdc.gov/injury/index.html>
Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc/>
Consumer Product Safety Commission <http://www.cpsc.gov/>
Red Cross <http://www.redcross.org/>
The United States Lifesaving Association (USLA) <http://www.usla.org/>
Missouri State Highway Patrol - Water Patrol Division
. <http://www.mshp.dps.missouri.gov/MSHPWeb/WaterPatrol/index.html>

UNINTENTIONAL POISONINGS

In 2012, seven children died of unintentional poisoning*.

*Note: **Six** additional children died of poisoning, but **two** were suicide, **three** were considered child abuse and **one** was of an undetermined manner. These deaths will be discussed in the later sections of this report.

Representative Cases:

- **Parents need to ensure that their children use proper safety precautions.**

A 12-year-old boy was in the garage working on a truck and listening to the radio. Because it was storming outside, he had closed the garage door and was overcome by carbon monoxide fumes.

- **Teens often do not realize how deadly huffing can be.**

Upon coming home, a mother found her 15-year-old son deceased in the bathroom. There was no history of drug abuse. It was determined that the child died from acute pulmonary edema from huffing hairspray.

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

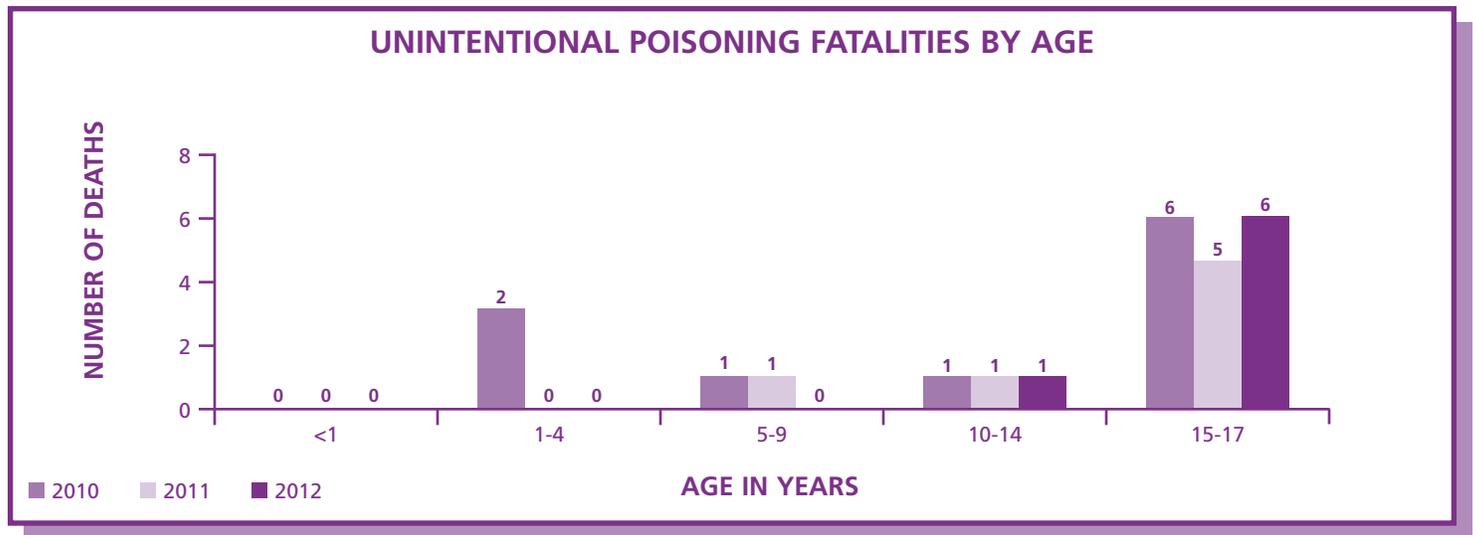
A 17-year old was witnessed taking xanax, oxycodone, methadone, marijuana and alcohol at a party. He went to a friend's home to sleep and was found unresponsive on the living room floor the next morning with a bottle of vodka beside him.

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 SAFE KIDS Worldwide, 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 2012, 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.

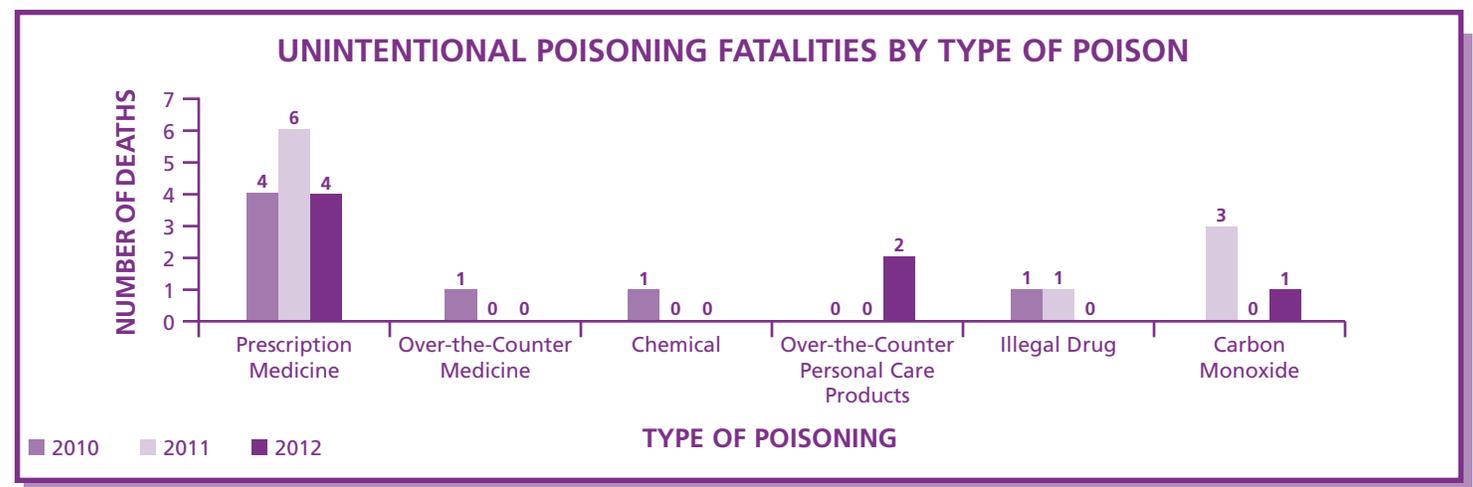
The Missouri Poison Center is an informational resource and provides statewide service 24-hours a day, 7-days a week, professionally staffed by nurses, pharmacists and physicians who are prepared to assist with exposures in all age groups. It is free service to the public and can be accessed, either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



Six Missouri teens, ages 15-17, died of unintentional poisoning in 2012, **two** died from the effects of huffing, and **four** overdosed from prescription medications from various sources.

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.
- Keep all medications where they are not readily accessible by children.
- Keep information for Poison Control and emergency services readily available.

For community leaders and policy makers:

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

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 2012, five Missouri 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.**

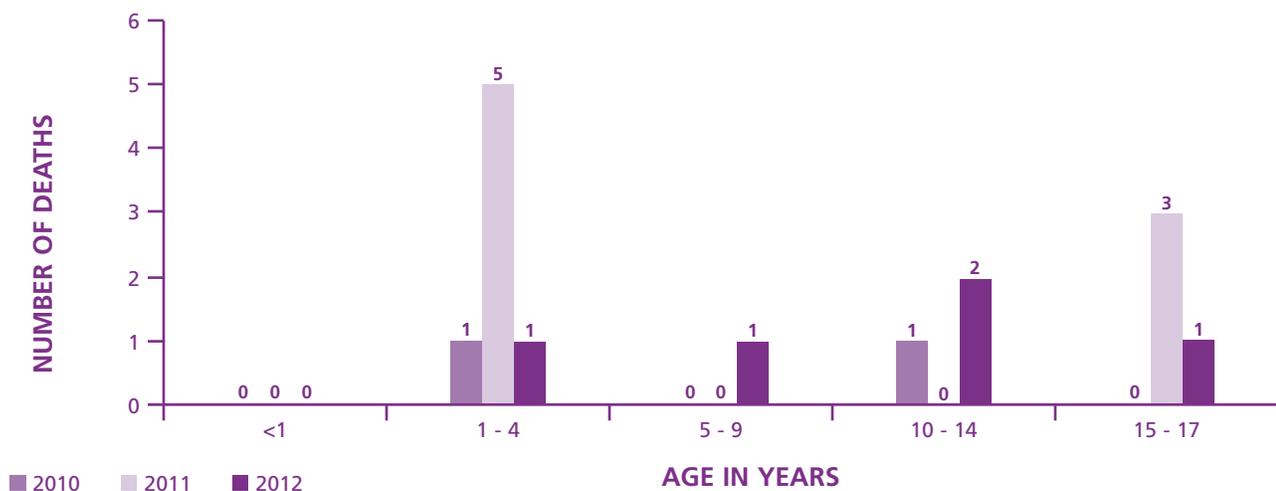
The father of a three-year-old child had a handgun in the seat of his recliner. The child got a hold of the gun when the father got up. The child accidentally shot himself in the chest, causing severe injuries to his heart and liver. The safety was off and the gun was loaded.

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

A 16-year-old boy brought a gun to a friend’s home. No parents were home at the time. The 16-year-old was pretending to rob the friend. There was a struggle over the gun and it accidentally discharged. Multiple weapons were present, as the group was on the way to a community event and felt carrying guns were necessary in case anyone “bothered them.”

According to the Center for Disease Control and Prevention, 98 children died in 2012, and another 1,625 children were injured through the accidental discharge of firearms 2012. In 2012, **five** Missouri children died of unintentional firearm injuries.

UNINTENTIONAL FIREARM FATALITIES BY AGE

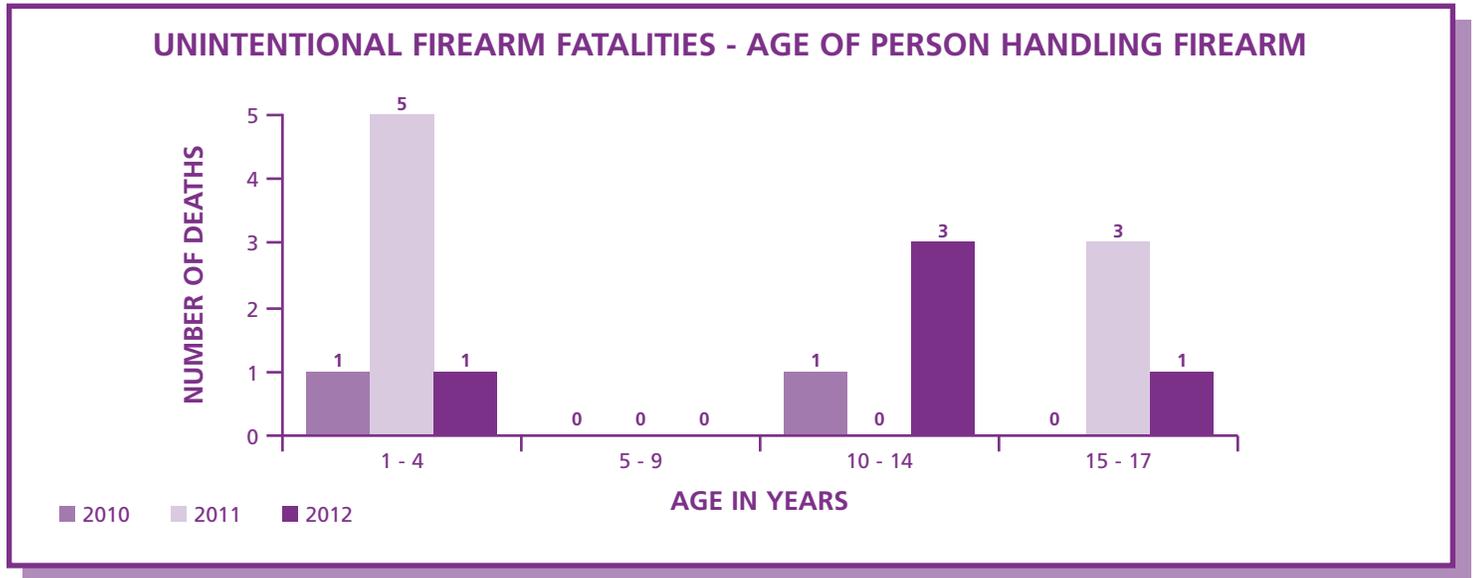


In the United States, males are far more likely to be injured and die from unintentional shootings than females. Of children 17 and under, who were killed by unintentional shootings in 2010, 85% were males.

In Missouri in 2012, all **five** of the victims of unintentional shootings were males.

Nationally, more than 70% of unintentional firearm shootings involve handguns. In 2012, **four** of the **five** unintentional firearm deaths among children involved a handgun, and **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 2012, **three** of the weapons were owned by family members, **one** was owned by a friend of the victim and the last **one** was supposedly found at a local skate park. **Three** of these weapons were stored loaded and unsecured, **one** was found in an open area and the last **one** was stored in a gun cabinet, but was out at the time, as it was being used for hunting.



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. **Four** of the **five** Missouri children, who died as a result of unintentional firearm injuries in 2012, 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.
- Parents should enroll children 11 years of age or older, in hunter safety and/or firearms educational courses.

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:

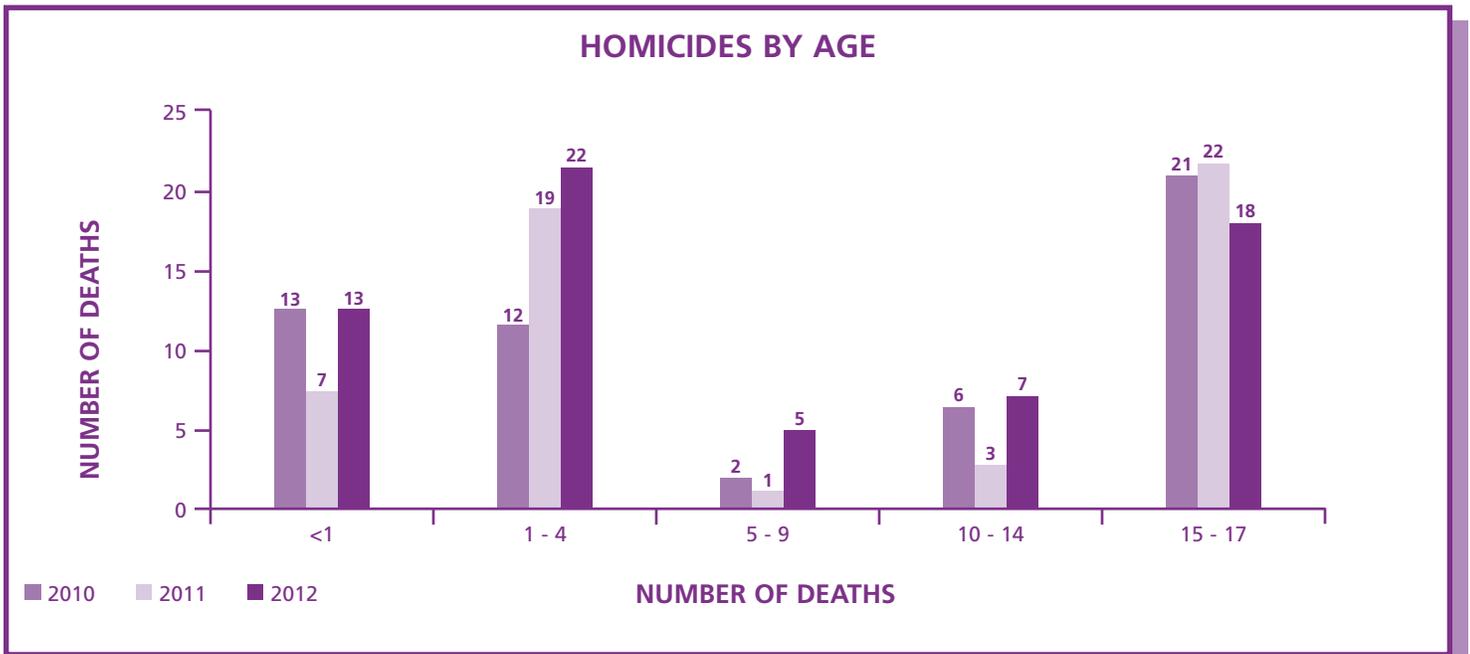
- SAFE KIDS Worldwide <http://www.safekids.org/>
- National Rifle Association “The Eddie Eagle GunSafe Program”
. <http://nrahq.org/safety/eddie/>
- Missouri Department of Conservation Hunter Education Program
. <http://mdc.mo.gov/hunting-trapping/learn-hunt/hunter-education>

HOMICIDES

In 2012, homicide was listed as the death certificate manner of death for 65 Missouri children.

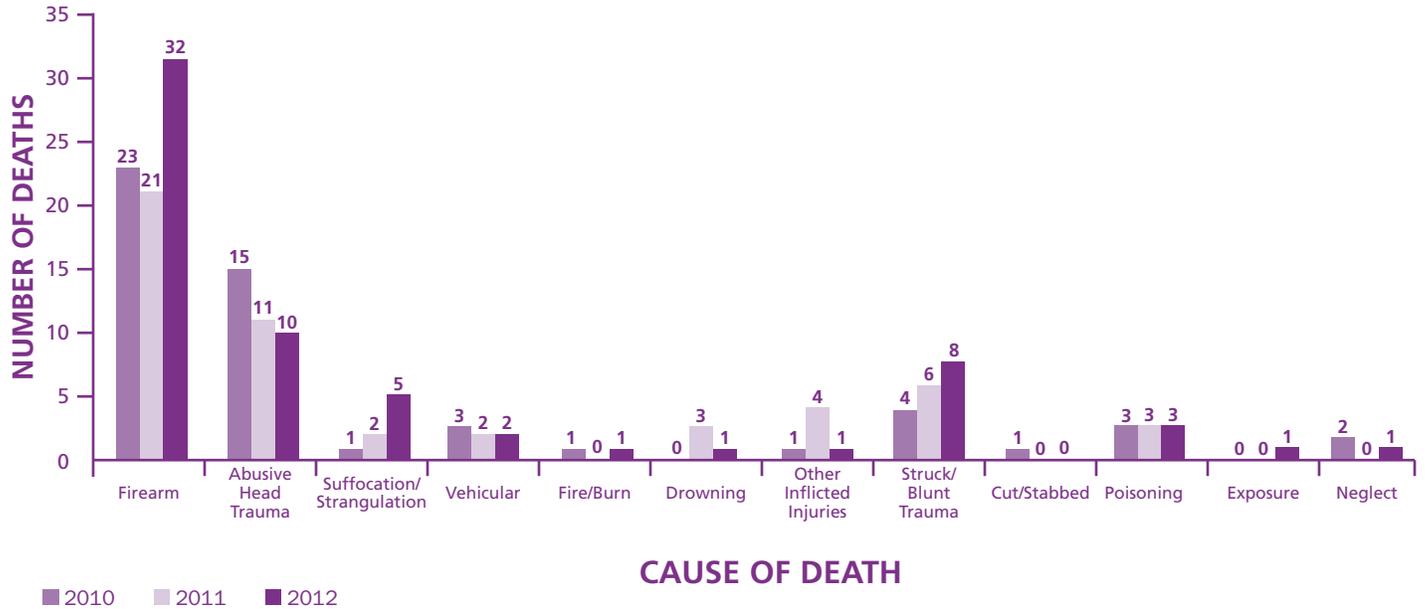
Fatal Child Abuse and Neglect: Child death resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent. This includes, but is not limited to, children whose deaths were reported as homicide by death certificate. In 2012, a total of 86 Missouri children were identified by CFRP panels, as victims of Fatal Child Abuse and/or Neglect; of those, 47 were reported by death certificate as Homicide, with 43 being considered “Child Abuse.”

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 22 such fatalities in Missouri in 2012. Of those, the CFRP panels identified four child deaths in which parental negligence was a contributing factor.



SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	20	17	27	WHITE	27	24	31
MALE	34	35	38	BLACK	23	25	29
				OTHER	4	3	5
	54	52	65		54	52	65

HOMICIDES BY CAUSE



when **STRESS** HEATS UP

keep your *Cool* Parent with Patience

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

www.ctf4kids.org Strong Families, Safe Kids

FATAL CHILD ABUSE AND NEGLECT

**In 2012, 86 Missouri children were victims of Fatal Child Abuse and Neglect.*
Of those, 43 were reported as homicide by Death Certificate.**

NOTE: Due to changes to the Child Death Review's Case Reporting System in 2011, 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.**

A one-year-old child was brought to the hospital, dead on arrival. Mother's paramour claimed the child had fallen off a coffee table the night before. Upon examination, it was found that the child had bruises to the head, pelvic area and back. The paramour was charged with 2nd Degree Murder.

A 911 operator received a call claiming that a three-year-old child had been struck and run over by a vehicle that had fled the scene. The child's injuries were not consistent with a vehicle accident. Mother's paramour confessed to beating the child using both his hands and feet. Both the paramour and mother were arrested and charged with 2nd Degree Murder.

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

A one-year-old child was crying uncontrollably. Father confessed to violently shaking the child and squeezing her face hard enough to leave fingerprints. He also bit her on the cheek trying to rouse her, after the shaking.

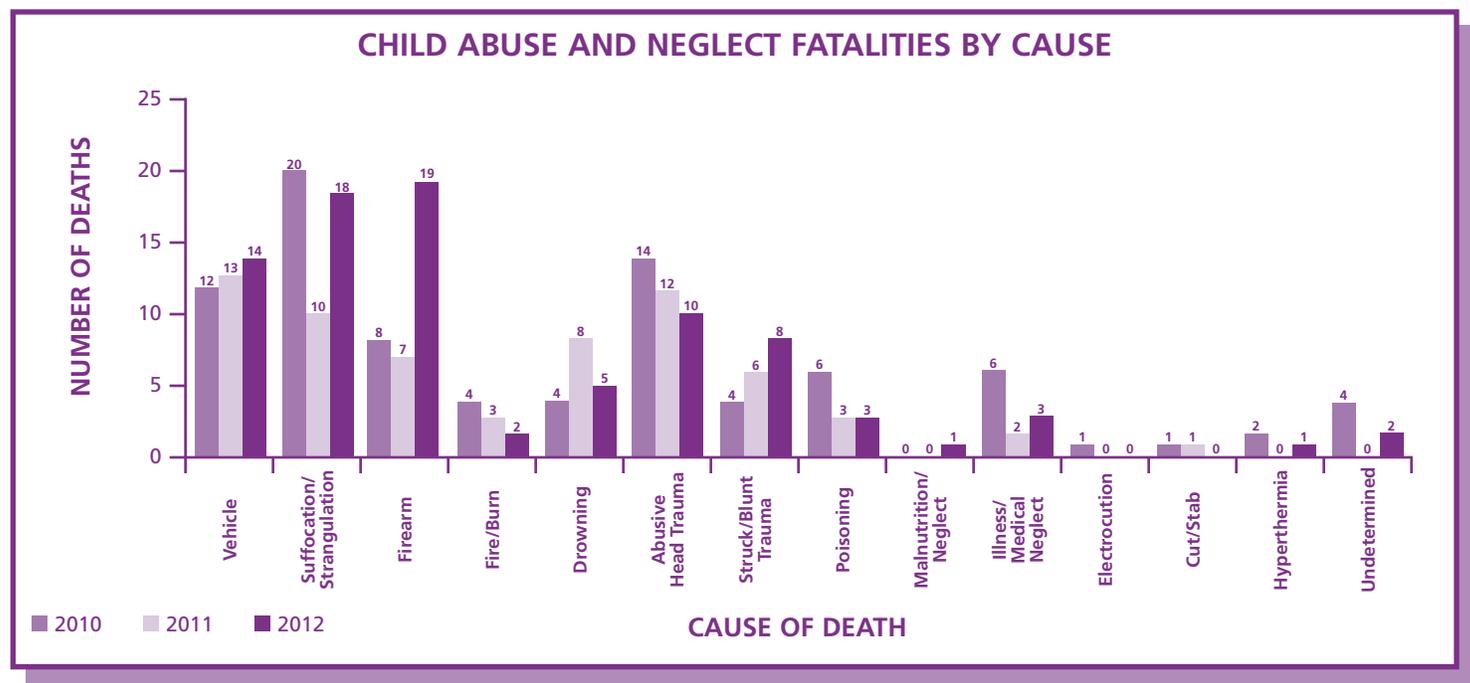
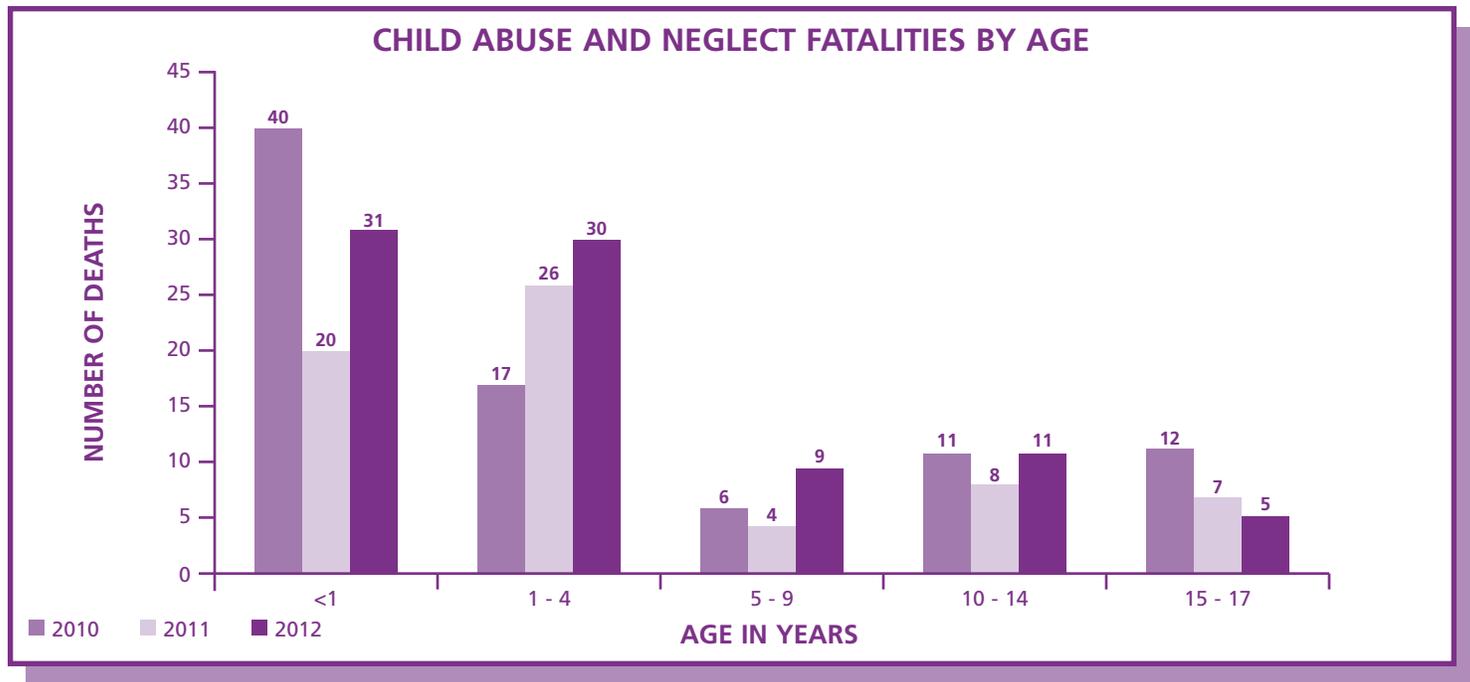
- **Domestic violence issues between adults often spills over onto children.**

A ten-month-old child died and his three-year-old sister was critically injured in a fire. Their father had locked the doors and set fire to their apartment, after shooting their mother and grandmother.

Mom killed three children, ages one, ten and eleven, and then herself. She had taken the kids with her to her ex-boyfriend's house, killed them in the van and then shot herself on the doorstep. She had sent an email to her ex-boyfriend that he received after the killing.

CHILD ABUSE AND NEGLECT FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	37	23	42	WHITE	61	43	55
MALE	49	42	44	BLACK	19	19	25
				OTHER	6	3	6
	86	65	86		86	65	86



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, lack of autopsy, inadequate investigation by law enforcement or child protection, misdiagnosis by a physician, or coroner determination of cause. 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 addressing 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.

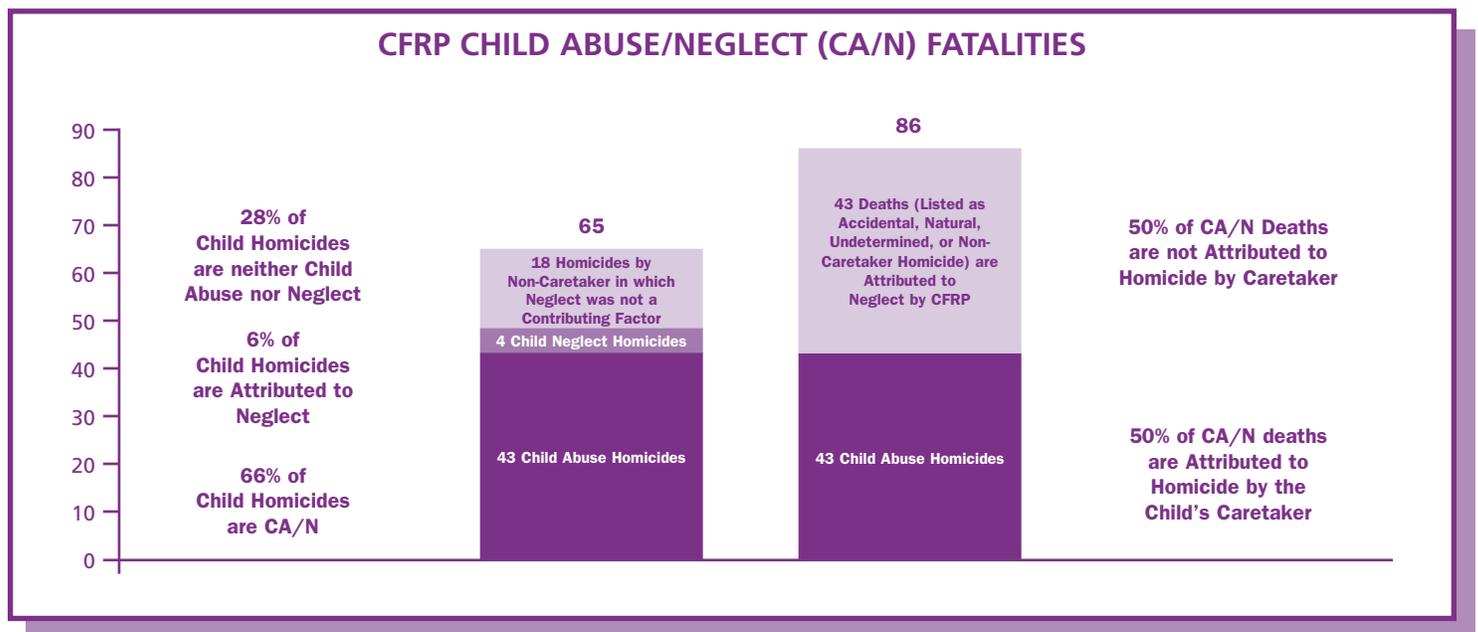
After a report of child abuse or neglect has been made, investigations that return sufficient evidence supporting the report are classified as *preponderance of evidence child abuse and neglect*. When there is sufficient evidence to prove that a child who died was abused or neglected, or when this finding 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.



FATAL CHILD ABUSE: INFLICTED INJURY

“Murder is no less a crime because a child, rather than an adult, is the victim.”

-Unknown

In 2012, 43 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 2012, **33** of the **43** Missouri children (77%) who died from inflicted abuse or neglect at the hands of a parent or caretaker were four years of age or younger. Of the **43**, **13** (30%) were infants under the age of one year.

In 2012, there was an alarming rise in the phenomenon of a parent or guardian killing their entire family, usually followed by their own suicide. There were **seven** such incidents in 2012, resulting in the deaths of **17** victims, **13** of which were children. **Three** of these incidents were carried out by fathers, **three** by mothers and **one** by an uncle. In **six** of these **seven** cases, the perpetrator killed themselves afterwards. The exact stressors which drove these caregivers to this extreme are unknown, but in **three** of the incidents the perpetrators were known to have prior mental problems, while the last **four** seemed to be driven by revenge against an ex-spouse or paramour.

FATAL CHILD ABUSE BY AGE	
<1 year	13
1-4 years	20
5-9 years	5
10-14 years	5
15-17 years	0

FATAL CHILD ABUSE BY SEX	
Females	20
Males	23

FATAL CHILD ABUSE BY RACE	
White	28
Black	10
Other	5

FATAL CHILD ABUSE BY CAUSE			
Firearm	13	Drowning	1
Abusive Head Trauma	10	Exposure	1
Blunt Trauma	8	Neglect	1
Suffocation	4	Vehicular	1
Poisoning	3	Fire/Burn	1

In 2012, **eight** 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.

Abusive Head Trauma

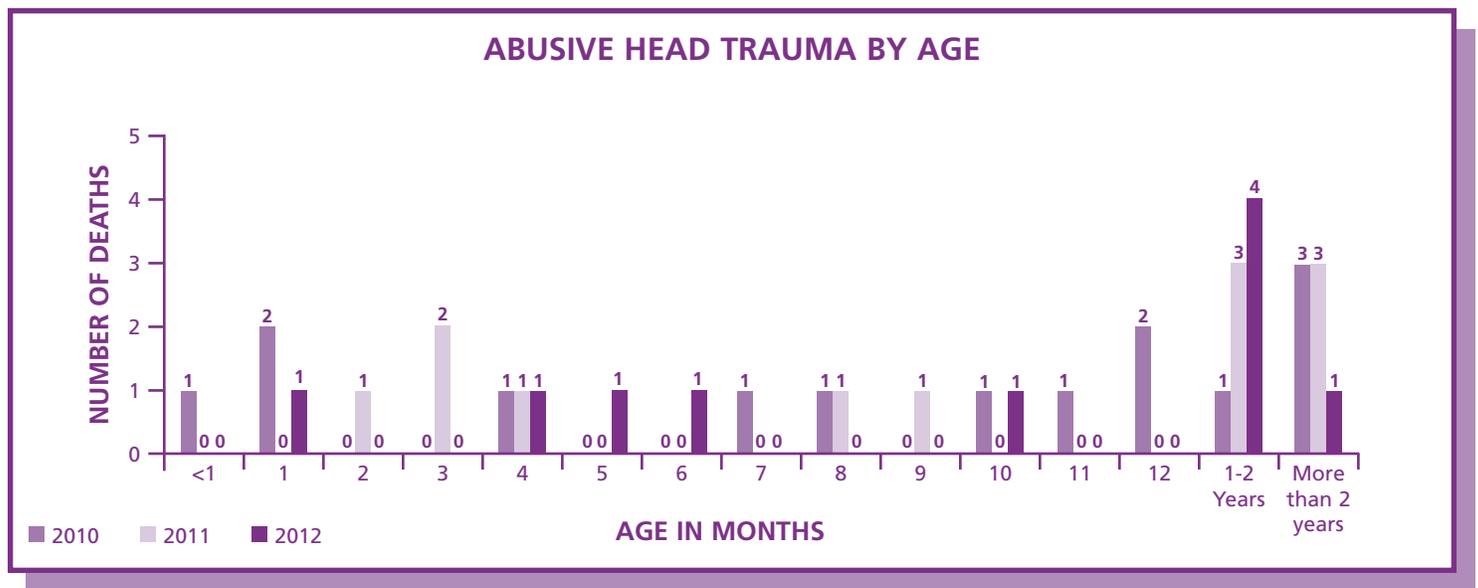
According to Harvard Medical School, in the United States, abusive head trauma is the second most common cause of death due to trauma in children and the cause of more than 95% of serious head injuries in infants less than one year of age. Of the **43** Missouri children who died from inflicted injury at the hand of a parent or caretaker, in 2012, **10** (23%) 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 injuries are 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. In 2012, 50% of the children who died from abusive head trauma were age one or older. It is unknown whether this is due to the better reporting of the deaths of the older children, or a lack of understanding that the prevention message of "Never shake a baby", also applies to toddlers.



ABUSIVE HEAD TRAUMA FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	9	6	3	WHITE	8	7	8
MALE	5	6	7	BLACK	4	4	2
				OTHER	2	1	0
	14	12	10		14	12	10

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 in infants does tend to increase on a daily basis, starting at about one to two weeks, getting worse for up to two to three months and then starts to decline. 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, much 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 **10** children who died of abusive head trauma, crying is listed as the triggering event in **three** deaths (NOTE: **Six** 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 2012, perpetrators of abusive head trauma fatalities in Missouri included **four** birth fathers, **four** mother's boyfriend, **one** aunt, and **one** birth mother.



FATAL CHILD NEGLECT: INADEQUATE CARE AND GROSSLY NEGLIGENT TREATMENT

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

Negligent treatment of a child is an act of omission, which is often fatal when due to grossly inadequate physical protection, withholding nutrition or health care necessary to preserve life. Child deaths resulting from grossly negligent treatment are frequently difficult to identify, because neglect often results in illnesses and infections that can be attributed to natural causes, 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, 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. Examples would be a child less than one-year old, who is left unattended in a bathtub with water running; or small children unrestrained while riding in a vehicle driven by an intoxicated parent.

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 2012, CFRP panels found that Grossly Negligent Treatment had contributed to the deaths of **86** Missouri children; of those **47** were designated as Homicide by death certificate – 43 were discussed in Fatal Child Abuse. The remaining **four** homicides are included in Other Homicides section. For data purposes, all 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	
4	Drowning	2	0	1	1	Two children died when they were unsupervised near a swimming pool. One child with Cerebral Palsy went unchecked for 17 hours and drowned when her feeding tube became dislodged. The last child had been given alcohol by an adult, before they went swimming.
1	Fire/Burn	0	0	0	1	One child died in a house fire and its sibling was critically injured. The smoke detector in the house were not working.
6	Firearm	3	0	2	1	Three children died from unsupervised access to firearms. Two teens died from suspected gang activity. One teen was killed while attempting to rob someone.
3	Illness/Natural Cause	1	0	2	0	One child died from maternal drug use, one child died from meningitis and one died from viral myocarditis. Both the latter children were ill for days and not taken to the doctor.
14	Suffocation	1	2	3	8	Ten children died from suffocation after sleeping with their parents. One died when a large feather pillow fell off the bed onto it while sleeping in a bouncy seat. One died from being wrapped tightly in a comforter and place face down on a bed and the last died from rebreathing after being placed in an unsafe sleep environment.
2	Undetermined	0	0	1	1	One child was found unresponsive with bruising on lower pelvis to vaginal area and both thighs. The autopsy was inconclusive. One child died from undetermined causes in a known meth house.
13	Vehicular	7	1	1	4	Two children in vehicle accidents years before, died from medical issues stemming from their injuries. Five pedestrians died from lack of proper supervision. Two children died when they were unrestrained during a vehicle crash. One child's car was struck by another vehicle driven by an intoxicated driver. One child died from a drag racing accident. One child died while unsupervised on an ATV. One child was backed over in the driveway.
Total Child Deaths = 43		14	3	10	16	

Investigation and Prosecution of Physical Child Abuse and Homicide

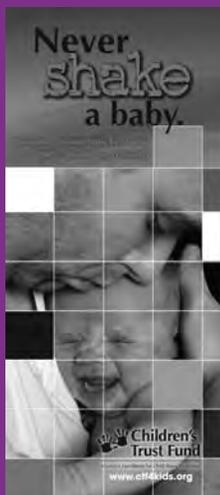
Most serious child abuse occurs in the privacy of the home, and seldom in the view of family or other witnesses. If evidence does exist, it is often concealed or destroyed. Perpetrators rarely fit the image of a criminal, and most jurors and judges find it hard to accept that any parent or caretaker 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, fatality 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.

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

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

SOMETHING WE CAN DO: PREVENTING ABUSIVE HEAD TRAUMA



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

The Children's Trust Fund (CTF), Missouri's Foundation for Child Abuse Prevention, provides SBS Prevention materials, including brochures and 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.

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

OTHER HOMICIDES

Of the 65 child homicides in Missouri in 2012, 22 (34%) 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 (82%) involved firearms.

Representative Cases:

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

An armed 17-year old and his 20-year-old accomplice broke into a home and put the homeowner in a closet. The homeowner had access to a loaded gun in the closet and shot the 17-year old in self defense. The 20-year-old accomplice was captured and charged with Second Degree Murder. No charges were filed against the homeowner.

Two young men, ages 17 and 21, were trying to rob a residence for drugs. A shootout resulted with the decedent and his friend both being killed.

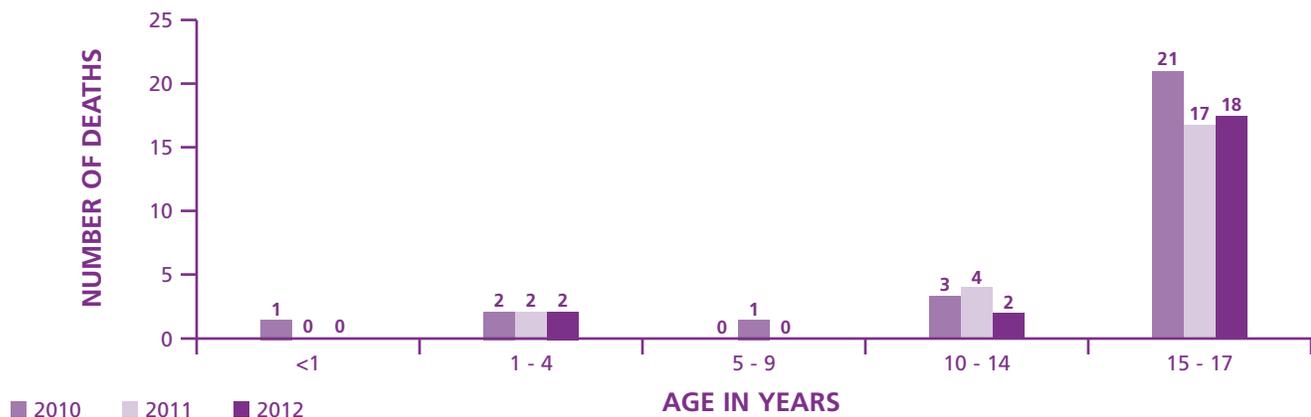
- **Gang violence and reckless gun play can be fatal to bystanders.**

A four-year old was in a carseat in the backseat of his father’s vehicle that had broken down. Another car drove by, whose occupants started shooting at the vehicle and a bullet struck the child in the head. The shooter remains unidentified.

A 14-year-old girl was standing outside with a group of teens. Someone ran up and shot into the crowd striking the teen. Accounts vary on events leading up to the shooting. It is unclear who the intended victim was.

A sixteen-year old was standing on the street with a bunch of people. A car full of teens pulled up, acting friendly at first, then fired shots at the group outside the car. Five people were shot, two fatally. It is suspected that the cause was a feud between gang members.

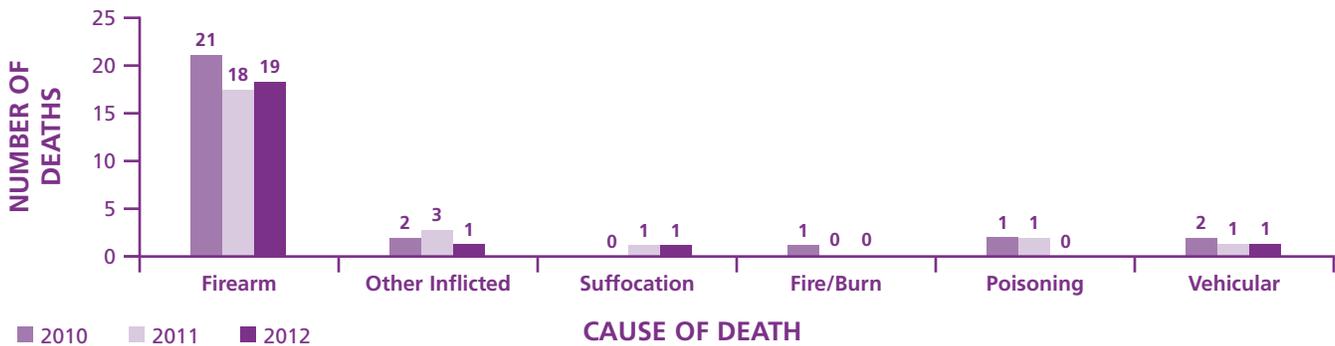
OTHER HOMICIDES DEATHS BY AGE



OTHER HOMICIDES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	5	7	7	WHITE	8	8	3
MALE	22	17	15	BLACK	17	15	19
				OTHER	2	1	0
	27	24	22		27	24	22

OTHER HOMICIDES BY CAUSE



Seventeen of the deaths were related to youth violence. **Ten** deaths were caused by the victim being involved in harmful behaviors which put them at risk, such as gang membership, illegal activities or involvement with drugs. 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 2009, 16% 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/violenceprevention>
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/>
Stop Bullying <http://www.stopbullying.gov>

SUICIDES

In 2012, 20 Missouri children committed suicide.

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

- D. L. Conway

Representative Cases:

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

A 17-year-old boy sent a text message to a girl that he was going to kill himself at 7:00 a.m. She did not get the message until nearly 7:30 a.m., at which time she called the police. His brother found him in his room dead from a shotgun wound to the head. The child had talked of suicide the day before. His mother had talked to him and “thought he was okay”.

A 17-year-old girl with a history of mental and emotional issues, and self-harming behaviors, was in a store with her mentor. She stole a bottle of aspirin and downed most of them. The mentor thought she was eating candy. The child died of aspirin poisoning.

- **Parents should monitor their children’s online activity.**

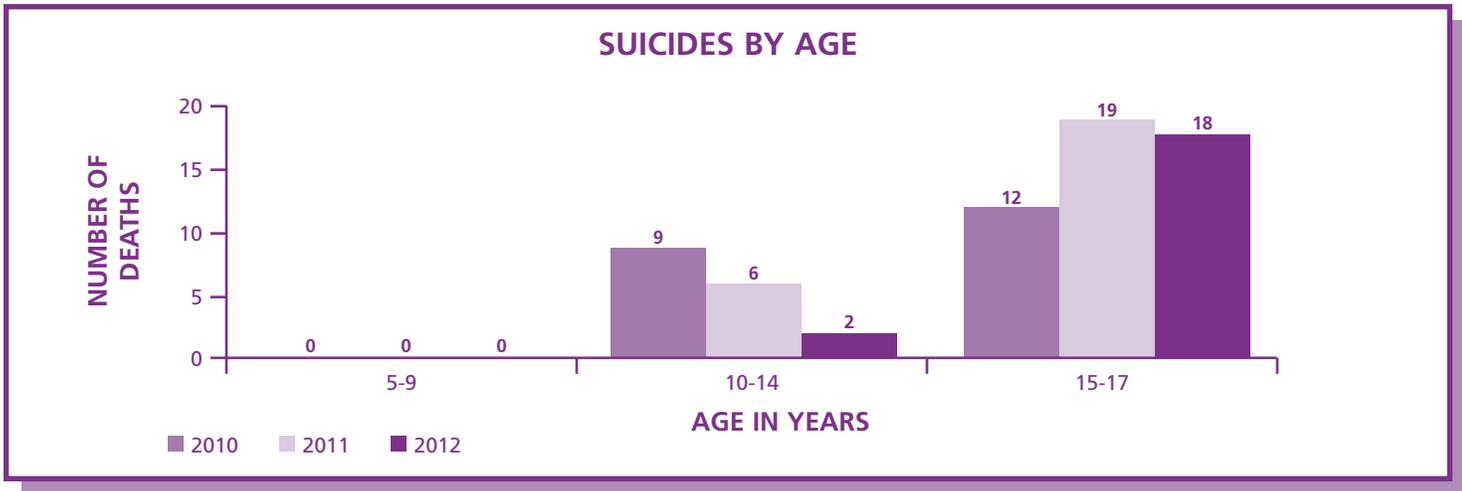
A 17-year-old boy died from a lethal amount of drugs. He had made a suicide pact with a girl in Canada. When he was discovered it was too late. There was no known history of suicide attempts or idealization, but he was bipolar with ADHD. The girl did not go through with the pact.

A 17-year-old boy was found hanging from a rope, by his father. He had a history of depression, abusing alcohol and drugs. His older brother had committed suicide previously. He had posted his intentions on Facebook the day before committing suicide.

- **Bullying and other social pressures can drive a child to suicide.**

A 15-year-old girl was found by her father, at 6 a.m., hanging from the rafters in her room. Her parents and school officials were aware she was being bullied at school, but there were no indications she was suicidal. There was no actual suicide note, but the girl wrote nasty insults to herself on her mirror, prior to hanging herself.

National Center for Injury Prevention and Control statistics report that from 2000 to 2010, 300 to 450 kids ages 12 to 15 killed themselves every year — about one a day. Suicides, in general, claim the life of someone in the United States every 15 minutes. According to Missouri Department of Mental Health, for over a decade, the suicide rate in Missouri has been higher than the national rate. In 2010, Missouri’s suicide rate was the 22nd highest in the nation. Suicide rates for older adolescents and young adults ages 15-24 had decreased since peaking in the early 1990s, but have again been on the increase since 2009. In 2012, **20** children died of self-inflicted injuries; **18** were ages 15-17; the remaining **two** were children ages 10-14.

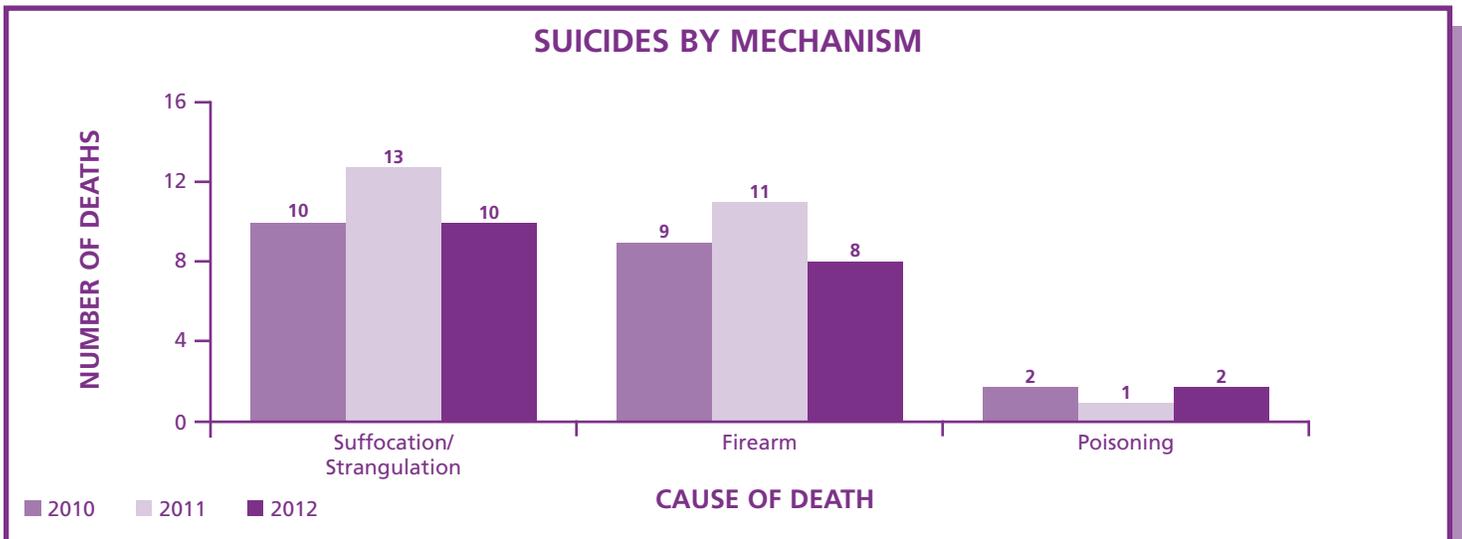


The Missouri Student Survey in 2012, found that 12.4% of all Missouri high school students and 15.7% of female high school students reported they seriously considered suicide in 2012. Many more students attempt suicide than those that succeed. In 2012, there was one successful suicide for every nine attempts. The suicide attempt rate for females ages 15-24 is more than double the rate for all Missourians, but more males succeed than females. Overall, males took their lives at nearly four times the rate of females, representing 78% of all suicides in Missouri.

SUICIDES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	7	6	4	WHITE	20	23	17
MALE	14	19	16	BLACK	1	1	3
				OTHER	0	1	0
	21	25	20		21	25	20

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



Suicide is rarely a spontaneous decision and most people give warning signs that they are contemplating taking their own lives. Of the **20** Missouri children who committed suicide in 2012, **11** had displayed one or more warning signs.



While suicide is rarely spontaneous, many times it is brought about due to a personal crisis. **Thirteen** of the children who committed suicide in 2012, had a recent history of one or more personal crises.

RECENT HISTORY OF PERSONAL CRISES			
Drug or Alcohol Use	8	Parent’s Divorce/Separation	1
Argument with Parent/Caregivers	3	Bullying as a Victim	1
Problems with the Law	3	History of Running Away	1
Breakup with Boyfriend/Girlfriend	2	History of Self Mutilation	1
Argument with Boyfriend/Girlfriend	2	Physical Abuse/Assault	1
Suicide by Friend or Relative	2	Involvement with the Internet	1
History of Family Discord	1	None Known	1

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 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

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 – A Collaborative Effort – Bringing a National Dialogue to the State, Revised 2012, 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:

- Maintain open lines of communication with a willingness to listen, understand and discuss your children's concerns.
- 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.
- Maintain contact information for local mental health resources.

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
Offers suicide prevention training to school personnel.

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

American Foundation for Suicide Prevention <http://www.afsp.org/>

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

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

Children’s Safety Network: Suicide Prevention Resource Guide 2012
. <http://www.childrenssafetynetwork.org/sites/childrensafetynetwork.org/files/YouthSuicidePreventionResourceGuide2012.pdf>

Center for Disease Control and Prevention–Suicide Prevention
. http://www.cdc.gov/violenceprevention/pub/youth_suicide.html

“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.”

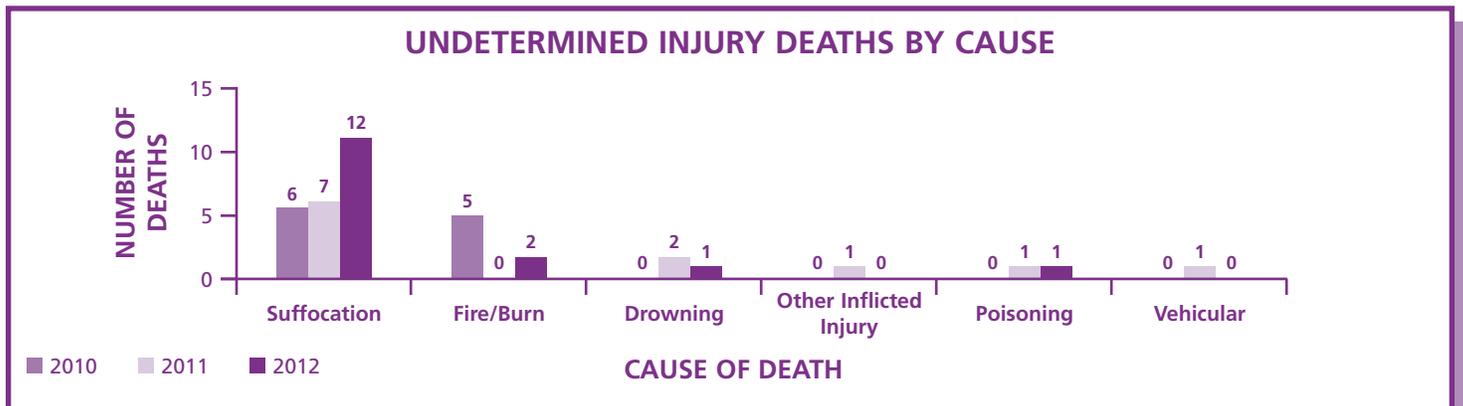
-National Strategy for Suicide Prevention

UNDETERMINED INJURY

In 2012, 16 children died of injuries whose manner could not be determined.

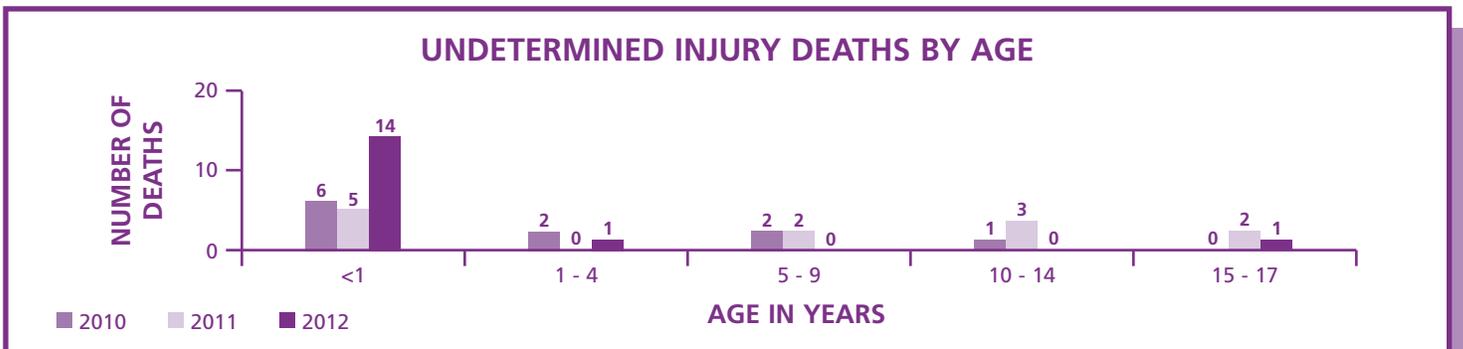
When a child dies, the cause of death is often evident, but the actual intent might not be readily determined. For example, when a teenager dies from suffocation, poisoning, pedestrian injury or vehicle crash, the difference between the event being intentional or unintentional is sometimes impossible 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 2012, there were **16** injury deaths of undetermined manner.



UNDETERMINED INJURY DEATHS BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	6	4	8	WHITE	9	9	6
MALE	5	8	8	BLACK	1	1	9
				OTHER	1	2	1
	11	12	16		11	12	16



THE PRACTICAL APPLICATION OF CHILD FATALITY REVIEW: PREVENTION OF CHILD DEATHS

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.

State and local CFRP panels 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 CFRP 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 and has expanded to 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 CFRP 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 CFRP 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?)** The national-level, standardized case reporting tool and Internet-based data collection system is improving and protecting the lives of all children and adolescents on both the state and national level. The collection of uniform data allows for the opportunity to identify valuable state and 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 fatality 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 SAFE KIDS Worldwide and the National Center for Injury Prevention at CDC and the American Academy of Pediatrics provide research and prevention information.
- **Implementation of strategies where they currently do not exist. (How do you do it?)** Outcomes for prevention initiatives are generally functions of structure and duration. Short-term, emergency and educational programs are effective in the short term; unfortunately, such programs are usually based on the effort and enthusiasm of a few individuals and a limited funding source. Prevention initiatives that are integrated into communities as state systems are sustainable and effective in the long term. Examples include state laws that require proper restraints for child passengers in motor vehicles and helmets for children riding bicycles. In many areas, schools include safety education for children and health care providers who are in a unique position to assist in the prevention of child maltreatment, and actively promote health and safety for children. Many state and local entities responsible for licensing child care providers are mandating education on safe sleep for infants and toddlers, and prevention of child abuse, including abusive head trauma as part of their curricula.

Resources:

American Academy of Pediatrics	http://www.aap.org/
Children’s Safety Network	http://www.childrenssafetynetwork.org/
Consumer Product Safety Commission	http://cpsc.gov/
Harborview Injury Prevention and Research Center	http://depts.washington.edu/hiprc/
Missouri Child Fatality Review Program	http://www.dss.mo.gov/stat/mcfrp.htm
Missouri Child Death Pathologists Network	http://www.dss.mo.gov/stat/cpn.htm
Missouri Children’s Trust Fund	http://ctf4kids.org/
Missouri Prevention Center	http://education.missouri.edu/orgs/prevention/
National Center for Injury Prevention and Control	http://www.cdc.gov/injury/index.html
National Center on Shaken Baby Syndrome	http://www.dontshake.org/
National Center for Review & Prevention of Child Deaths	http://www.childdeathreview.org/
SAFE KIDS Worldwide	http://www.safekids.org/

PREVENTION FINDINGS: THE FINAL REPORT

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

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

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

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

The death of a child is a sentinel event that captures the attention of the community, creates a sense of urgency and a window of opportunity to respond to the questions, “What can we do?” County-based prevention activities serve to raise awareness, educate parents and caretakers, influence public policy and involve the community in prevention initiatives that protect and improve the lives of children. In 2012, 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 car full of teenage girls was parked on the railroad tracks telling ghost stories. When they heard the train, their car would not start and some of the girls could not get out of their seatbelts. Three teens died. The county plans to step up the enforcement of laws related to railroad tracks crossings and implement a plan to speak at schools about railroad crossing safety.
- Parents took their one-month-old child to bed, falling asleep with the baby cradled in her mother’s arms. They awoke to find the child under the blankets, deceased. The county plans to run a media campaign on safe sleep practices. A local billboard company volunteered to support the campaign by providing a roadway billboard.

Legislation, Law or Ordinance:

- A seven-year-old boy in the custody of his father, was found dead by firefighters in his bedroom in a charred trailer. Investigation found that the cause of the fire was arson, and the boy had been dead before the fire was started. The father was arrested and charged with murder, arson and child abuse. The CFRP panel recommended amendments to existing laws or new laws be passed to provide

a mechanism for the checking of criminal or abuse and neglect history of individuals in all cases involving custody or visitation rights of a child. They are also seeking a modification of local court rules relative to the appointment of Guardian Ad Litem in cases, or the triggering of more in-depth reviews of history of persons seeking custody of a child.

- Two children, ages eight and fourteen, were swimming near a dock and were electrocuted from improperly grounded equipment on the dock. The CFRP panel recommended changes to local regulations and/or ordinances concerning proper electrical maintenance around docks.

Community Safety Project:

- A fourteen-year-old, unrestrained passenger died when the vehicle she was riding in was struck by another car on a rural Missouri road. The other vehicle had traveled off the side of the road, overcorrected and struck the child's car. Both vehicles unsuccessfully tried to avoid the collision. In response, the CFRP panel arranged to have their state legislator meet with the Missouri Department of Transportation to discuss adding a shoulder to that section of the road to make both it and the nearby intersection safer.
- After numerous sleep-related infant fatalities in a greater metropolitan area, the surrounding counties CFRP panels recommended creation of a community safety project to focus attention on the problem. One of the larger metropolitan hospitals initiated a *Safe to Sleep* campaign to expand upon the successes of the previous *Back to Sleep* campaign.

Educational Activities In School:

- A seventeen-year-old boy with a history of drug problems was found in the park with a self-inflicted gunshot wound to the head. The local juvenile officer worked with the area schools to ensure information was available on both youth substance abuse and suicide prevention.
- A seventeen-year-old boy was at a party when he was shot by a fifteen-year-old boy. It is suspected that gang activities had something to do with the incident. The local CFRP panel recommended educational activities in local schools, that emphasized working on gang and other violence-related issues. A community Silence the Violence program has been enacted to help bring the issues to the forefront and let those causing the violence know that their actions will not be tolerated.

Changes In Agency Practices:

- A four-year-old child died from abuse by his step-mother. There had been multiple reports in three counties. The CFRP panel recommended review and possible changes in how child protective services follows abuse reports from county to county, as well as education in how to interview potential victims.

Education – Parent Education:

- An eleven-year-old child was riding an ATV in a field near his home. He attempted to jump a hill in the field, when he was thrown from the ATV, which then landed on the boy. There were other children in the area, but no adults and the child wasn't wearing any protective gear. The panel arranged to have a newspaper article published on the laws governing ATV use by minors, as well as classes at the local schools about the dangers of riding ATV's.

- A three-month-old child died while sleeping with his parents on a mattress on the floor. He was found under the covers, face down against the wall. The CFRP panel plans to contact local medical providers and provide educational materials for them to share with pregnant patients, as well as contact local medical facilities to ensure that they are providing new parents with information on safe sleep practices. They are also working with a local child advocacy group that plans to provide a billboard on safe sleep, make arrangements for WIC to begin giving information to prenatal clients and provide programs for breastfeeding moms.
- A nine-year-old child, who had recently gotten over the flu, took ill again and passed shortly thereafter. The autopsy found that the child died of Reyes Syndrome, which is a disease of unknown causes, which seems to occur when products containing aspirin are used in conjunction with a viral illness. The CFRP panel is working with the local public health department to get information on Reyes Syndrome to parents of young children.

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

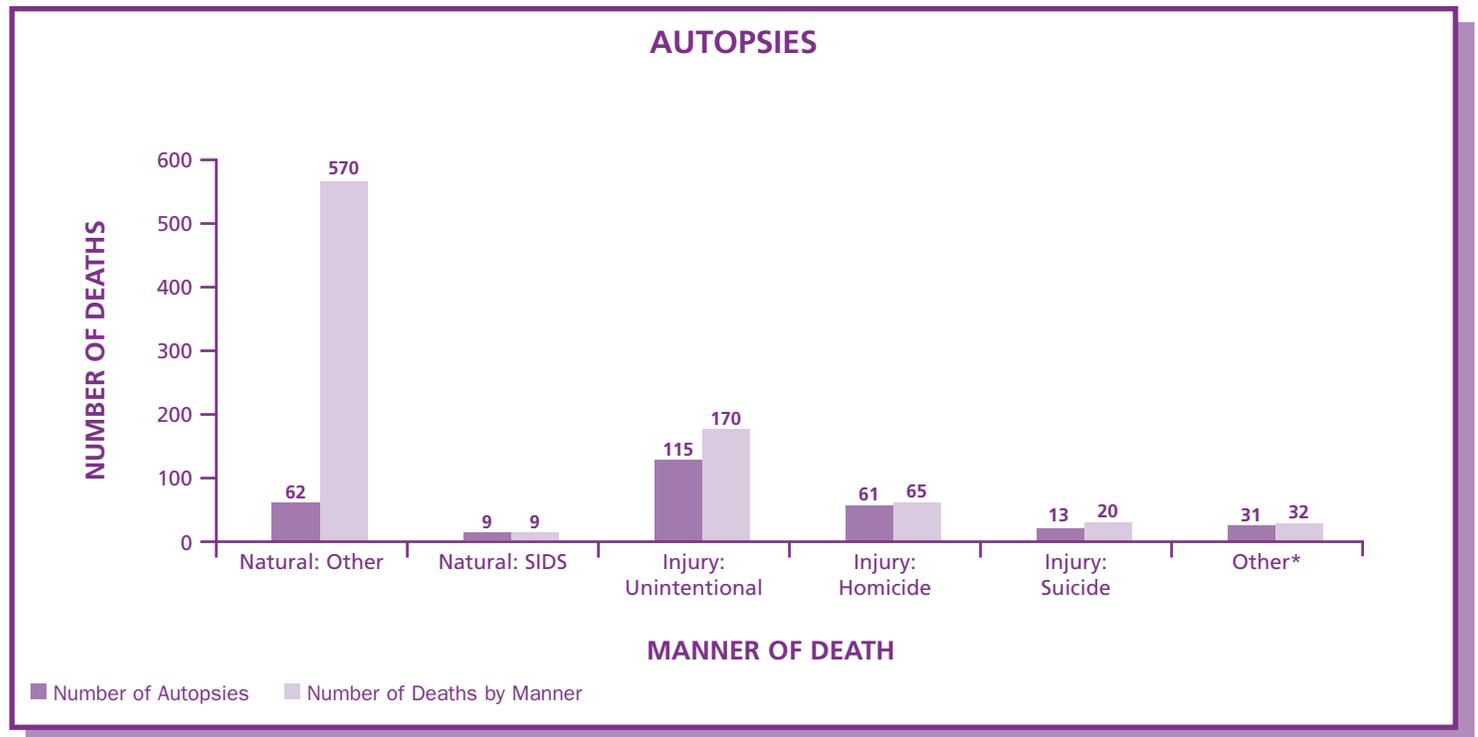


APPENDICES

APPENDIX 1. AUTOPSIES

In most cases, information gathered from an autopsy is a critical component in accurately determining the medical cause and manner of death, especially in the case of sudden unexpected infant deaths, but also provide answers to aid in a family’s grieving process or support adjudication of criminal cases. Missouri state statute, 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”. The need for all other child autopsies are based upon the circumstances surrounding the death, and determined by coroners and medical examiners in consultation with their local Certified Child Death Pathologist.

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. 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 CFRP panel (114 counties and City of St. Louis).

The county CFRP 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.

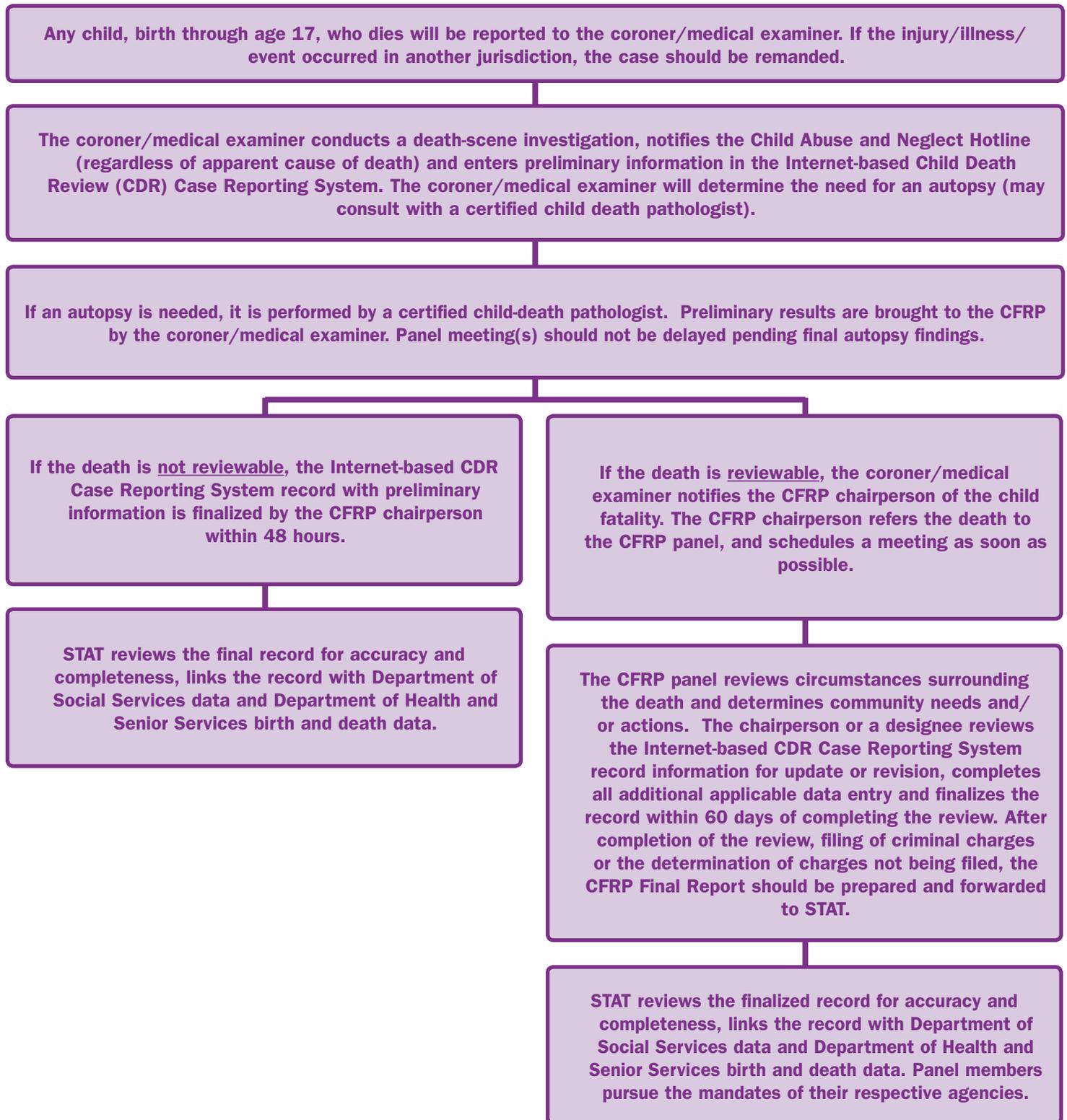
CFRP panels must use uniform protocols and the NCRPCD Internet-based Case Reporting System for data collection.

Certified child-death pathologists must perform child autopsies.

Knowingly violating reporting requirements is a Class A misdemeanor.

When a child's death meets the criteria for review, activation of the CFRP 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 CFRP 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 2010-2012

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Adair	1	3	0	1	3	0	0	2	0
Andrew	2	1	1	1	1	0	1	1	0
Atchison	0	0	0	0	0	0	0	0	0
Audrain	4	0	3	1	0	1	2	0	2
Barry	2	5	6	2	3	1	2	1	5
Barton	1	1	1	1	1	1	1	0	1
Bates	3	2	1	2	2	0	1	2	0
Benton	2	2	3	2	1	3	2	2	3
Bollinger	0	2	1	0	0	1	0	0	1
Boone	27	26	27	3	6	8	3	3	5
Buchanan	20	19	13	10	7	6	8	6	5
Butler	8	5	9	1	4	7	1	3	6
Caldwell	2	1	0	2	1	0	2	1	0
Callaway	2	6	5	1	3	4	1	3	1
Camden	6	2	3	3	1	2	1	1	2
Cape Girardeau	7	8	8	3	2	4	3	1	3
Carroll	4	2	1	3	2	1	3	2	0
Carter	4	1	2	4	1	0	2	0	0
Cass	11	5	10	6	4	7	5	3	6
Cedar	7	1	0	5	1	0	5	0	0
Chariton	1	0	1	1	0	1	1	0	1
Christian	5	3	7	4	2	5	4	1	3
Clark	1	1	2	1	1	1	1	1	1
Clay	19	24	19	9	11	13	4	5	7
Clinton	1	6	5	1	4	3	1	2	3
Cole	11	9	12	3	2	1	2	1	2
Cooper	0	1	2	0	1	2	0	1	1
Crawford	2	3	4	2	1	0	2	1	3
Dade	1	0	1	1	0	0	0	0	0
Dallas	2	2	1	1	2	1	0	2	1
Davies	0	2	0	0	1	0	0	1	0
DeKalb	1	0	0	1	0	0	1	0	0
Dent	2	2	2	1	2	1	0	2	1
Douglas	1	3	1	1	3	1	1	3	1
Dunklin	2	2	7	1	1	3	1	1	2
Franklin	16	13	17	11	11	12	9	9	9
Gasconade	0	1	1	0	1	1	0	1	1
Gentry	4	1	0	4	0	0	2	0	0
Greene	42	41	46	17	11	14	13	9	11
Grundy	1	2	1	0	1	1	0	0	0
Harrison	0	1	4	0	1	4	0	1	3
Henry	4	3	4	2	2	1	2	2	0

APPENDIX 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2010-2012

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Hickory	2	3	3	2	3	2	2	1	2
Holt	0	0	0	0	0	0	0	0	0
Howard	0	1	1	0	1	0	0	0	0
Howell	7	4	11	3	3	9	3	2	7
Iron	0	1	3	0	1	2	0	1	2
Jackson	120	112	132	67	54	63	31	29	34
Jasper	9	19	11	6	16	5	6	16	3
Jefferson	20	17	24	14	14	11	8	11	8
Johnson	8	6	3	4	5	0	1	2	1
Knox	1	1	2	1	0	1	1	1	1
Laclede	4	5	2	2	4	1	4	1	0
Lafayette	3	2	1	3	1	0	1	0	1
Lawrence	1	5	4	1	4	1	1	2	0
Lewis	0	1	0	0	1	0	0	1	0
Lincoln	3	6	3	2	4	3	2	3	3
Linn	1	1	1	0	1	0	0	1	0
Livingston	0	1	0	0	1	0	0	1	0
McDonald	4	5	0	2	3	2	2	3	2
Macon	1	3	1	0	3	1	0	2	1
Madison	2	3	0	2	0	0	2	1	0
Maries	0	0	1	0	0	1	0	0	1
Marion	5	8	3	5	3	1	5	2	1
Mercer	0	2	5	0	2	0	0	2	0
Miller	0	6	4	0	6	2	0	5	3
Mississippi	1	1	6	1	1	5	0	1	2
Moniteau	3	2	1	2	2	0	0	2	0
Monroe	2	1	1	2	1	0	2	1	0
Montgomery	0	1	1	0	1	1	0	1	0
Morgan	3	2	5	3	2	4	2	1	4
New Madrid	5	7	2	4	7	1	3	5	1
Newton	11	7	14	8	2	5	7	2	5
Nodaway	0	2	0	0	0	0	0	0	0
Oregon	1	2	2	0	1	0	1	0	0
Osage	1	2	4	0	2	2	0	2	1
Ozark	2	1	0	2	1	0	2	0	0
Pemiscot	8	3	5	7	3	4	4	0	4
Perry	1	0	0	1	0	0	0	0	0
Pettis	9	2	5	7	1	0	5	1	1
Phelps	1	7	9	0	7	6	0	5	4
Pike	1	2	1	0	1	1	0	1	1
Platte	7	14	12	2	8	5	1	6	3
Polk	8	8	3	4	6	2	2	6	2

APPENDIX 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2010-2012

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Pulaski	1	7	1	1	5	0	1	5	0
Putnam	0	0	1	0	0	1	0	0	1
Ralls	1	1	2	1	1	0	1	0	0
Randolph	1	3	3	1	3	2	1	2	1
Ray	1	2	3	1	2	3	1	2	3
Reynolds	0	2	2	0	2	2	0	1	2
Ripley	3	0	2	1	0	1	0	0	1
St. Charles	30	32	19	11	16	5	9	11	3
St. Clair	0	0	0	0	0	0	0	0	0
St. Francois	4	6	10	3	6	10	2	3	5
St. Louis County	155	172	138	31	43	41	19	32	29
Ste. Genevieve	1	1	1	0	0	1	0	1	0
Saline	1	2	1	1	1	1	0	1	1
Schuyler	0	1	1	0	0	0	0	0	0
Scotland	0	1	0	0	1	0	0	1	0
Scott	3	6	8	2	5	3	1	2	0
Shannon	1	1	0	1	1	0	1	1	0
Shelby	1	0	0	0	0	0	0	0	0
Stoddard	3	4	3	3	2	2	1	1	2
Stone	2	0	7	1	0	2	1	0	4
Sullivan	2	0	1	1	0	0	1	0	0
Taney	8	5	4	6	4	0	3	1	0
Texas	6	6	6	0	1	0	1	1	0
Vernon	1	2	0	1	2	0	0	0	0
Warren	4	1	4	3	1	3	3	1	0
Washington	1	1	5	0	1	5	0	1	3
Wayne	1	2	1	1	1	1	1	1	0
Webster	1	2	9	1	1	4	1	1	2
Worth	1	0	0	1	0	0	0	0	0
Wright	2	3	1	1	3	1	1	2	1
St. Louis City	83	117	116	25	43	34	20	32	25
STATE TOTAL	802	868	866	367	422	374	254	298	271

APPENDIX 5. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY AGE, SEX AND RACE 2010-2012

Age	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
0	520	539	547	165	170	156	87	88	90
1	30	39	32	19	30	20	10	21	18
2	18	24	27	14	18	18	10	13	14
3	12	24	15	10	16	9	8	12	8
4	16	10	16	11	7	9	11	6	7
5	9	10	8	3	4	5	4	3	2
6	7	7	11	5	5	7	4	3	4
7	10	9	12	4	9	8	5	5	6
8	10	10	14	8	7	7	5	8	6
9	6	9	10	4	4	6	3	3	3
10	14	11	11	6	9	8	3	4	5
11	10	16	8	3	13	5	3	13	3
12	7	11	14	3	7	7	3	6	7
13	14	18	16	11	14	7	6	12	4
14	22	14	16	18	9	13	16	7	10
15	13	27	25	11	26	15	6	23	15
16	29	45	36	26	42	33	24	40	30
17	55	45	48	46	32	41	46	31	39
TOTAL	802	868	866	367	422	374	254	298	271

Sex	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Female	317	351	365	131	170	144	92	107	105
Male	485	517	501	236	252	230	162	191	166
TOTAL	802	868	866	367	422	374	254	298	271

Race	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
White	563	574	601	264	288	253	191	212	188
Black	197	230	215	85	106	107	47	67	69
Other	42	64	50	18	28	14	16	19	14
TOTAL	802	868	866	367	422	374	254	298	271

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.
- Excludes all injuries, natural (non-injury) causes and births occurring within federal military installations located in Missouri, which are handled the same as out-of-state incidents.

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 CFRP panel meeting process information 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 being due to SIDS.

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

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 or the incident occurred on a federal military installation in 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 or the incident occurred on a federal military installation, 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 *preponderance of evidence* finding for 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 which certified child death pathologist conducted the autopsy and how the autopsy was paid for.

APPENDIX 7. DEATH CERTIFICATE MANNER OF DEATH

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

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

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

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

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

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

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

State Technical Assistance Team Child Fatality Review Program

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Jefferson City, MO 65102-0208
(573) 751-5980
800-487-1626

Region 1

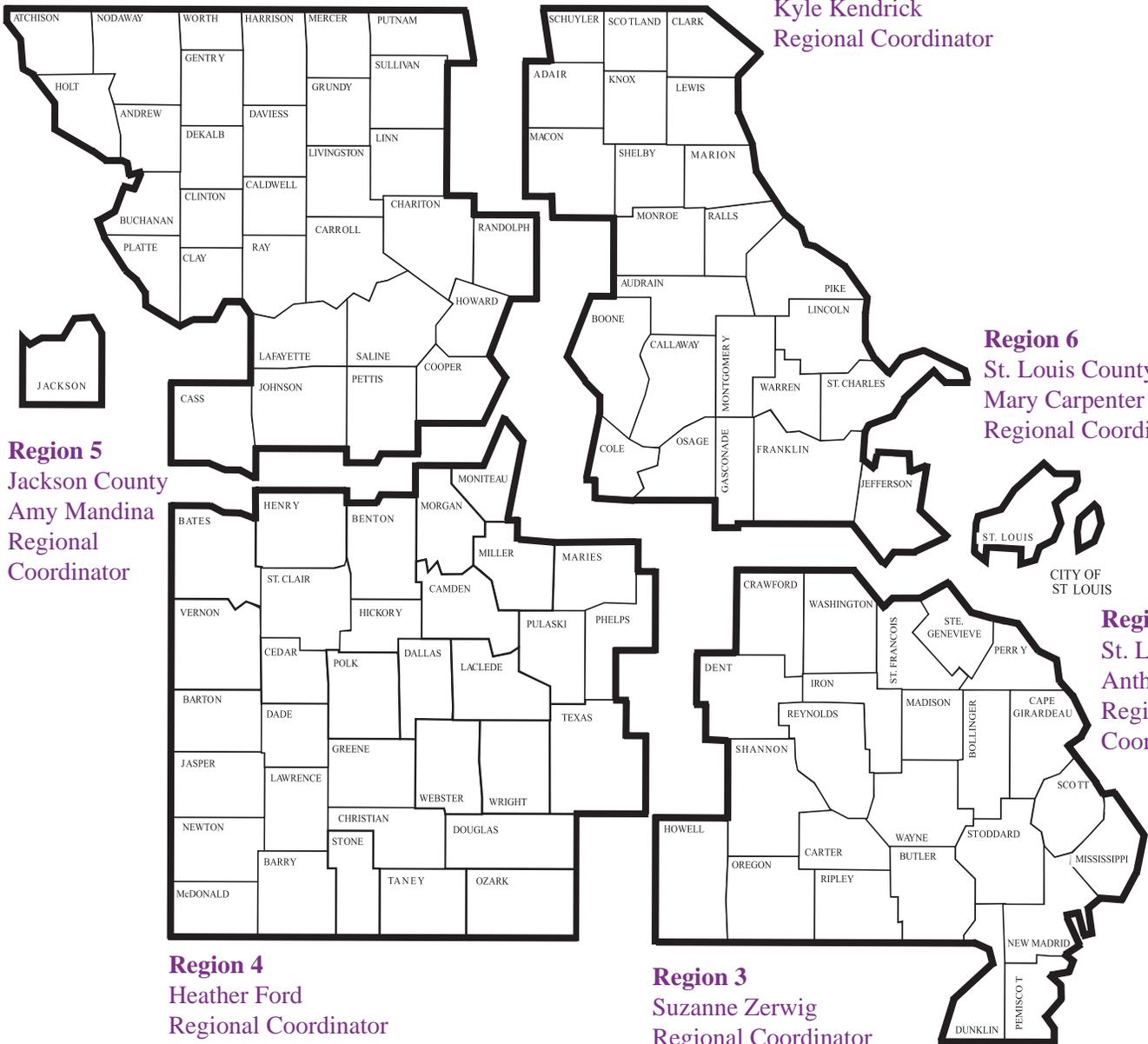
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Regional Coordinator

Region 2

Kyle Kendrick
Regional Coordinator

Region 6

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Region 5
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Division of General Services
Office of Administration

PREVENTING CHILD DEATHS IN MISSOURI

THE MISSOURI CHILD FATALITY REVIEW PROGRAM

ANNUAL REPORT FOR 2012



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State Technical Assistance Team
PO Box 208**

Jefferson City, Missouri 65102-0208

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<http://www.dss.mo.gov/stat/mcfrp.htm>

Published December 2013

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

Gus Kolilis
State Technical Assistance
Team (Retired)
Jefferson City

Harold Bengsch
Greene County
Commissioner
Springfield

Prosecuting Attorneys

Teresa Hensley
Cass County Prosecutor
Harrisonville

Brian Keedy
Camden County Prosecutor
Camdenton

Jason Lamb
Missouri Office of
Prosecution Services
Jefferson City

Kathi Alizadeh
St. Louis County
Prosecutors Office
Clayton

Coroner

Kathleen Little
Clinton County
Cameron

Medical Examiner

Mary Case, M.D.
St. Louis, St. Charles,
Franklin and Jefferson
Counties
St. Louis

Law Enforcement

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St. Louis County Police
St. Louis

Capt. Bill Carson
Maryland Heights Police
Maryland Heights

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

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Jefferson City

Amy Martin
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Public Health Service

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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. 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. Since the late 1980's, research continues to prove that prevention or significant reductions of child abuse and neglect fatalities, as well as other serious and fatal injuries, cannot be achieved without more complete information about how and why children are dying. Without such thorough information, many child abuse and neglect deaths would go under-reported and/or misclassified. Scholars, professionals and other officials around the nation agree that a system of comprehensive Child Death Review Teams has made 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.

Through its continued evolution, Missouri Child Fatality Review Program (CFRP) succeeds 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 county-based 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 40% merit review. To come under review, the cause of the child's death must be unclear, unexplained, or of a suspicious circumstance, to include all accidental, homicidal or suicide deaths. All sudden, unexplained deaths of infants one week to one year of age are specifically required to be reviewed by the CFRP panel. (This is the only age group for which an autopsy is mandatory.)

In 2011, Missouri CFRP converted from a paper data collection system to the Internet-based National Center for the Review and Prevention of Child Deaths' (NCRPCD) – Child Death Reporting (CDR) Case Reporting System. The system allows for multistate local and state users to enter more statistical case data than previously collected, enabling users to generate standardized statistical reports. The additional statistics will further enhance knowledge and 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)

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 CFRP panel spokesperson. Failure to observe this procedure may impede an investigation and/or 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 an 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.

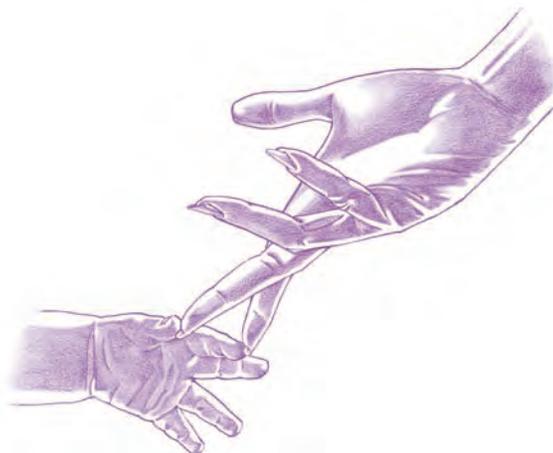
WHEN A CHILD DIES

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, 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 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, along with thorough death scene investigation, medical and social reviews. 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 criteria for review, 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 disciplines on the panel have the responsibility to contribute information that will lead to a more accurate determination of the cause of death. They also address service needs for the family and community, and 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, as 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”.) All injuries, natural (non-injury) causes and births occurring within federal military installations, although located in Missouri, are handled the same as out-of-state incidents. Statistical data would be reported to the Child Death Review Case Reporting System, but the death would be deemed non-reviewable.

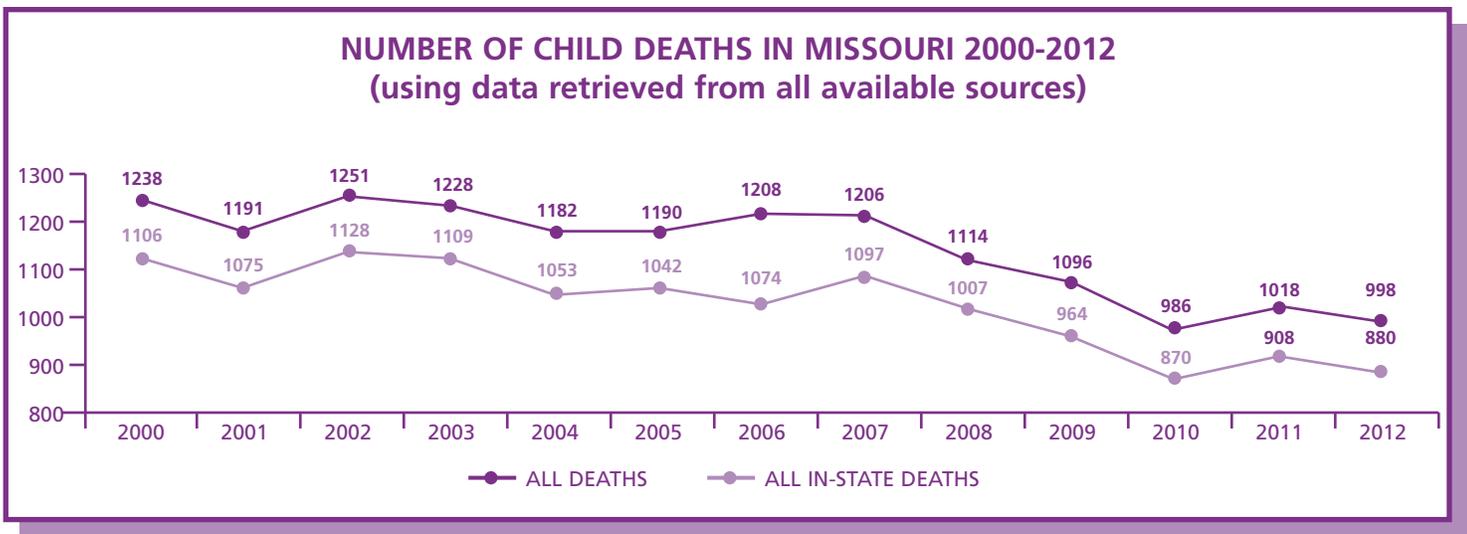
Missouri Incident Fatality refers to a fatal illness, injury or event, which occurs within the state of Missouri. (This is not necessarily the county or state in which the child resided.) If the death meets the criteria for panel review, it is reviewed in the county in which the fatal injury, illness 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, 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 the county CFRP panel chairperson to determine if death meets the criteria for review. The findings of this initial review are reported on the NCRPCD CDR Case Reporting System.
- All child deaths that are *unclear, unexplained, or of a suspicious circumstance (which includes all injury events, homicides, suicides and sudden unexpected deaths of infants one week to one year of age)* are required to be reviewed by the county-based, multidisciplinary CFRP panel. Upon completion of the panel review, the CDR 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 CFRP data management unit links data collected on the CDR Case Reporting System, with the Department of Health and Senior Services (DHSS) Bureau of Vital Records 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 2012, although some cases may not have been brought to county panel review until 2013. Additionally, in a small number of

cases, panels did not complete all of the information requested on the Child Death Review Case Reporting System.

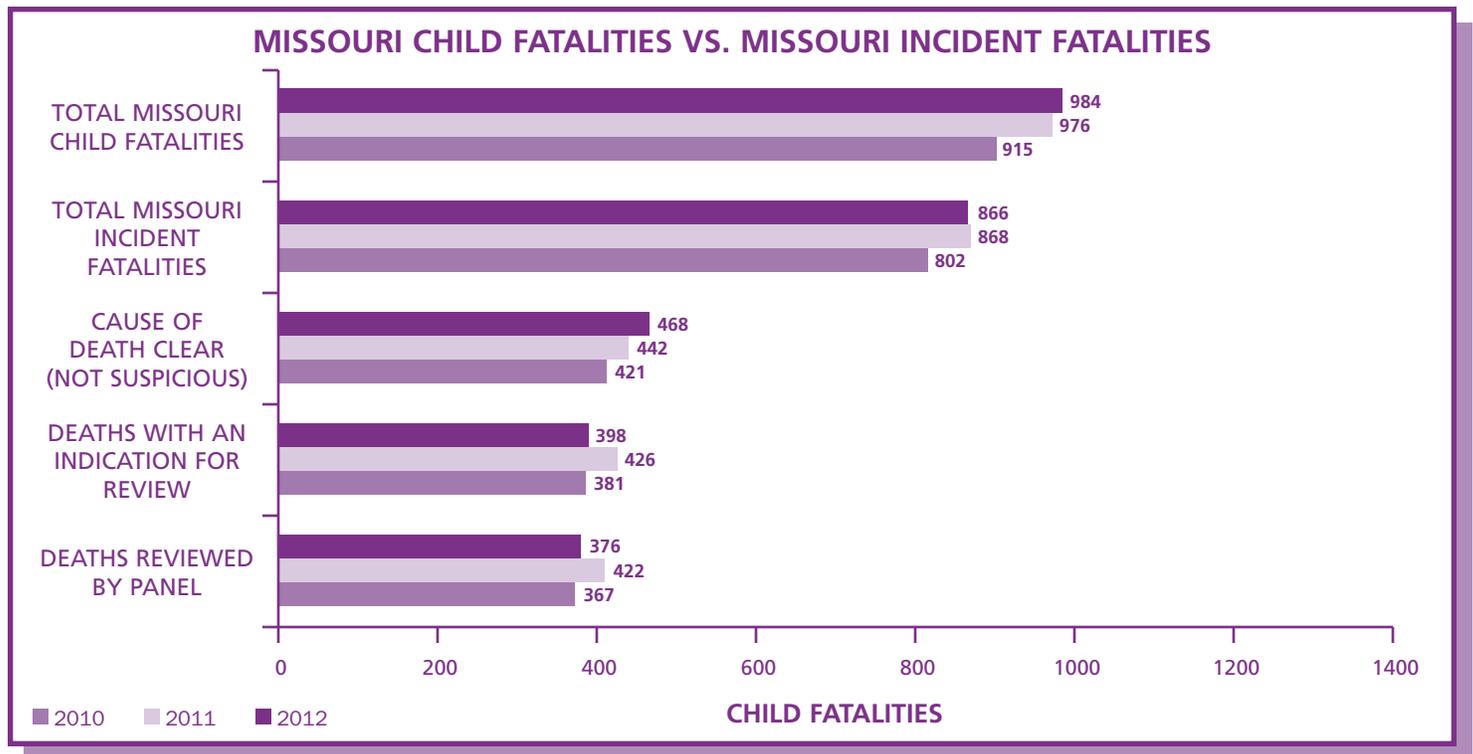
- **One Hundred Eighteen** Missouri Incident Fatalities are due to events that occurred in either other states or on federal installations in Missouri. Although documented in the CDR Case Reporting System and a part of the total number of Missouri Child Fatalities, these deaths are not considered Missouri Incident Fatalities and are not otherwise addressed in this report.
- Of **398** Missouri Incident Fatalities with indication for review as reported in Child Death Review Case Reporting System in 2012, **22** did not receive required CFRP panel review, or panel findings were not entered. These fatalities are included in this 2012 CFRP Annual Report, because the data, though incomplete, is useful and accurate within the limitations of the information provided.
- **Fourteen** Missouri Incident Fatalities were not reported in the CDR Case Reporting System, but were reported to the CFRP by death certificates from the Department of Health and Senior Services. From information provided by the death certificates, **seven** of those **14** fatalities (50%) had at least one indicator for review, to include **three** motor vehicle fatalities, **one** fire/burn, **one** undetermined, **one** firearm 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 CDR Case Reporting System information submitted by the county-based CFRP panels. Compliance for overall Missouri Incident deaths is 98.4% and county child death reviews is 92.1%. 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 2012.

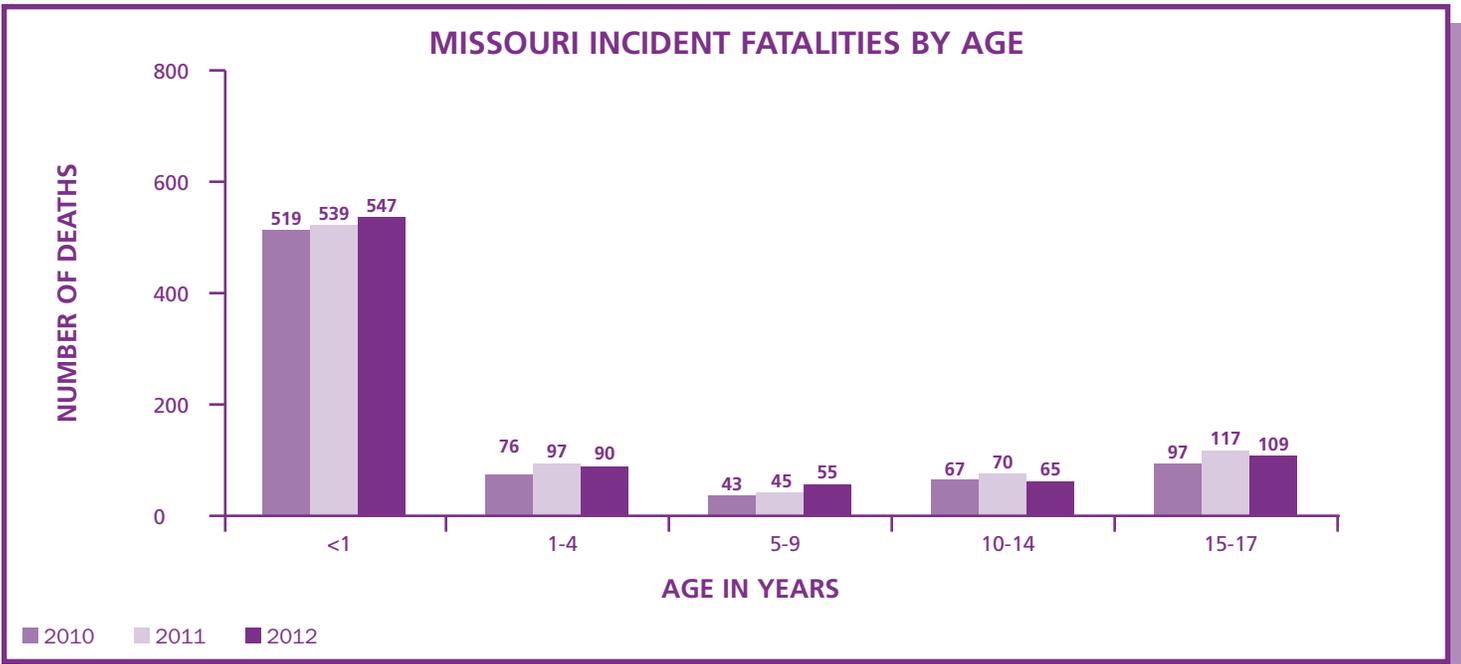


SUMMARY OF FINDINGS

Missouri Incident Fatalities

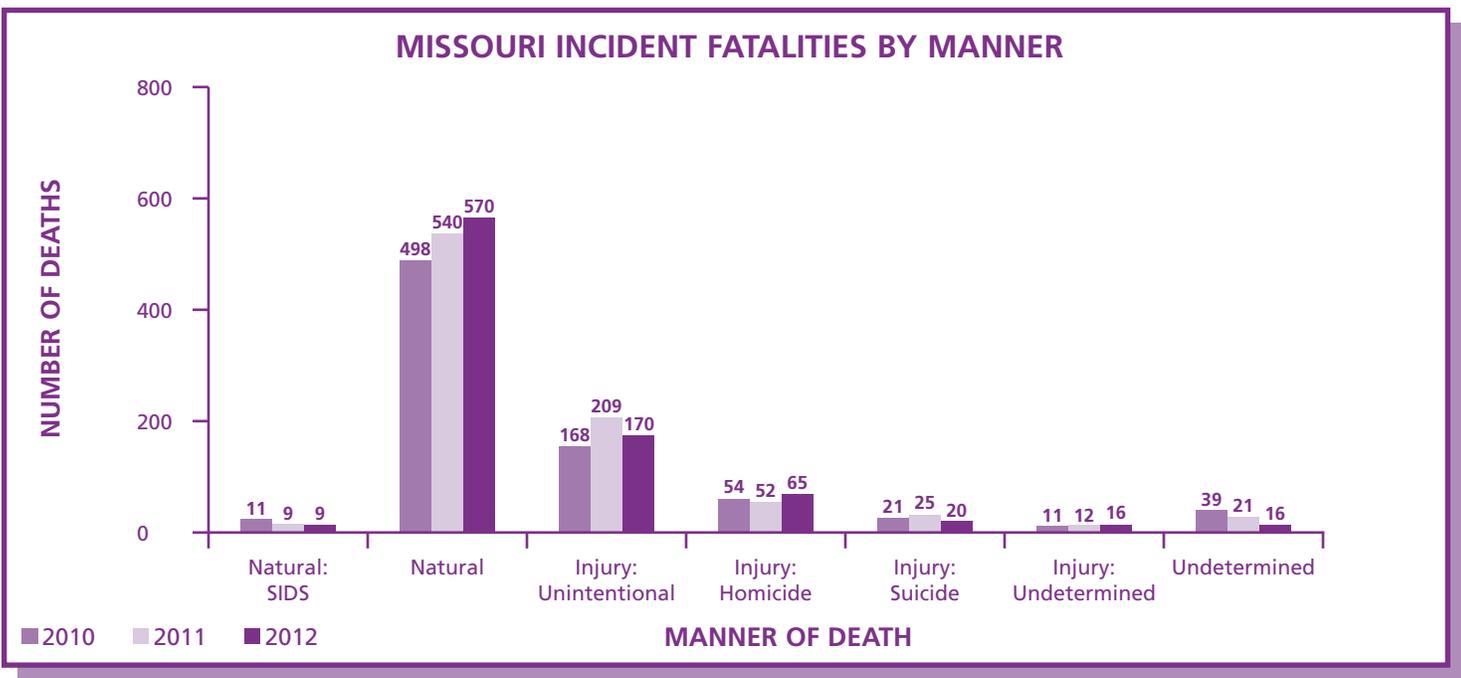
In 2012, STAT received information on **984** children age 17 and under, who died in Missouri. **One hundred eighteen** deaths were due to events out of state or on federal installations. The remaining **866** deaths were determined to be “Missouri Incident Fatalities” and therefore, subject to initial review by the coroner or medical examiner and county CFRP chairperson, with **468** (54%) determined to have not met criteria for detailed panel review. The remaining **398** (46%) had indicators for review and of those, **376** (94%) were reviewed by the county panels.

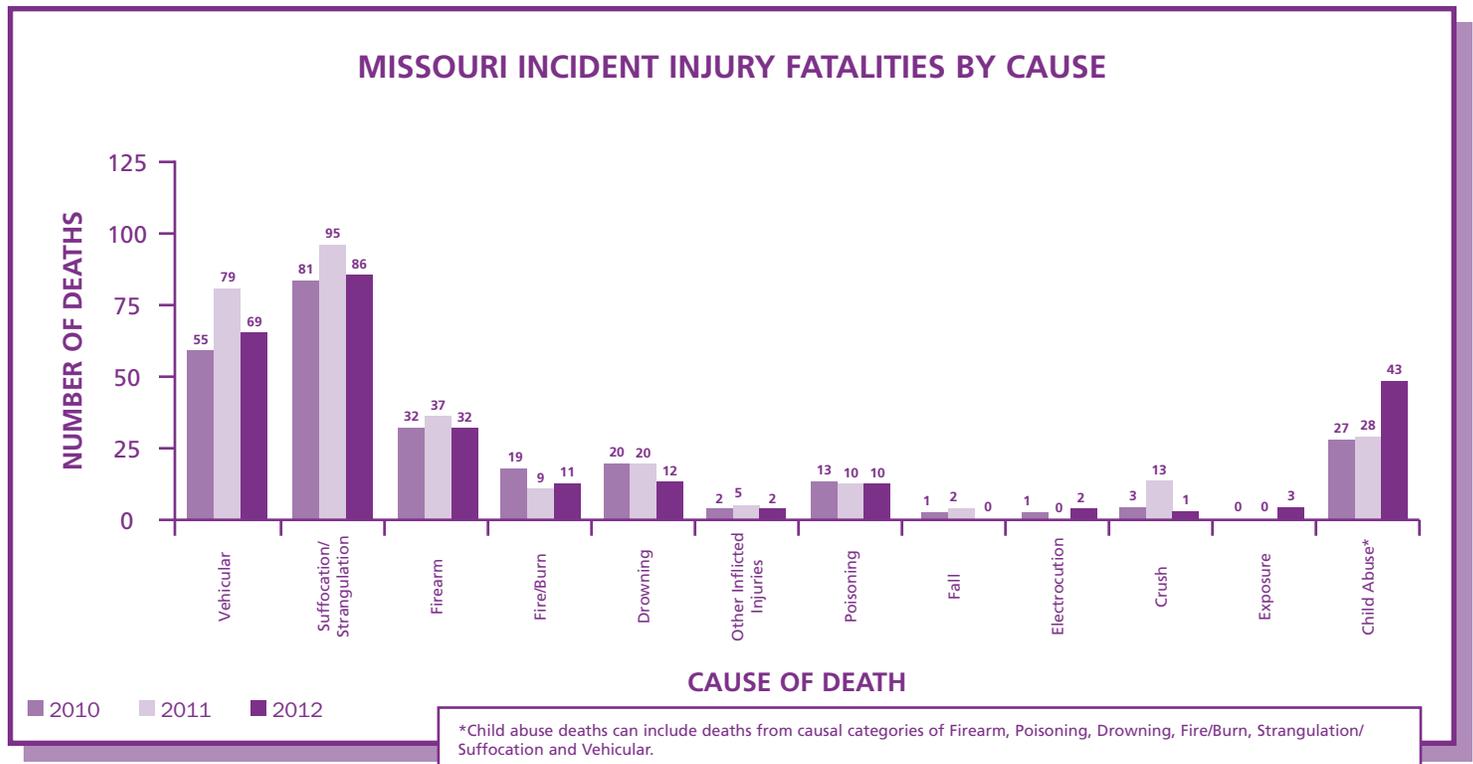




MISSOURI INCIDENT FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	317	351	365	WHITE	563	573	601
MALE	485	517	501	BLACK	197	231	215
				OTHER	42	64	50
	802	868	866		802	868	866





Missouri Death Certificates identify deaths by Manner and Cause. *Manners of Death* 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 by type of Injury; Intentional, Unintentional and Undetermined; Could Not Be Determined classified as 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. 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 sleep surface sharing, 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 a fatal 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*

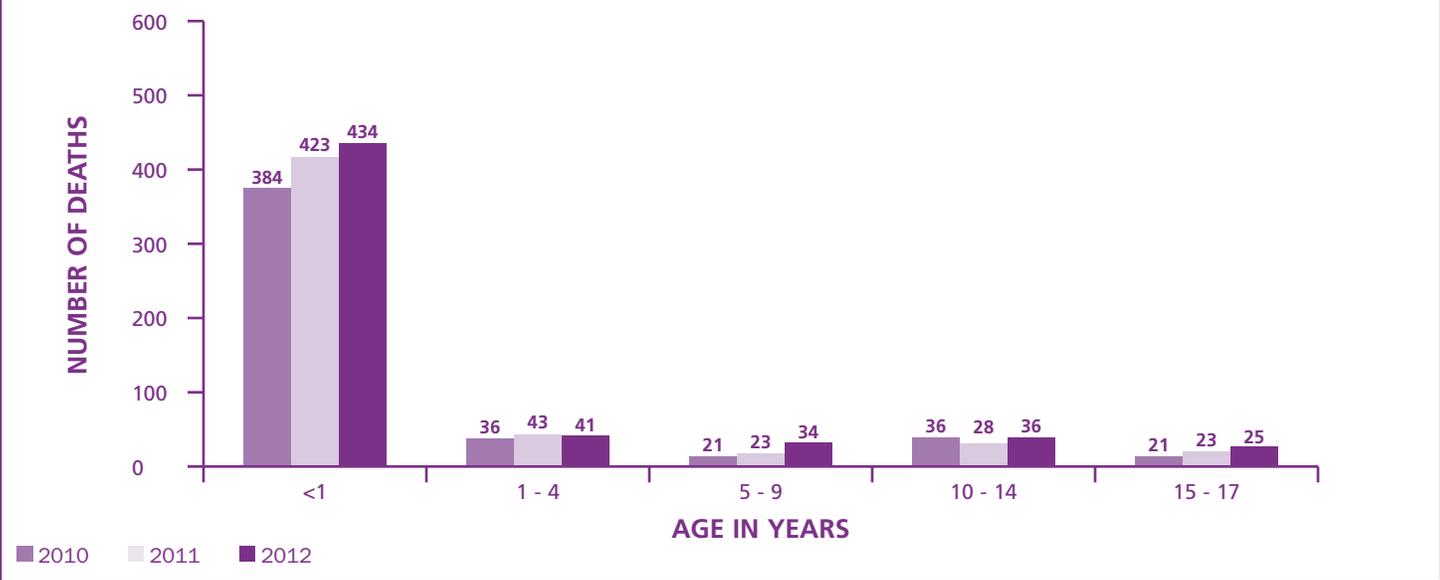
Natural fatalities, other than SIDS, were responsible for the deaths of 570 Missouri children in 2012, representing 66% of all Missouri incident fatalities.

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

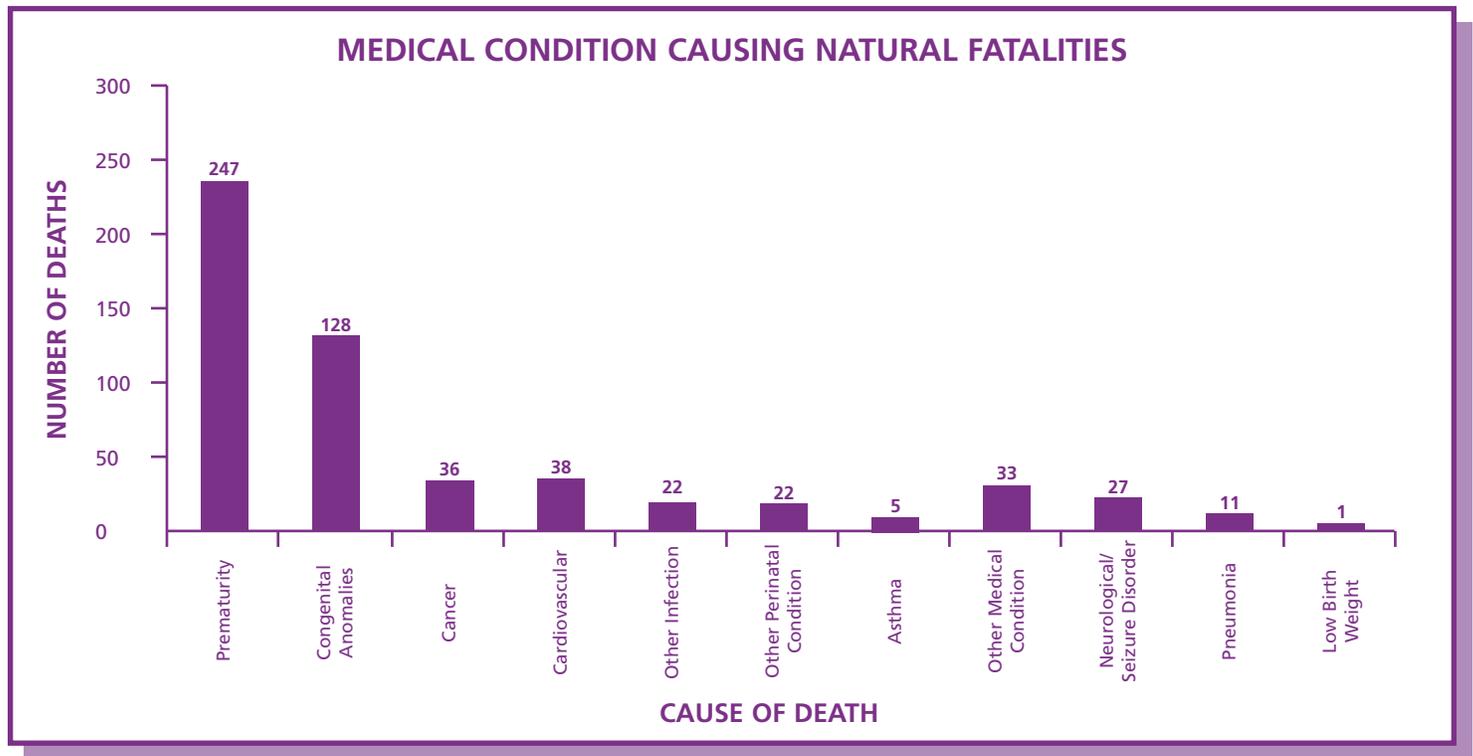
NATURAL FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	208	231	249	WHITE	334	344	402
MALE	290	309	321	BLACK	142	153	134
				OTHER	22	43	34
	498	540	570		498	540	570

NATURAL CAUSE FATALITIES BY AGE



Children die from a variety of medical conditions, but premature birth is the leading cause. Of the **570** natural deaths of children in Missouri in 2012, **247** (43%) were from premature birth.



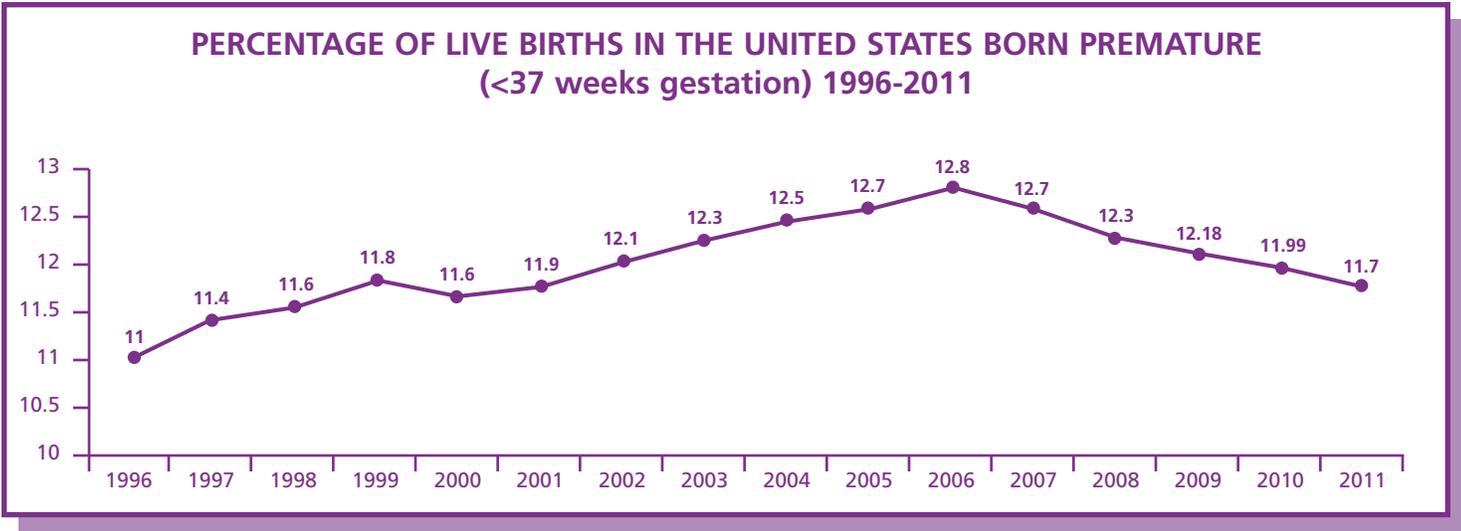
Statistics do not necessarily reflect how many children were born with fatal congenital defects, since such defects can fall under the cardiovascular or neurological/seizure disorder medical conditions. Even with the breakout of these medical conditions, congenital anomalies are by far the second largest 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 51st in the world for infant mortality, being behind such countries as Taiwan 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.

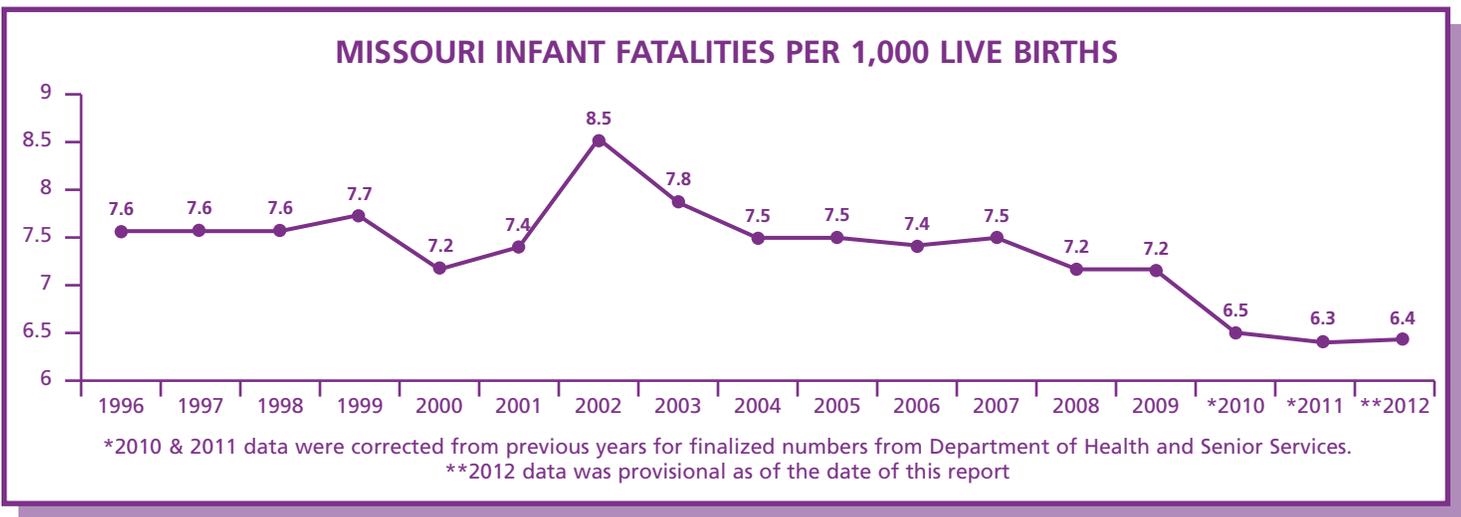
Data suggests that the main reason for the United State’s high infant mortality rate is the significant rate of preterm births, which rose from 11% in 1996, to 12.8% in 2006. The March of Dimes states that in the past decade, obstetric practices such as non-medically indicated early induction, cesarean delivery are risk factors for preterm birth and iatrogenic prematurity. To help counteract this issue, the March of Dimes and its partners developed a toolkit to help hospitals eliminate non-medically indicated deliveries before 39 weeks gestational age. A study published by Obstetrics and Gynecology shows that early elective deliveries in a group of 25 hospitals that used the toolkit, fell 83% during a one-year period.

Prematurity is also the leading cause of death in the first month of life and those that survive could potentially face lifelong serious health issues. Preterm birth rates have been dropping since 2006, with the largest decrease seen in the late-preterm births (34 to 37 weeks gestation). For 2011, the Center for Disease Control and Prevention (CDC) reports that the preterm rate is down to 11.7% of all births. Missouri’s rate for 2011 is even lower at 11.6%, according to data provided by the March of Dimes in their 2012 Premature Birth Report Card.



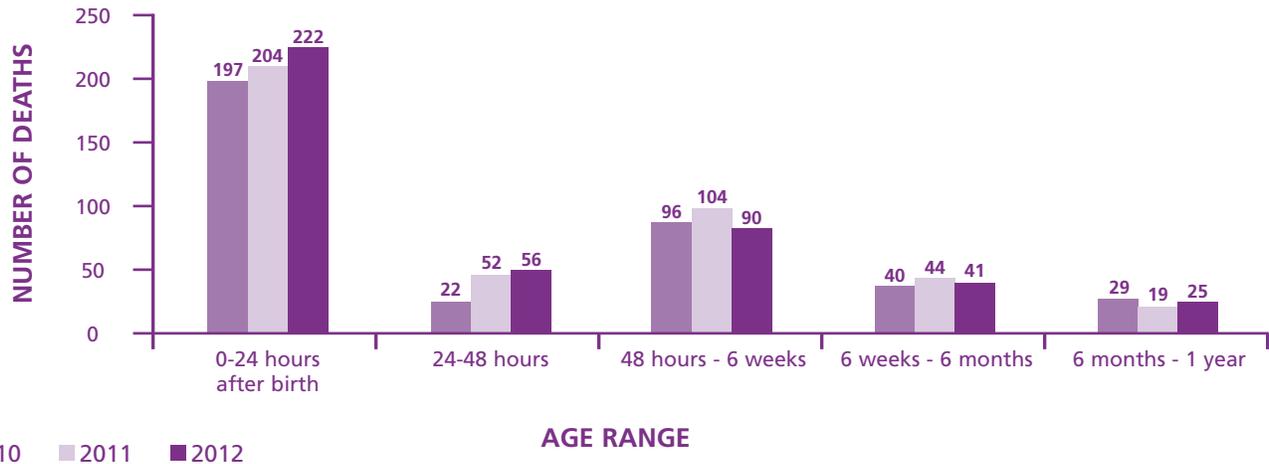
According to the CDC National Center for Health Statistics, the earlier a baby is born, the greater the risk of death. Babies born late-preterm, have a death rate three times higher than babies born at full term. By reducing the number of children born prematurely, even by just a few weeks early, could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

In Missouri, the infant mortality rate increased from 6.3 to 6.4 deaths per 1000 live births, which is higher than the national rate of 5.9 deaths per 1000 live births.



Infants less than one year of age comprise the majority of natural cause deaths in 2012, with **434** (76%). Of the **278** deaths that occurred within the first 48 hours, **222** (80%) occurred within 24 hours after birth.

**NATURAL FATALITIES AGE LESS THAN ONE YEAR
BY AGE AT DEATH**

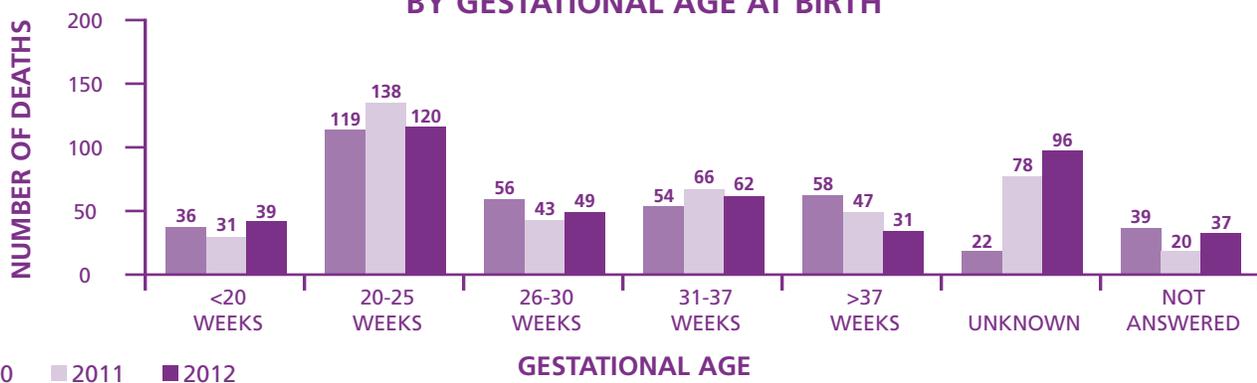


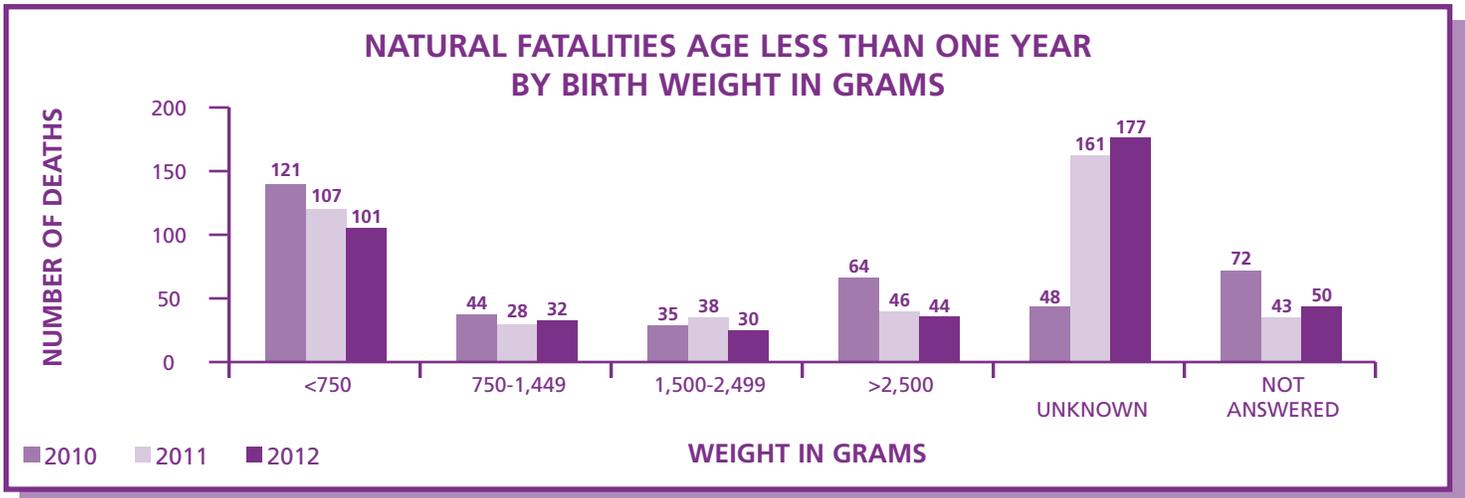
NATURAL FATALITIES AGE <1 YEAR BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	155	179	189	WHITE	251	264	299
MALE	229	244	245	BLACK	114	128	108
				OTHER	19	31	27
	384	423	434		384	423	434

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 2012, **270** infants were reported to be born preterm on the CDR Case Reporting System, while **163** low weight births were reported during that same period.

**NATURAL FATALITIES AGE LESS THAN ONE YEAR
BY GESTATIONAL AGE AT BIRTH**





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 2012, **21** mothers had medical complications such as diabetes or preeclampsia, **13** admitted to smoking during pregnancy, **13** abused prescription drugs, **one** abused over the counter drugs, **one** was injured in a car accident and **two** were the victims 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 2012, **11** of the children who died from natural causes within the first year of life had no prenatal care. **Seven** of these children are known to have been born before the 37th week of gestation and **four** of them were known to be 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 145 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 158 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 2012, Sudden Infant Death Syndrome (SIDS) was the cause of death of nine 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** an examination of the death scene, a thorough case investigation, performance of a complete autopsy and review of medical and social histories. 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	2010	2011	2012	RACE	2010	2011	2012
FEMALE	3	5	4	WHITE	10	7	5
MALE	8	4	5	BLACK	1	2	3
				OTHER	0	0	1
	11	9	9		11	9	9

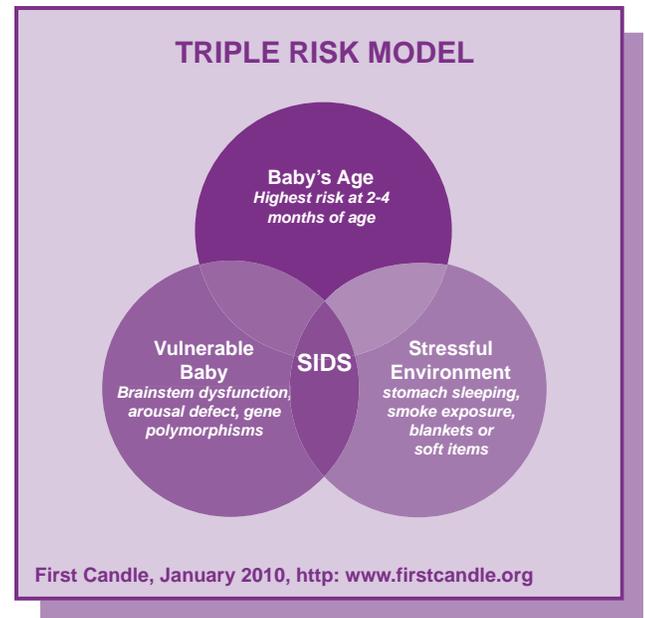
SIDS FATALITIES BY AGE



Current Research Findings and Theories

In 2010, the National Institutes of Health stated that scientists 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 dies 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.

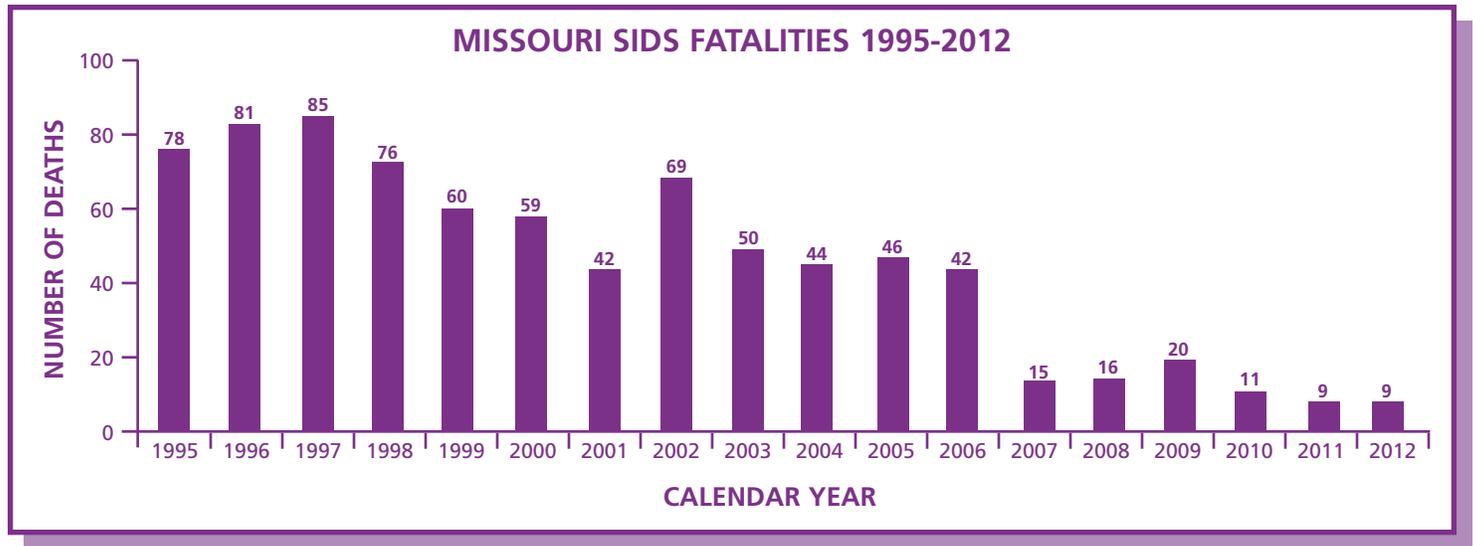
Other Risk Factors

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.

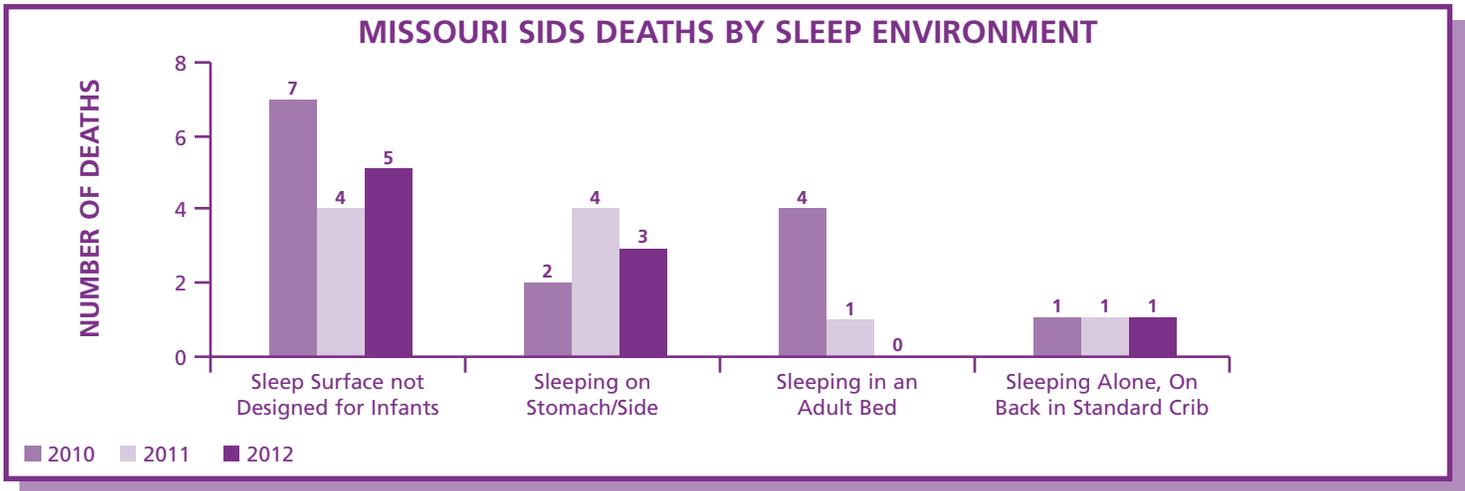
- Prone or side sleeping
- Soft sleep surfaces
- Loose bedding
- Same sleep surface sharing
- Overheating
- Exposure to tobacco smoke



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 2012, of **nine** sudden unexpected infant deaths reviewed by county CFRP panels and diagnosed as SIDS, **three** (33%) infants were known to be sleeping on their stomach or side, though **two** 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. **Five** of the **nine** were not sleeping in a standard crib on a firm mattress. 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 crib. 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 2012, **eighty-four** infant deaths were determined by the county CFRP panels to be sleep-related, of which **nine** were diagnosed as SIDS, **four** as natural, **three** as undetermined manner, **one** as exposure to excessive heat and **67** as suffocation. In summation, **71** infant deaths (25% of all non-natural deaths – injury, homicide, suicide and both undetermined categories 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 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

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 thorough 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, complete autopsy, along with 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.

Five New Federal Safety Standards for Cribs

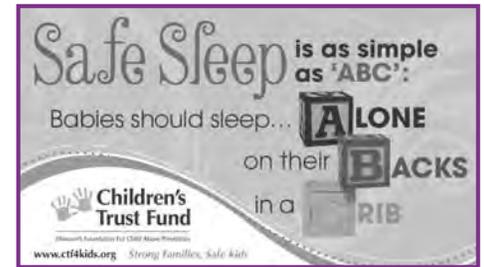
Beginning June 28, 2011, the Consumer Product Safety Commission (CPSC) set new standards that all cribs sold in the United States must meet for overall crib safety.

- Traditional drop-side cribs cannot be made or sold; immobilizers and repair kits not allowed.
- Wood slats must be made of stronger woods to prevent breakage.
- Crib hardware must have anti-loosening devices to keep it from coming loose or falling off.
- Mattress supports must be more durable.
- Safety testing must be more rigorous.

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 alone, in a crib, on his or her back. The crib should be devoid of soft bedding to include bumper pads and pillows, and toys of any kind. Unfortunately, many parents have not received this information, are instructed differently by family members, or for a variety of reasons, are unable to provide a safe crib for their infant.

The Safe Cribs for Missouri program provides portable cribs and safe sleep education to low-income families who have no other resource for obtaining a crib. The program is administered by the Department of Health and Senior Services through federal funding from the Maternal Child Health Block Grant (Title V) and by Children’s Trust Fund. The program is implemented through participating Local Public Health Agencies (LPHAs). The LPHAs initiate referrals and provide the safe sleep education to the families. To qualify for the program, the mother must be at least 35 weeks gestation or no more than three months postpartum. She must be eligible for WIC or Medicaid, or have income below 185% of the federal poverty level. The LPHA provides one-on-one safe sleep education to the parents before the family receives the crib. A follow-up home visit is made to reinforce the education and assess the family’s implementation of safe sleep practices. This visit is conducted four to six weeks after the crib is received, or when the infant is four to six weeks old. The overall goal of this project is to support families and reduce the risk of sleep-related infant mortality.



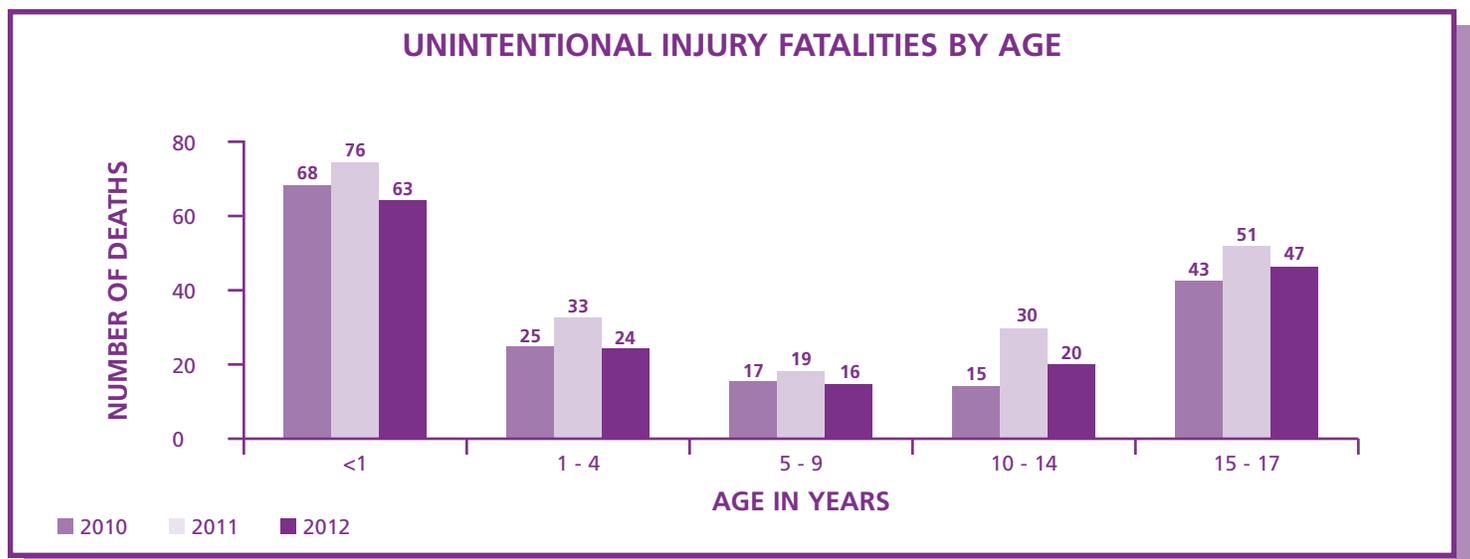
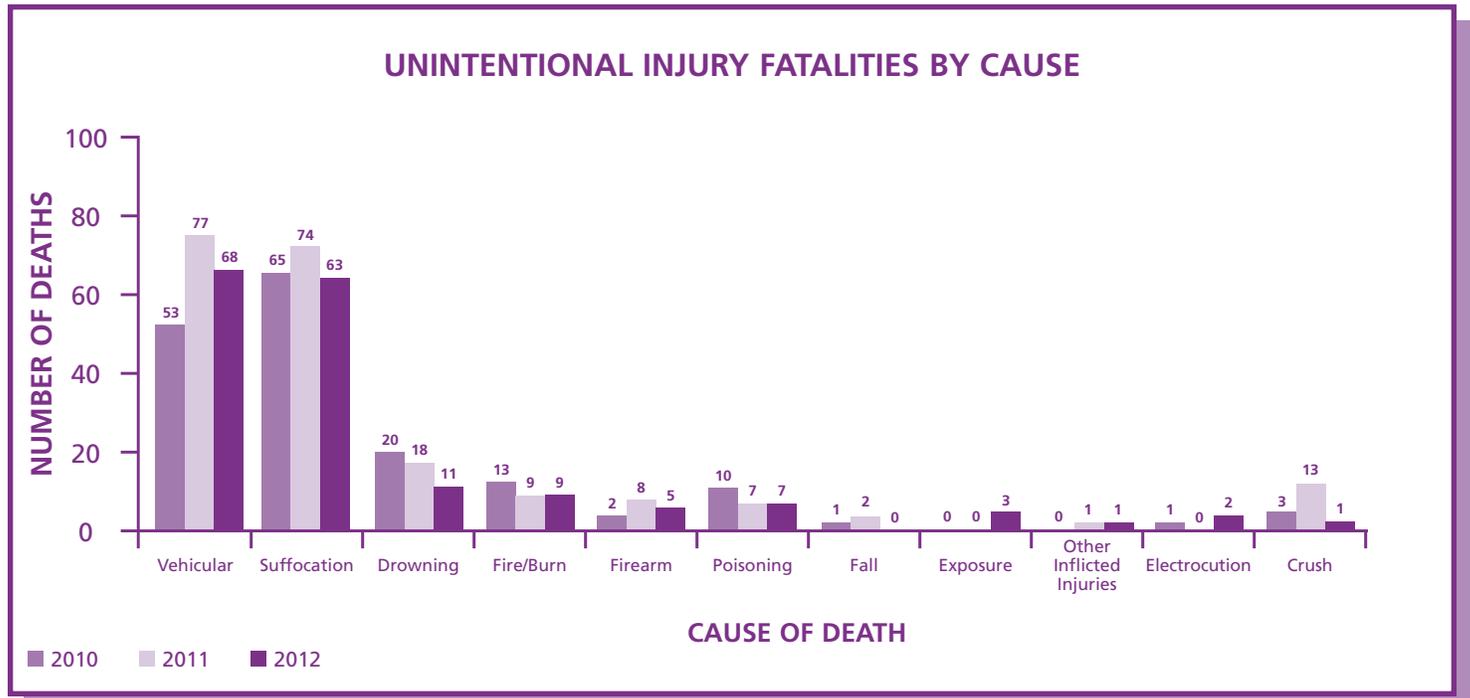
Resources and Links:

- 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/>
 Consumer Product Safety Commission <http://www.cpsc.gov/onsafety/2011/06/the-new-crib-standard-questions-and-answers/>

UNINTENTIONAL INJURY FATALITIES

In 2012, there were 170 unintentional injuries fatalities among Missouri children.

In 2012, **170** Missouri children died of unintentional suffocation injuries, making up 20% of all Missouri incident fatalities. The leading causes of unintentional injuries are vehicular deaths at **68** (40%) and suffocations at **63** (37%) and drowning at **11** (7%).



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	2010	2011	2012	RACE	2010	2011	2012
FEMALE	58	80	68	WHITE	135	156	127
MALE	110	129	102	BLACK	22	40	34
				OTHER	11	13	9
	168	209	170		168	209	170

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 (**five**), or moving vehicles (**11**), allowing toddlers access to loaded weapons (**one**), or leaving lighters and matches where young children can find them (**three**), and placing babies in unsafe sleeping environments (**59**) are all ill advised, yet these actions resulted in the deaths of **79** children in Missouri, in 2012, making up 46% of all unintentional injury fatalities. Some people believe that vehicular crash deaths (a more appropriate term adopted from the Missouri State Highway Patrol) cannot be prevented, but it is well known that appropriate road maintenance, following laws, avoiding distractions, correctly using seatbelts and child safety seats save lives. In 2012, **20** (38%) of the **53** children who died while either *driving or riding* in a motor vehicle, were unrestrained at the time of the crash.

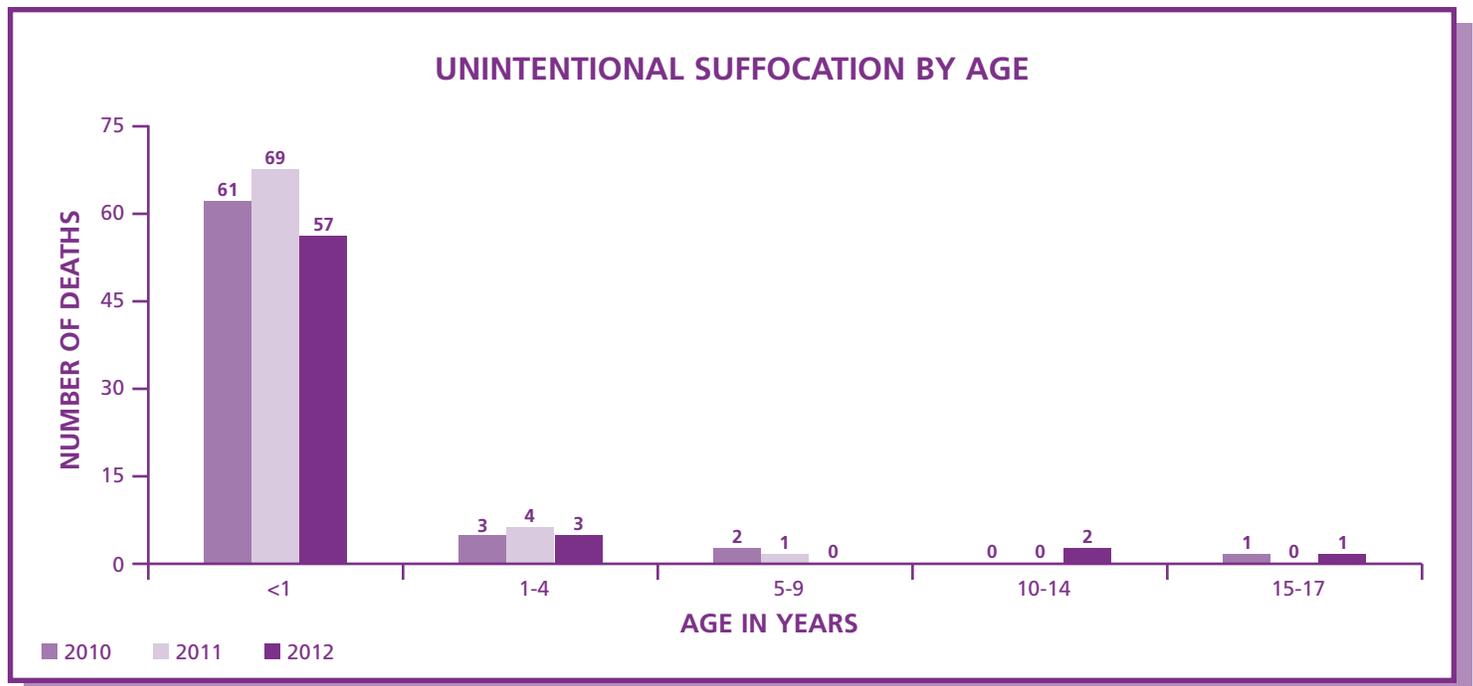
UNINTENTIONAL SUFFOCATION

“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

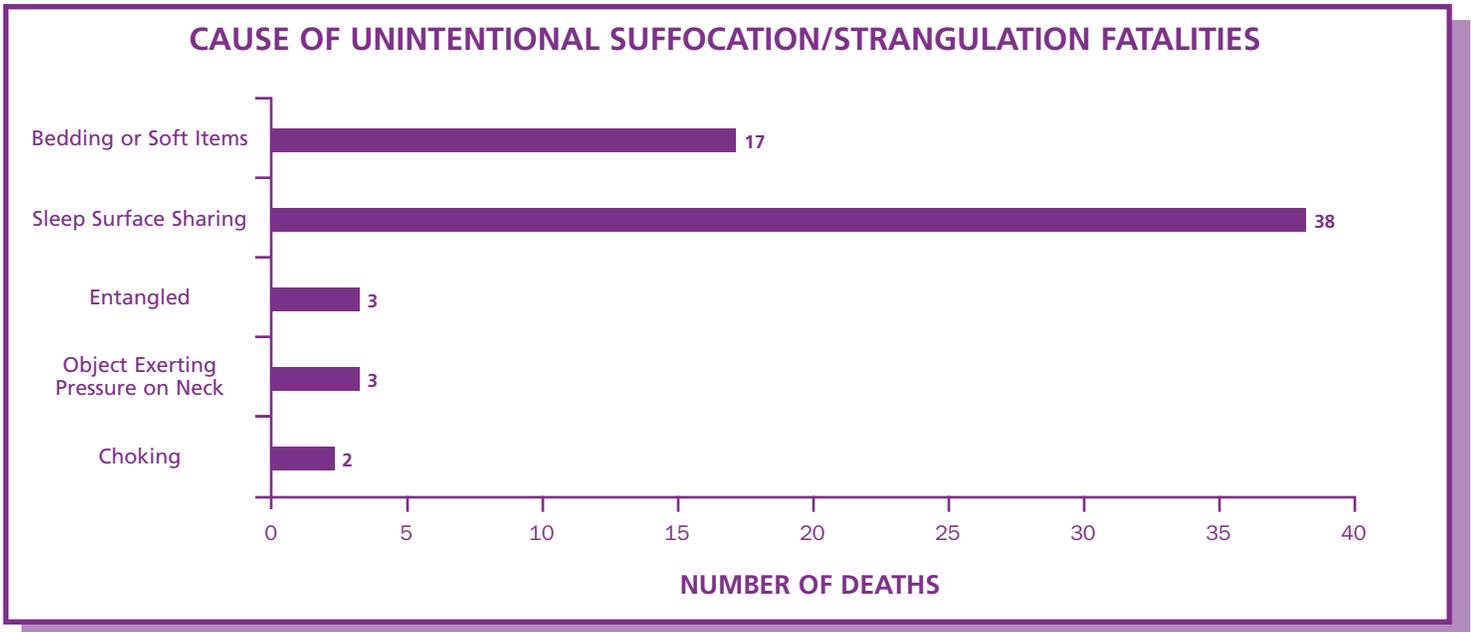
In 2012, unintentional suffocation was the cause of death of 63 Missouri children.

Deaths by unintentional suffocation are much more prevalent among children under one year of age, than from any other age range. In 2012, **57** (90%) of the unintentional suffocation deaths of children were under one year of age, **three** (5%) were one to four years of age and **three** were teenagers.



UNINTENTIONAL SUFFOCATION BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	27	30	19	WHITE	46	45	38
MALE	40	44	44	BLACK	11	22	20
				OTHER	8	7	5
	67	74	63		67	74	63



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, by means of smothering or rebreathing, suffocate when placed in compromising positions, such as with a soft mattress, cushion, pillow, comforter or bumper pad, or when their faces, noses and mouths become covered by soft bedding, such as pillows, quilts, comforters and sheepskins. Sleeping surfaces such as being propped by a pillow, being placed in a waterbed or bean bag chair can cause an infant to rollover and these surfaces have the ability to form around the child's face, if placed face down.

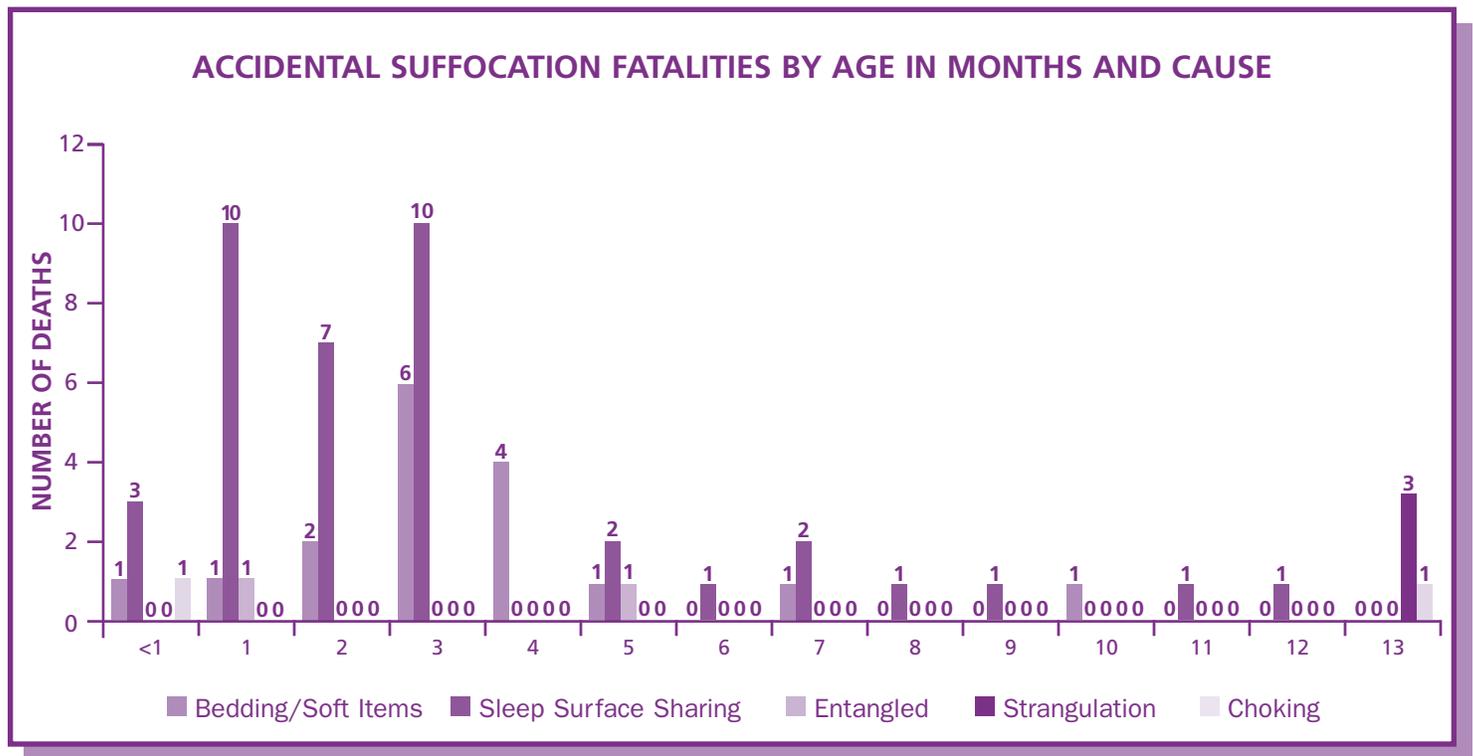
As infants get older and become more mobile, the risks of entanglement or wedging become more problematic. According to the American Academy of Pediatrics, wedging deaths most often occur between three to seven months, when infants have developed motor skills giving them the ability to move to corners 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.

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 either rolls over on or entraps the infant such as 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 an adult bed.

Furthermore, room sharing without bedsharing allows close proximity to the infant, which facilitates feeding, comforting and monitoring of the infant. Unfortunately, many Missouri parents continue to share a sleeping surface with their infants. Of the **57** babies, less than one year of age, that died of unintentional suffocation in 2012, **38** (67%) of the infants were sharing a sleep surface with one or more individuals. Of those, **28** were sleeping in an adult bed, **eight** were sleeping on a sofa, **one** was sharing a crib with its twin and **one** was sleeping in a chair.

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** 13-year-old boy died as a result of an anoxic brain injury that he received at the age of 18 months from something getting caught in his windpipe, and **one** baby laying prone, aspirated stomach’s contents.



Unintentional suffocation deaths in older children are often related to circumstances associated with choking, aspiration and/or strangulation. **Three** older children died of unintentional strangulation in 2012, **one** three-year old, **one** eleven-year old and **one** fifteen-year old.

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 <http://www.cpsc.gov>
SAFE KIDS Worldwide <http://www.safekids.org>
American Academy of Pediatrics <http://www.aap.org>
Missouri Children’s Trust Fund, “Safe Crib-Safe Sleep” Campaign. <http://www.ctf4kids.org>
American College of Surgeons “Injury Prevention” <http://www.facs.org/trauma/injuryprevent.pdf>

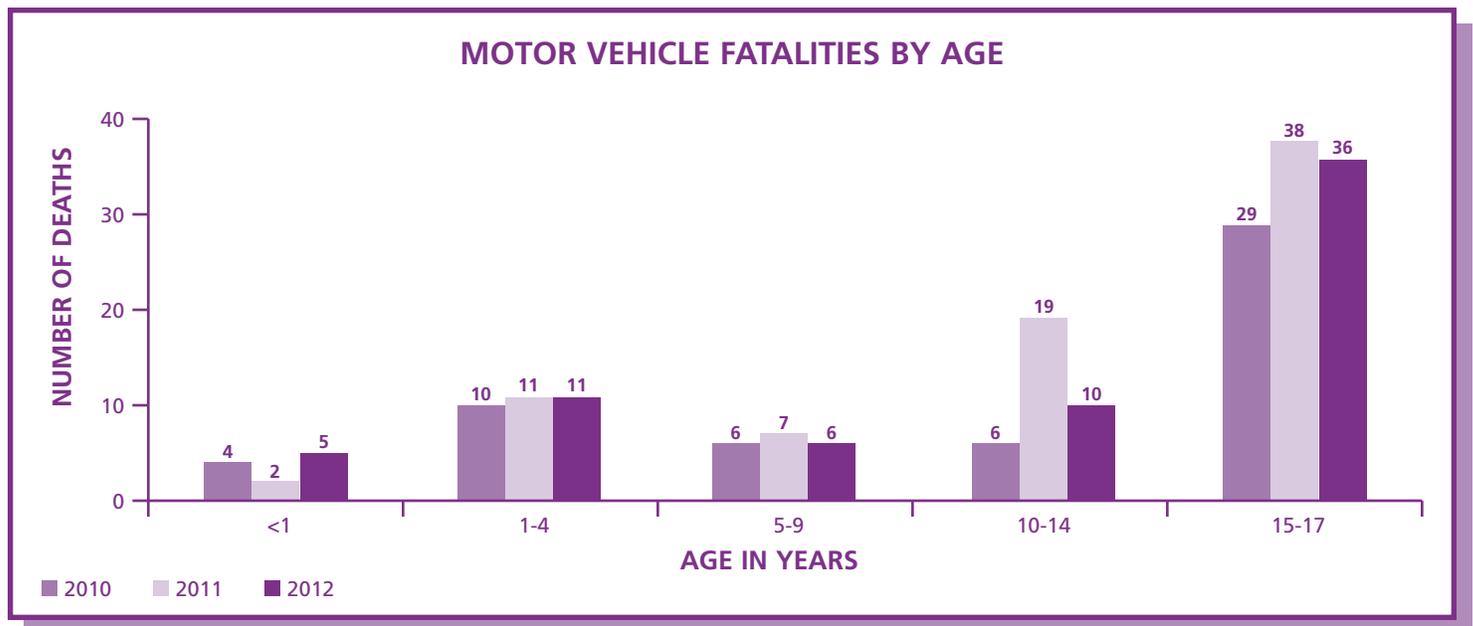
UNINTENTIONAL MOTOR VEHICLE FATALITIES

There were **72** motor vehicle fatalities among Missouri children in 2012. Of those, **69*** were reported to the CFRP on the Child Death Review Case Reporting System.

*Note: One vehicle death was determined to be homicide. This death will be discussed in the pertinent sections of this report.

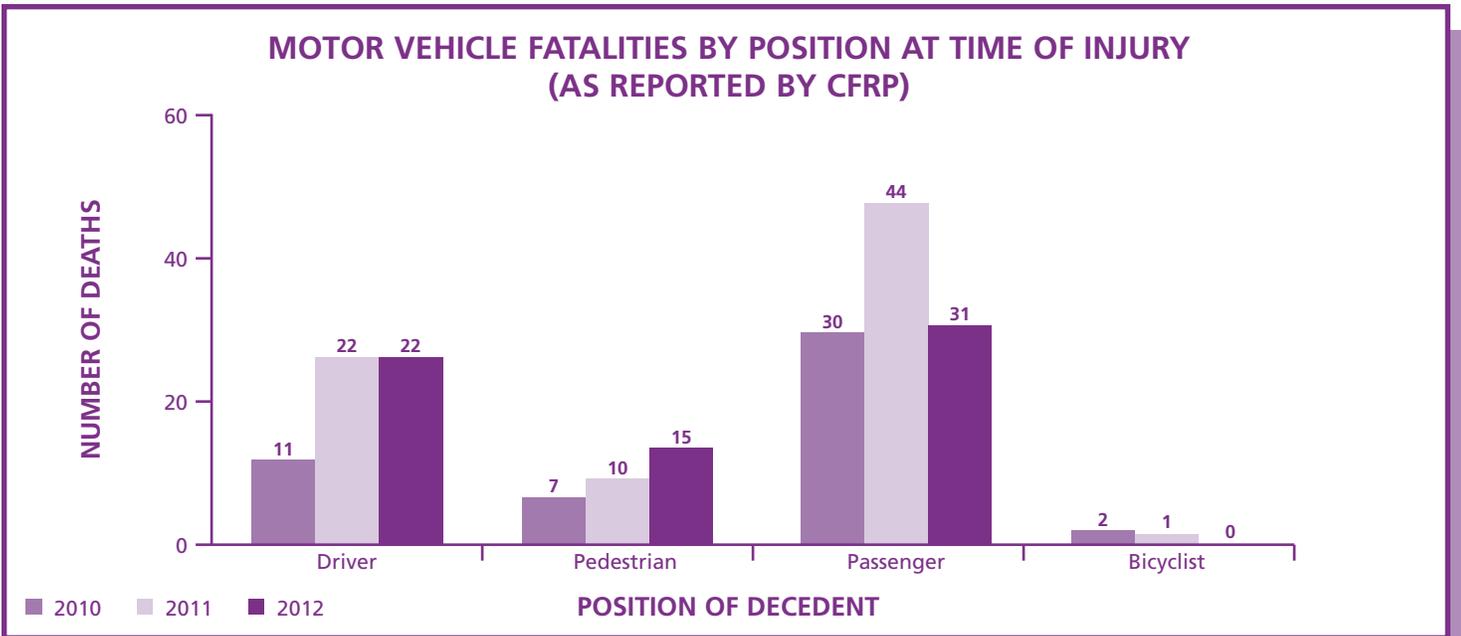
In the United States, motor vehicle crashes are the leading cause of injury deaths for children and adults and the second leading cause of injury death for children ages birth to one. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles,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

Of the **72** motor vehicle deaths among Missouri children in 2012, **68** were reported to the Child Fatality Review Program as unintentional; of which **61** were reviewed by local CFRP panels.



MOTOR VEHICLE FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	20	36	34	WHITE	47	63	54
MALE	35	41	34	BLACK	6	12	11
				OTHER	2	2	3
	55	77	68		55	77	68



NOTE: Due to differences in data collection systems, 2010 numbers were obtained from deaths reviewed; whereas, 2011 and 2012 numbers were obtained from all motor vehicle fatalities reported to CFRP.

TYPE OF VEHICLE			
Car	35	Airplane	3
Truck	7	ATV	4
SUV	11	Tractor	1
Motorcycle	1	Train	2
Van	1	Unknown	2
Semi/Tractor Trailer	1		

CONTRIBUTING CAUSE OF CRASH*			
Driver Inexperience	14	Racing	4
Speeding Over the Limit	14	Other Driver Error	4
Recklessness	12	Driver Distraction	3
Unsafe Speed for the Conditions	9	Poor Tires	3
Rollover	8	Poor Weather	3
Other Cause	8	Changing Lanes	3
Poor Sight Line	6	Ran a Stop Sign/Red Light	2
Drug or Alcohol Use	8	Cell Phone Use While Driving	2
Back Over	5	Mechanical Failure	1
Poor Visibility	4	Unknown Cause	12

*This chart lists all causes which contributed to the crash. In some cases, there were multiple causes.

ROAD CONDITIONS**			
Normal	42	Inadequate Lighting	2
Wet	4	Fog	1
Gravel	3	Other condition (such as hills, or off-road driving)	4
Snow	2	Unknown Condition	13

**In some cases more than one condition was indicated.

LOCATION OF CRASH			
Highway	23	Train Tracks	4
Rural Road	11	Parking Area	2
City Street	10	Residential Street	1
Off Road	9	Farm	1
Driveway	5	Unknown	2

RESTRAINTS – LAP BELT	
Not needed	28
Needed, but none present	2
Present, used correctly	6
Present, not used	17
Unknown	15

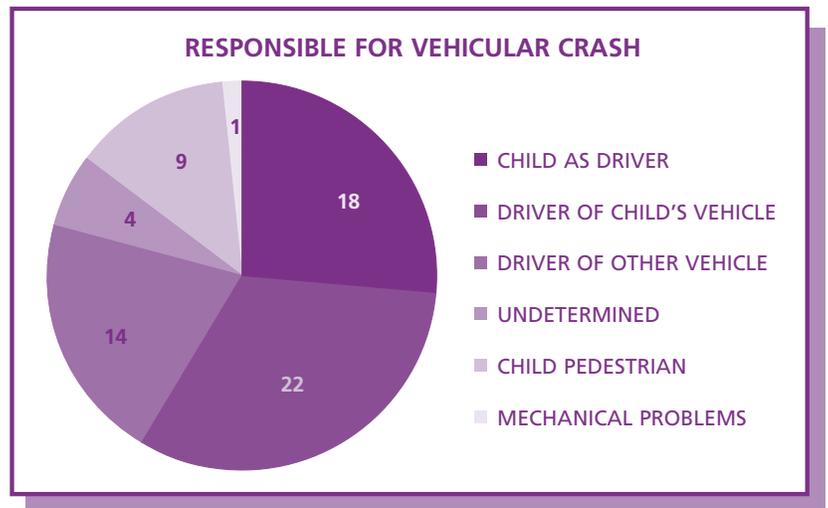
RESTRAINT – CHILD SEAT	
Not needed	60
Present, used correctly	5
Present, used incorrectly	1
Unknown	2

ALCOHOL AND/OR OTHER DRUG USE	
Decedent as driver impaired	1
Driver of decedent's vehicle impaired	2
Driver of other vehicle impaired	1
Not applicable	64

HELMET USE	
Not needed	63
Needed, but none present	1
Present, used correctly	1
Present, used incorrectly	1
Unknown	2

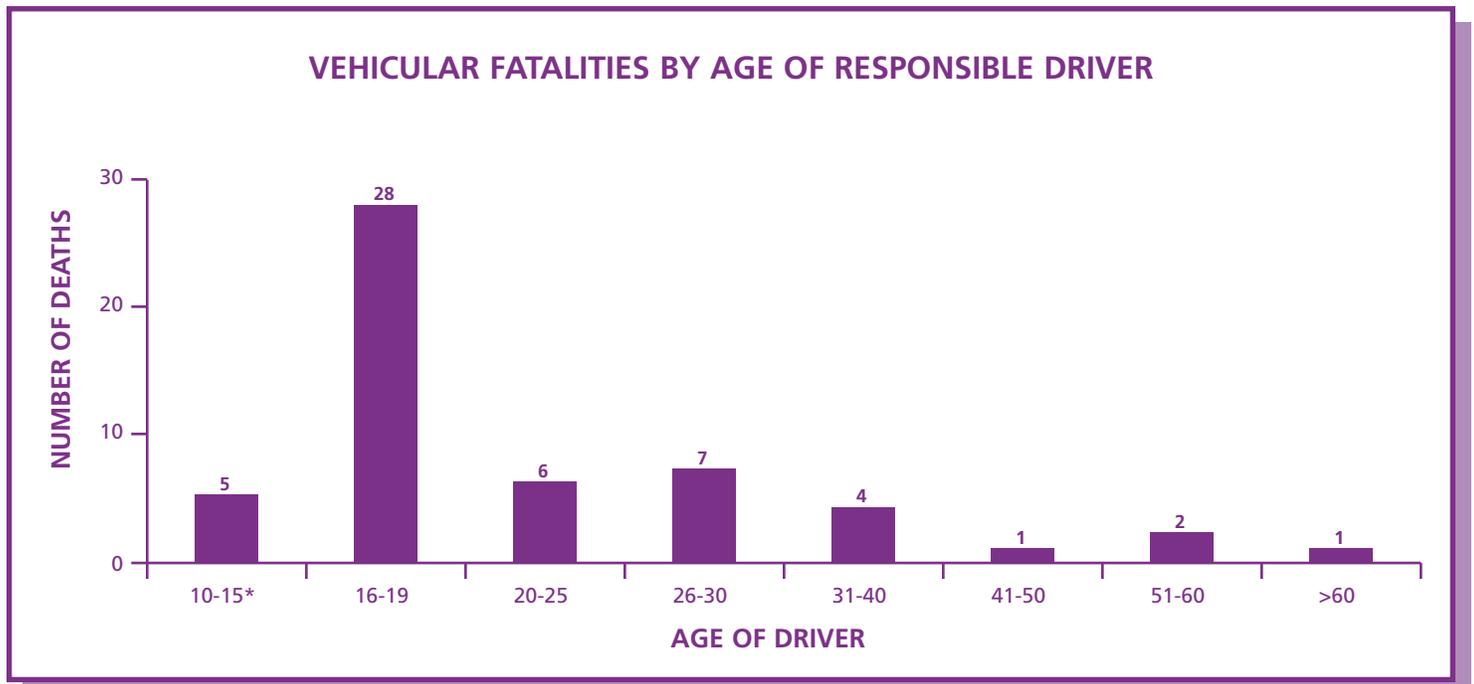
Most vehicle crashes occur due to the actions of one or more persons, be it recklessness, impaired driving, inattention or simple inexperience.

Of the **68** reported motor vehicle fatalities, only one death was caused by problems with the vehicle. In **22** (32%) deaths, the driver of the child's vehicle was responsible for the accident; in **18** (26%) it was the child as the driver. **Fourteen** (21%) deaths were caused by the driver of another vehicle and in **four** cases the exact cause of the crash had not



been able to be determined. The last **nine** deaths were pedestrians who, through their own actions, caused the accident which took their lives.

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 **54** vehicular deaths in which a driver was determined to be responsible for the accident, **33** (62%) were under the age of 20, with **28** (85%) 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 **68** reported motor vehicle deaths in Missouri in 2012, **53** (78%) involved drivers and passengers.

Representative Cases:

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

A two-year-old child was sitting in the back seat of a car that left the roadway, striking a rock embankment. The unrestrained child was thrown forward when the accident happened. The driver of the child's vehicle was on the cell phone at the time of the accident and subsequently was charged with careless and imprudent driving.

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

A 17-year-old driver was speeding through a residential neighborhood on his way home. He was driving 98 mph in a 25 mph zone, when he ran off a curve and struck a tree. He died at the scene. The autopsy found that the teenager was under the influence of alcohol and cannabis.

A 16-year old was driving a car home from school with four passengers in the vehicle, which is a violation of Missouri's graduated driver license law. Driving too fast, he crashed into a tree and ripped the car in half. The driver died and the other teens were injured, three critically.

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. SAFE KIDS Worldwide 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 2012, **12** of the **31** 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 **68** reported motor vehicle fatalities, **eight** involved either a victim or a driver who was impaired. In 2012, CFRP panels determined that **five** of these deaths involved a teen victim who was impaired, **four** of those were drivers of a vehicle that crashed, and **one** was a pedestrian. There was **one** death in which an impaired friend was the driver of the vehicle in which the victim was a passenger. The last **two** 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 risk-taking behavior due to inexperience and immaturity, along with greater risk exposure are 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 both 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%. In 2012, there were **36** teenagers, age 15-17, that died in motor vehicle fatalities; **two** were pedestrians, **15** were passengers, and **19** were drivers. Of these **34** teen driver and passenger deaths, **16** (47%) were known to be unrestrained at the time of the crash.

Pedestrian Fatalities

Of the **68** reported motor vehicle fatalities among Missouri children in 2012, **15** were pedestrians. Of these children, **nine** were age four and under, **two** were between the ages of five and nine, **two** were between 10 and 14, and **two** were between the ages of 15 and 17.

Representative Cases:

- **Young children require constant supervision.**

A one-year-old child was in a vehicle with her mother, aunts and siblings. They got out of the vehicle in a large parking lot. The child was told to wait, but darted off towards the building, running out in front of a car.

- **Teens need to be more aware of their surroundings.**

In two separate instances, teens, ages 15 and 14, were walking on train tracks with headphones on. In both events, the child failed to hear the approaching train until it was too late.

- **Driveways and other parking areas can be dangerous places.**

A father thought the two-year-old child was in a fenced-in area playing. He was backing the truck, when the child's mother called to the child who ran behind the moving truck and was struck.

Five children died in 2012, when they were backed over in their own driveway. This makes up **33%** of all pedestrian deaths. Unfortunately, this is not a rare occurrence. According to KidsandCars.org, every year thousands of children are killed or seriously injured, because a driver backing up did not see them. Larger-sized vehicles such as SUV's and vans make it more difficult for the driver to see a small child behind them.

According to SAFE KIDS Worldwide:

- 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 **15** pedestrian deaths were children ages 14 and above. **Two** of these children were struck by trains, **one** was trying to jump into a moving vehicle and the last **one** was sitting in the roadway.

All-Terrain Vehicle Fatalities

Four of the **68** reported motor vehicle fatalities in 2012, involved all-terrain vehicles (ATV's). **Two** children were known to have not been wearing helmets and the other **two** were listed as helmet usage unknown.

Representative Cases:

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

An eleven-year-old boy was riding an ATV without a helmet. He was the only one on the vehicle at the time, though there were other children in the area. The ATV overturned and landed on top of him causing extreme head trauma.

- **ATV's are heavier than most people realize and a child may not be able to get it off them if they crash.**

A thirteen-year-old teen was riding an ATV, when the machine rolled down a hill, causing serious injury and trapping the child beneath it.

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. **None** of the four ATV-related child fatalities in 2012, were known to have been 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. SAFE KIDS Worldwide 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, ATVs, etc.
- Never allow children under 12 years of age to cross streets alone.
- Always model and teach proper pedestrian behavior.
- Children under 16 years of age 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 four to 15 years of age 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.
- Train and make available trained public safety staff (i.e., law enforcement and firemen) that, when requested by concerned citizens, can check to determine if child safety seats are properly installed and secure.

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	http://www.aap.org/
Children’s Safety Network.	http://www.childrenssafetynetwork.org
SAFE KIDS Worldwide.	http://www.safekids.org/
National Center for Injury Prevention and Control	http://www.cdc.gov/injury/index.html
Harborview Injury Prevention and Research Center.	http://depts.washington.edu/hiprc/
National Highway Transportation Safety Administration.	http://www.nhtsa.gov/
Missouri Coalition for Roadway Safety.	http://www.savemolives.org/
The Think First Injury Prevention Foundation	http://www.thinkfirst.org/
Missouri Department of Transportation	http://www.modot.org/safety/index.htm

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 recommended 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 potential tragedy that can be prevented. For additional information, or to order education materials, contact CTF at 573-751-5147 or visit 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.

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



UNINTENTIONAL FIRE/BURN FATALITIES

In 2012, 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 two and seven, and their father died in a house fire. While the exact cause of the fire was unable to be determined, the seven-year old was known to play with matches.

A four-year-old boy died when he started a fire with a cigarette lighter. He was in his room with the door closed and could not get out once the fire started. His father was in the shower and only made it out of the house in a towel.

- **Fire alarms can save lives.**

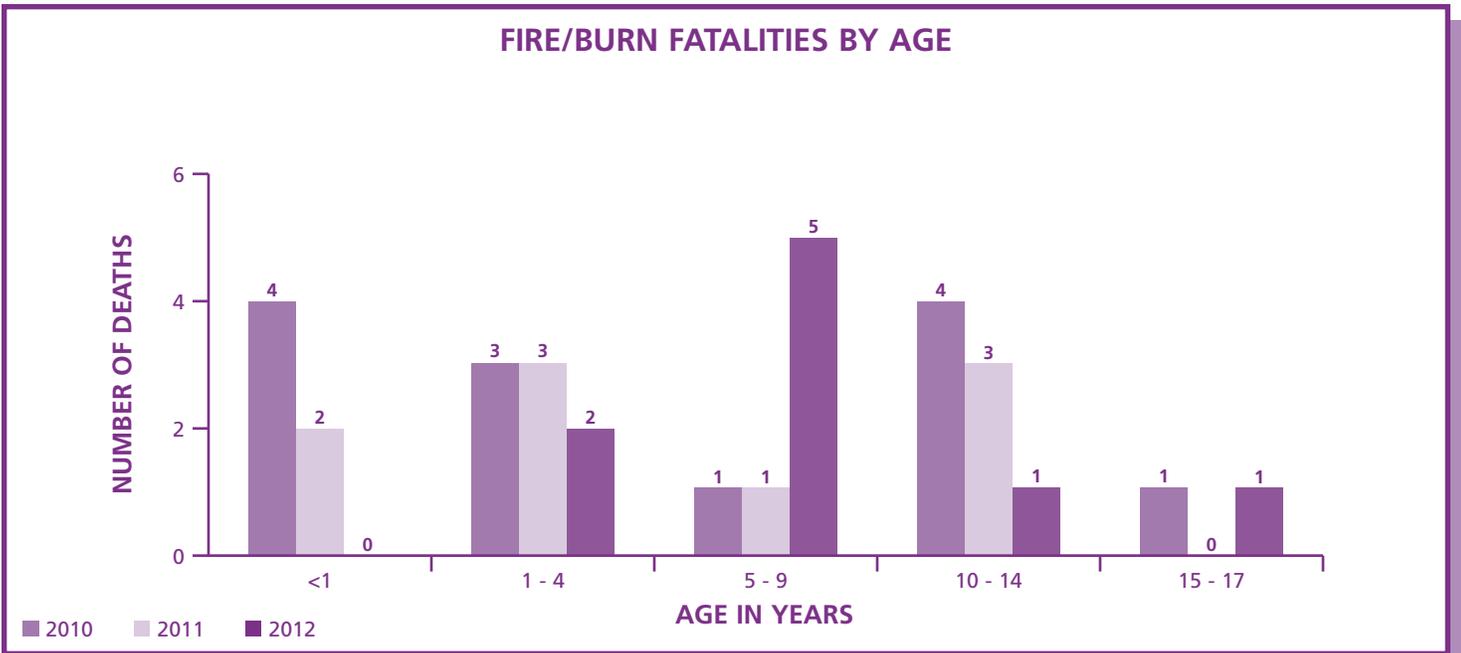
Two children, ages 12 and 16, died in a house fire that was thought to have been started by faulty electrical wiring. There were no smoke detectors in the home.

According to the SAFE KIDS Worldwide-US Fact Sheet (2013), fires and burns were the third leading cause of unintentional death among children one to nine years of age, in 2010, and fourth among ages 10-14. Approximately 308 children, age 14 and under, died in residential fires, nationwide. Children ages one to four were at much higher risk than any of the other age groups in children.

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

Fire/Burn Fatalities Among Children

Based on 2010 data, U.S. Fire Administration states that male children are at greater risk of death than females, and 57 percent of all child fire deaths occurred to those four years of age or younger. Of the **nine** fire/burn fatalities among children in Missouri in 2012, **two** 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.



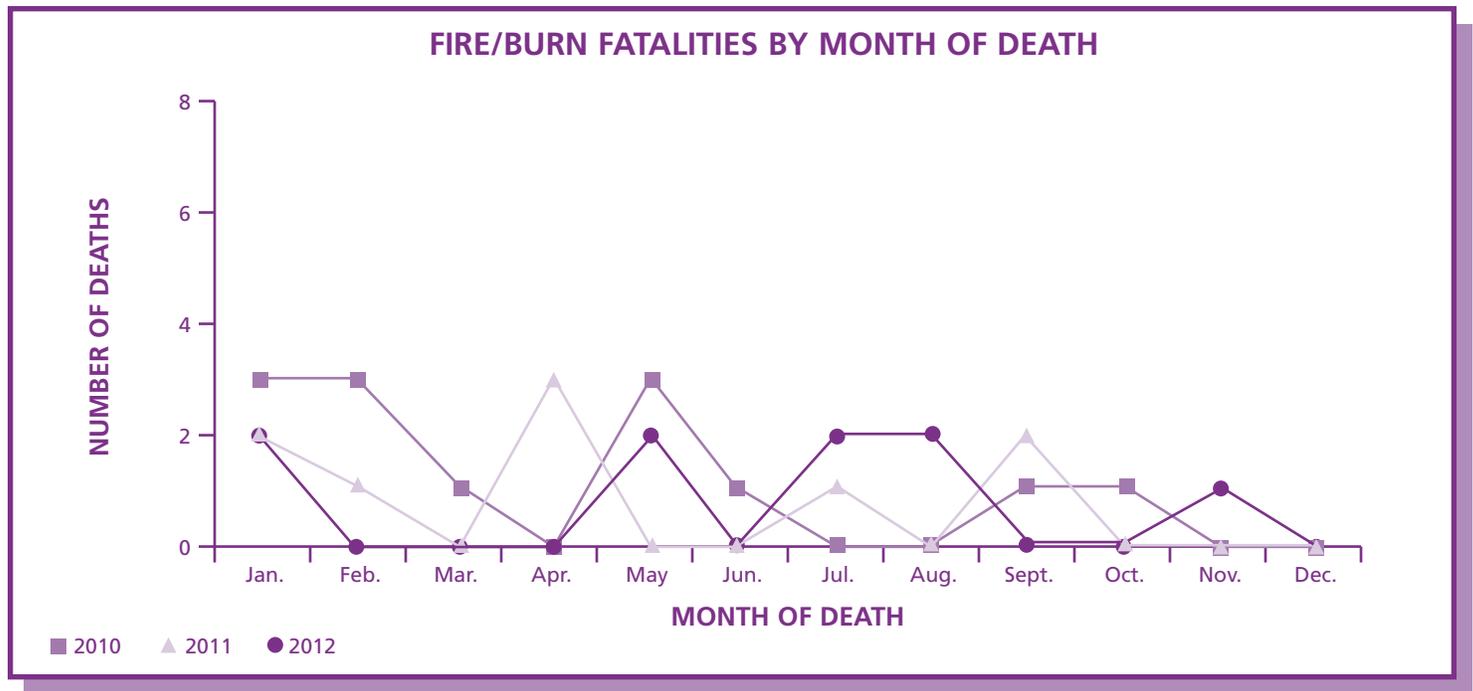
UNINTENTIONAL FIRE/BURN FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	10	4	3	WHITE	10	9	8
MALE	3	5	6	BLACK	2	0	0
				OTHER	1	0	1
	13	9	9		13	9	9

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. **Three** of the **nine** fire deaths in Missouri in 2012, were in rural areas.

None of the fatal Missouri fires reviewed by county CFRP panels in 2012, were reported to have smoke alarms present in the home. 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

The U.S. Fire Administration reported in 2001 that children playing with fire was the leading cause of child fire deaths. Most child-playing home structure fires begin in the bedroom, where children are often left alone to play. In Missouri in 2012, **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 U.S. 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	0
No	2
Unknown	7

FIRE STARTED BY	
Other Child	3
Unknown	2
No One	4

MULTIPLE FIRE DEATHS	
Yes	7
No	2

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

SOURCE OF FIRE	
Electrical Wiring	3
Cooking Stove	2
Lighter	1
Unknown	3

WAS STRUCTURE A RENTAL PROPERTY	
Yes	3
No	2
Unknown	4

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 residences, 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/>
SAFE KIDS Worldwide <http://www.safekids.org/>
Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc/>



UNINTENTIONAL DROWNINGS

In 2012, 12 children died from accidental drownings in Missouri.

Representative Cases:

- **Small children need constant supervision.**

A one-year-old child was outside with several siblings, while mother was inside her camper fixing supper. The child wandered off from the other children, opened a gate, fell into a swimming pool and drowned. The child was familiar with the pool, as the family went there often.

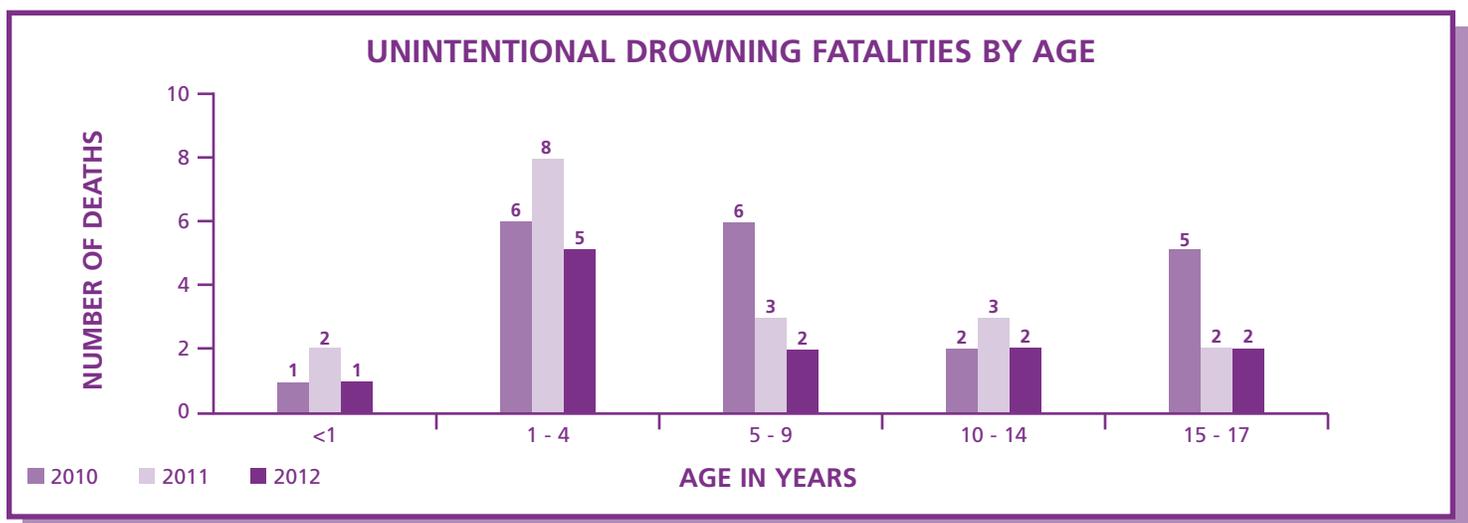
- **Children with disabilities should never be allowed near open water unsupervised.**

A six-year-old girl with various mental and physical disabilities was watching television, while her mother was upstairs cleaning. Her father and brother had gone for a walk. Without permission, the child also left the home and was found floating face down in a lake near the family's dock.

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

A fifteen-year-old boy and his friends were swimming in a lake. None of them were wearing personal flotation devices. One of the friends began having issues and the teen drowned saving his friend.

In the United States in 2010, drowning was the leading cause of unintentional injury-related death among children ages one to four, the second leading cause among children ages five to nine, and the third leading cause among children 10-14, according to the CDC. Of the **12** Missouri children who drowned in 2012, **six** (50%) were age four and under and **four** (33%) were ages five to 14.



DROWNING FATALITIES BY SEX AND RACE

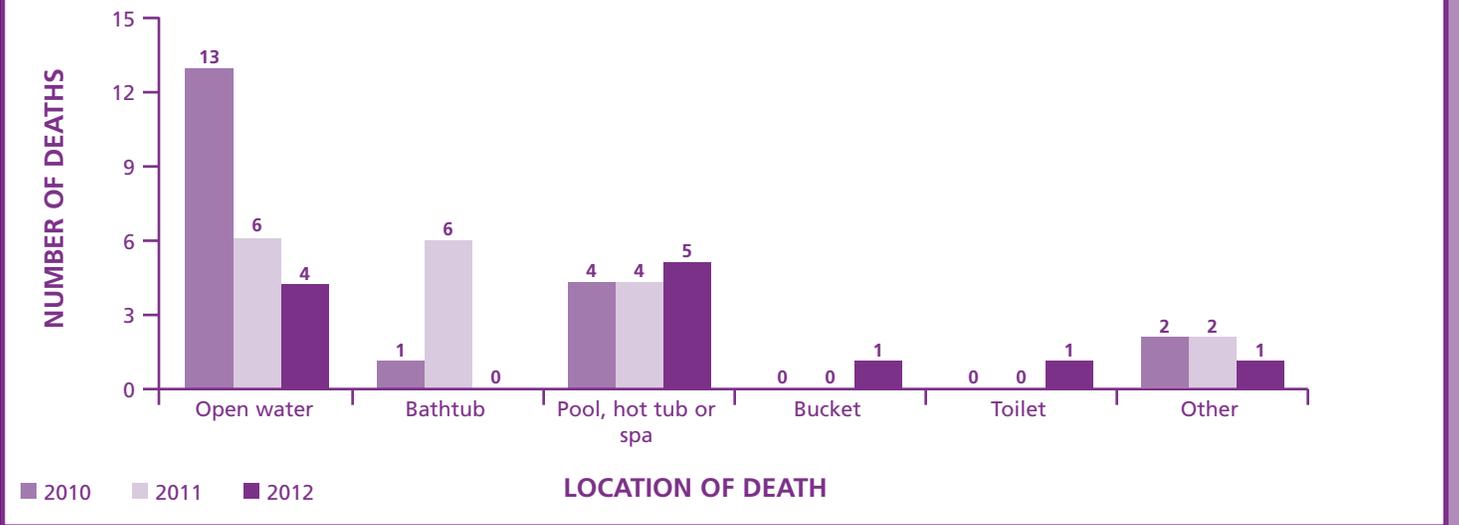
SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	2	2	6	WHITE	19	13	12
MALE	18	16	6	BLACK	1	5	0
	20	18	12		20	18	12

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 **12** Missouri children who drowned in 2012, **five** (42%) occurred in swimming pools, hot tubs or spas, **four** (33%) occurred in open water locations, **one** (8%) occurred in a bucket, **one** (8%) in a toilet and **one** (8%) occurred in an “other” location (in bed at residence).

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.

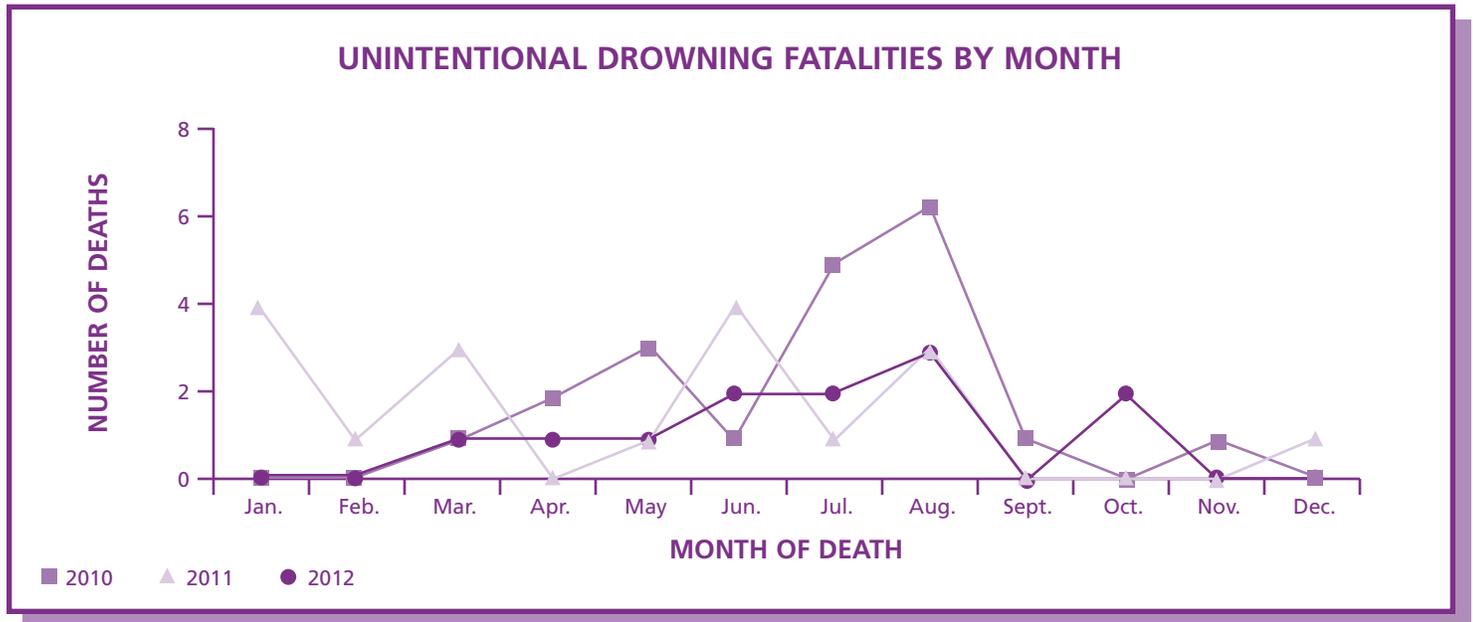
UNINTENTIONAL DROWNINGS BY LOCATION



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 2012, 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.
- Enroll children in swimming classes and water safety courses.
- 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 and are under direct adult supervision.
- 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:

- SAFE KIDS Worldwide <http://www.safekids.org/>
National Center for Injury Prevention and Control <http://www.cdc.gov/injury/index.html>
Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc/>
Consumer Product Safety Commission <http://www.cpsc.gov/>
Red Cross <http://www.redcross.org/>
The United States Lifesaving Association (USLA) <http://www.usla.org/>
Missouri State Highway Patrol - Water Patrol Division
. <http://www.mshp.dps.missouri.gov/MSHPWeb/WaterPatrol/index.html>

UNINTENTIONAL POISONINGS

In 2012, seven children died of unintentional poisoning*.

*Note: **Six** additional children died of poisoning, but **two** were suicide, **three** were considered child abuse and **one** was of an undetermined manner. These deaths will be discussed in the later sections of this report.

Representative Cases:

- **Parents need to ensure that their children use proper safety precautions.**

A 12-year-old boy was in the garage working on a truck and listening to the radio. Because it was storming outside, he had closed the garage door and was overcome by carbon monoxide fumes.

- **Teens often do not realize how deadly huffing can be.**

Upon coming home, a mother found her 15-year-old son deceased in the bathroom. There was no history of drug abuse. It was determined that the child died from acute pulmonary edema from huffing hairspray.

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

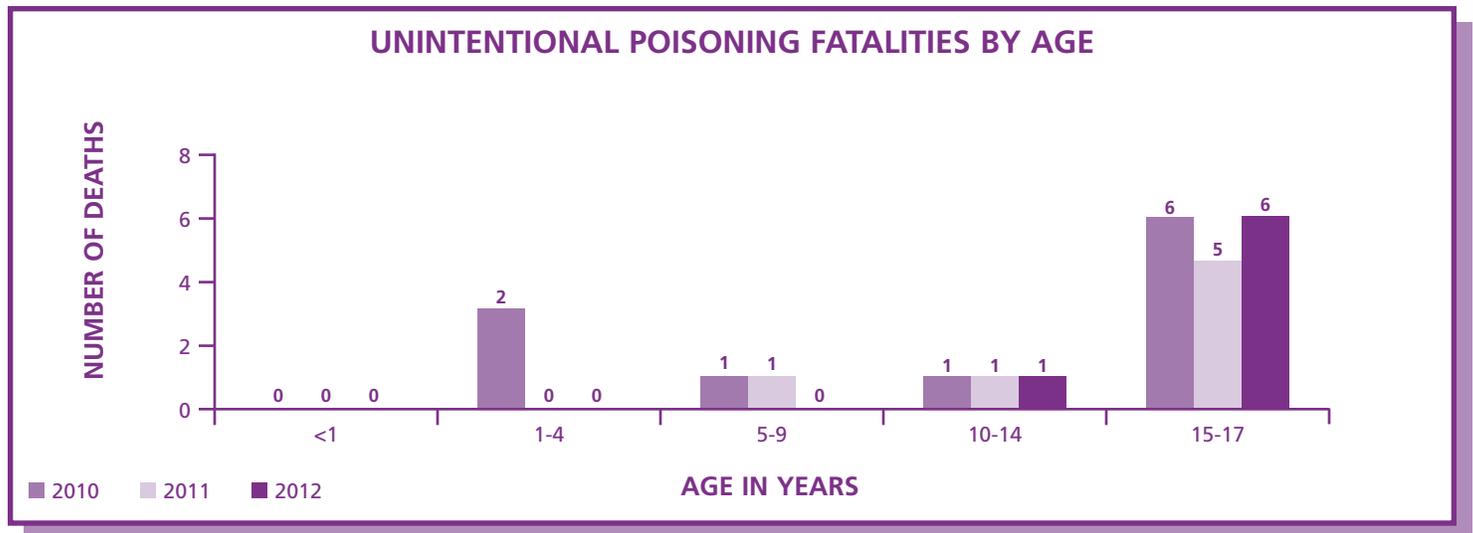
A 17-year old was witnessed taking xanax, oxycodone, methadone, marijuana and alcohol at a party. He went to a friend's home to sleep and was found unresponsive on the living room floor the next morning with a bottle of vodka beside him.

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 SAFE KIDS Worldwide, 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 2012, 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.

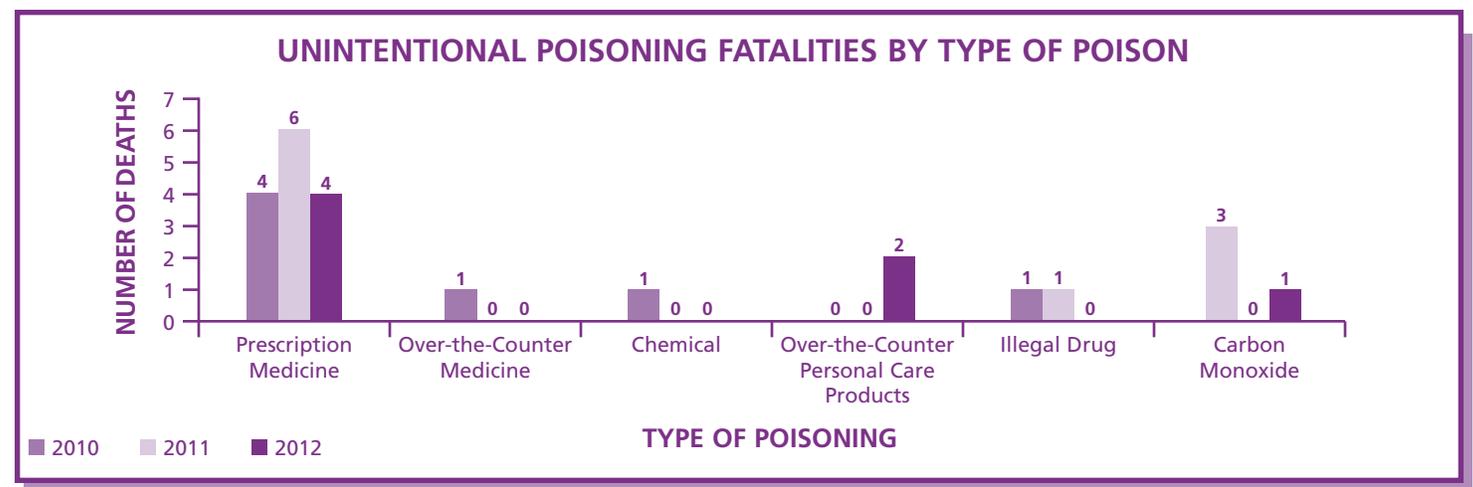
The Missouri Poison Center is an informational resource and provides statewide service 24-hours a day, 7-days a week, professionally staffed by nurses, pharmacists and physicians who are prepared to assist with exposures in all age groups. It is free service to the public and can be accessed, either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



Six Missouri teens, ages 15-17, died of unintentional poisoning in 2012, **two** died from the effects of huffing, and **four** overdosed from prescription medications from various sources.

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.
- Keep all medications where they are not readily accessible by children.
- Keep information for Poison Control and emergency services readily available.

For community leaders and policy makers:

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

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 2012, five Missouri 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.**

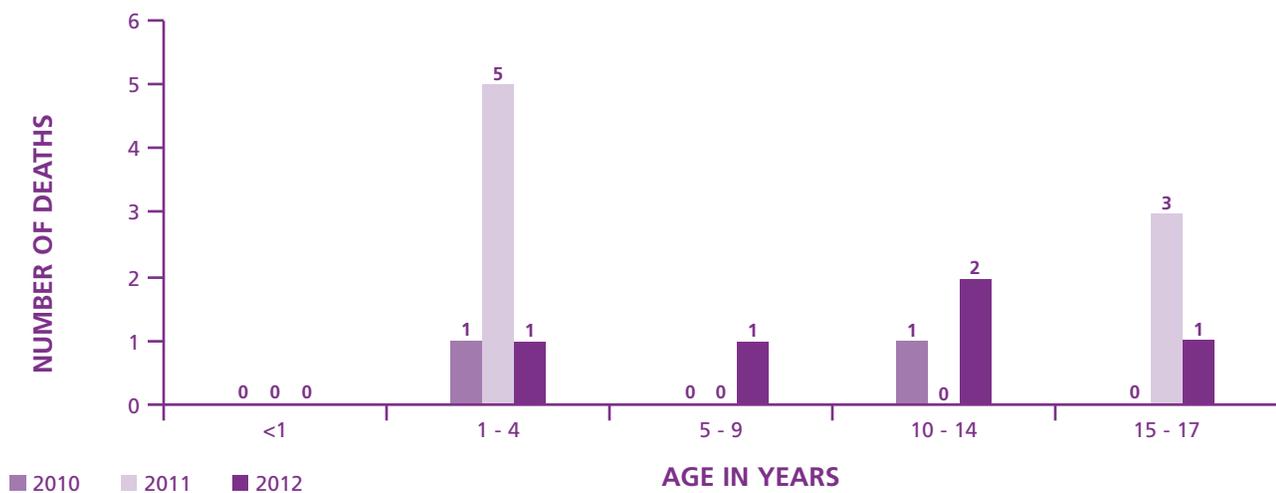
The father of a three-year-old child had a handgun in the seat of his recliner. The child got a hold of the gun when the father got up. The child accidentally shot himself in the chest, causing severe injuries to his heart and liver. The safety was off and the gun was loaded.

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

A 16-year-old boy brought a gun to a friend’s home. No parents were home at the time. The 16-year-old was pretending to rob the friend. There was a struggle over the gun and it accidentally discharged. Multiple weapons were present, as the group was on the way to a community event and felt carrying guns were necessary in case anyone “bothered them.”

According to the Center for Disease Control and Prevention, 98 children died in 2012, and another 1,625 children were injured through the accidental discharge of firearms 2012. In 2012, **five** Missouri children died of unintentional firearm injuries.

UNINTENTIONAL FIREARM FATALITIES BY AGE

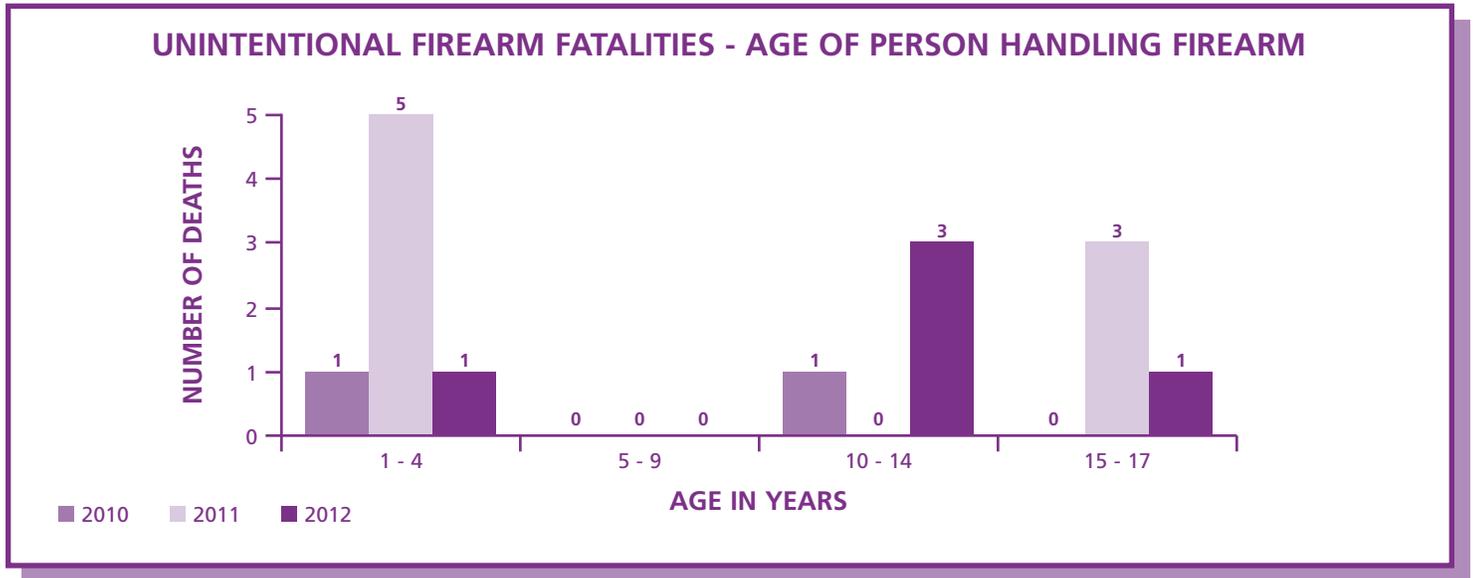


In the United States, males are far more likely to be injured and die from unintentional shootings than females. Of children 17 and under, who were killed by unintentional shootings in 2010, 85% were males.

In Missouri in 2012, all **five** of the victims of unintentional shootings were males.

Nationally, more than 70% of unintentional firearm shootings involve handguns. In 2012, **four** of the **five** unintentional firearm deaths among children involved a handgun, and **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 2012, **three** of the weapons were owned by family members, **one** was owned by a friend of the victim and the last **one** was supposedly found at a local skate park. **Three** of these weapons were stored loaded and unsecured, **one** was found in an open area and the last **one** was stored in a gun cabinet, but was out at the time, as it was being used for hunting.



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. **Four** of the **five** Missouri children, who died as a result of unintentional firearm injuries in 2012, 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.
- Parents should enroll children 11 years of age or older, in hunter safety and/or firearms educational courses.

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:

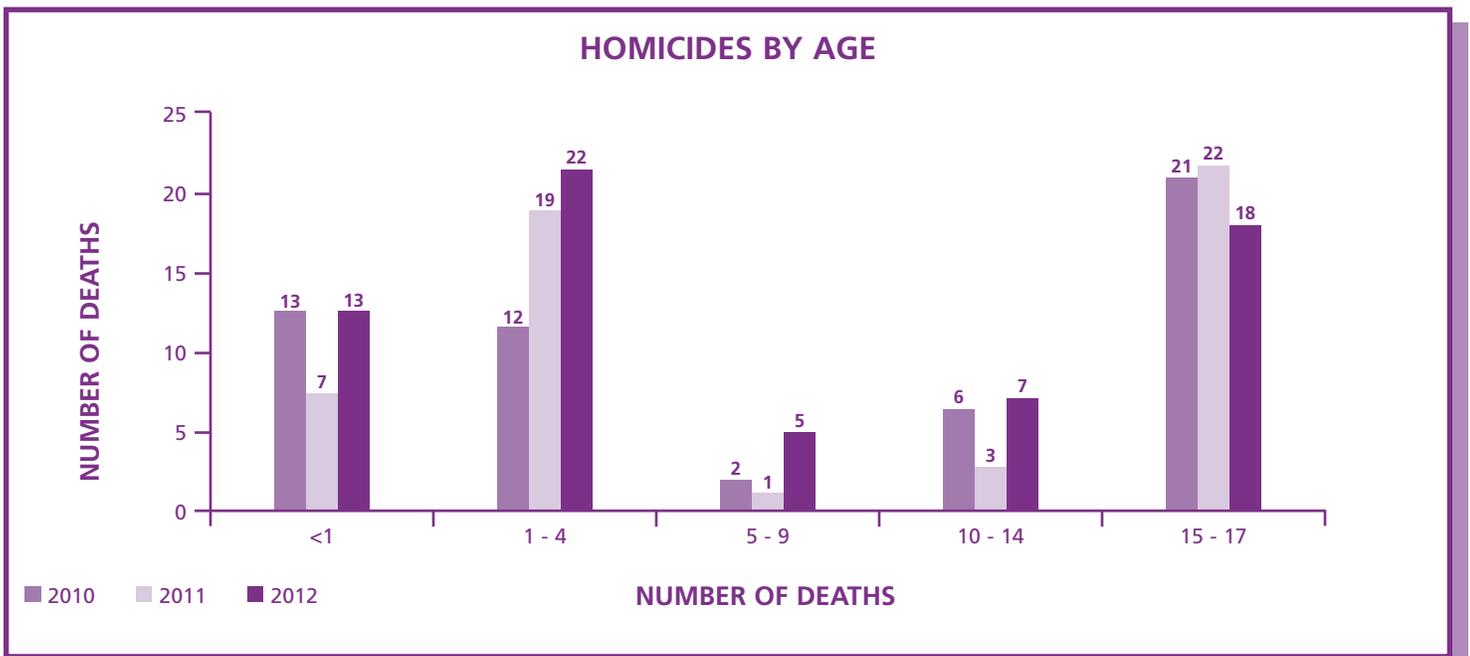
- SAFE KIDS Worldwide <http://www.safekids.org/>
- National Rifle Association “The Eddie Eagle GunSafe Program”
. <http://nrahq.org/safety/eddie/>
- Missouri Department of Conservation Hunter Education Program
. <http://mdc.mo.gov/hunting-trapping/learn-hunt/hunter-education>

HOMICIDES

In 2012, homicide was listed as the death certificate manner of death for 65 Missouri children.

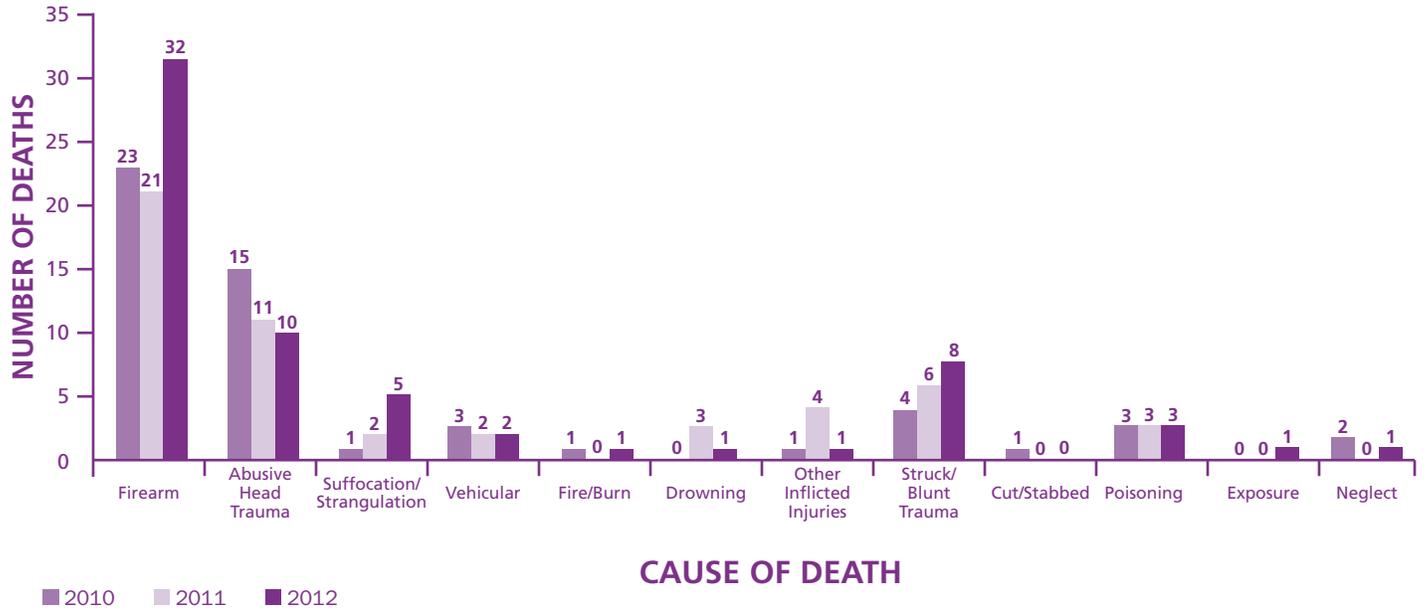
Fatal Child Abuse and Neglect: Child death resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent. This includes, but is not limited to, children whose deaths were reported as homicide by death certificate. In 2012, a total of 86 Missouri children were identified by CFRP panels, as victims of Fatal Child Abuse and/or Neglect; of those, 47 were reported by death certificate as Homicide, with 43 being considered “Child Abuse.”

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 22 such fatalities in Missouri in 2012. Of those, the CFRP panels identified four child deaths in which parental negligence was a contributing factor.



SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	20	17	27	WHITE	27	24	31
MALE	34	35	38	BLACK	23	25	29
				OTHER	4	3	5
	54	52	65		54	52	65

HOMICIDES BY CAUSE



when **STRESS** HEATS UP

keep your *Cool* Parent with Patience

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

www.ctf4kids.org Strong Families, Safe Kids

FATAL CHILD ABUSE AND NEGLECT

**In 2012, 86 Missouri children were victims of Fatal Child Abuse and Neglect.*
Of those, 43 were reported as homicide by Death Certificate.**

NOTE: Due to changes to the Child Death Review's Case Reporting System in 2011, 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.**

A one-year-old child was brought to the hospital, dead on arrival. Mother's paramour claimed the child had fallen off a coffee table the night before. Upon examination, it was found that the child had bruises to the head, pelvic area and back. The paramour was charged with 2nd Degree Murder.

A 911 operator received a call claiming that a three-year-old child had been struck and run over by a vehicle that had fled the scene. The child's injuries were not consistent with a vehicle accident. Mother's paramour confessed to beating the child using both his hands and feet. Both the paramour and mother were arrested and charged with 2nd Degree Murder.

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

A one-year-old child was crying uncontrollably. Father confessed to violently shaking the child and squeezing her face hard enough to leave fingerprints. He also bit her on the cheek trying to rouse her, after the shaking.

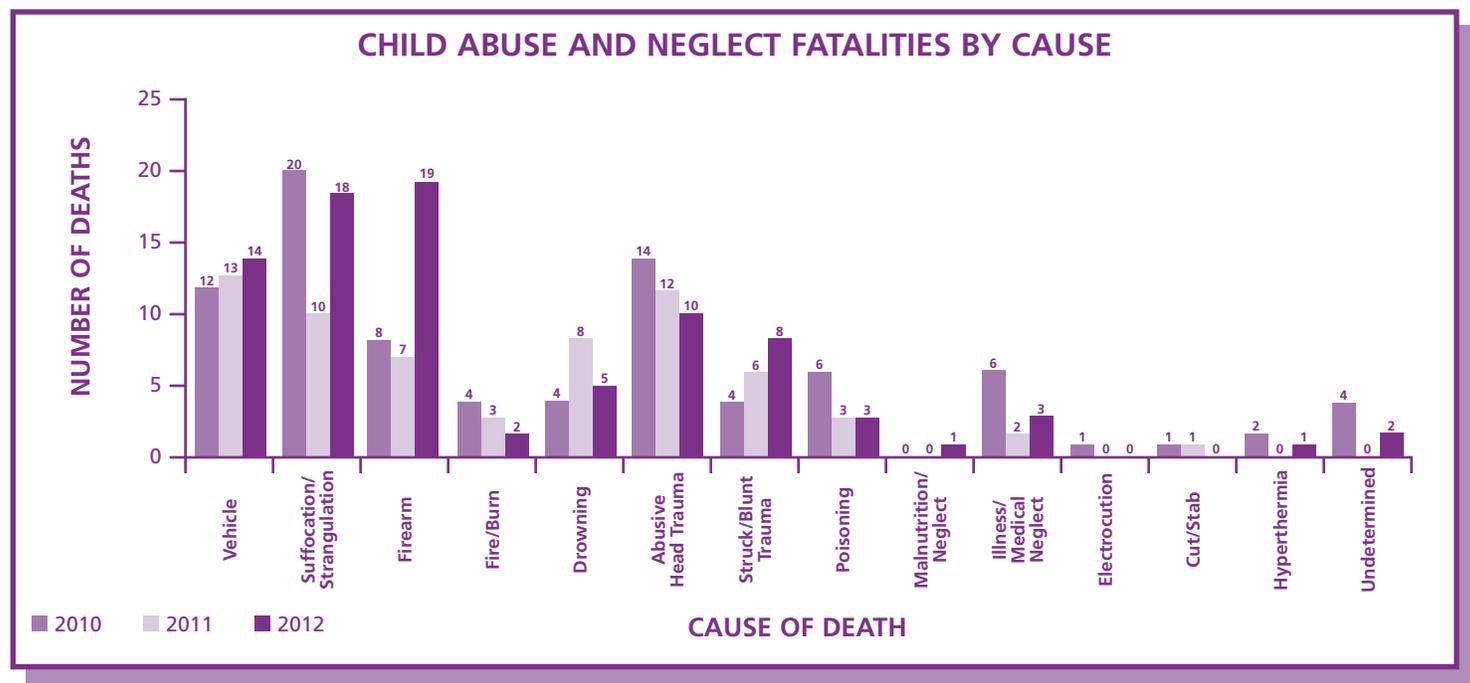
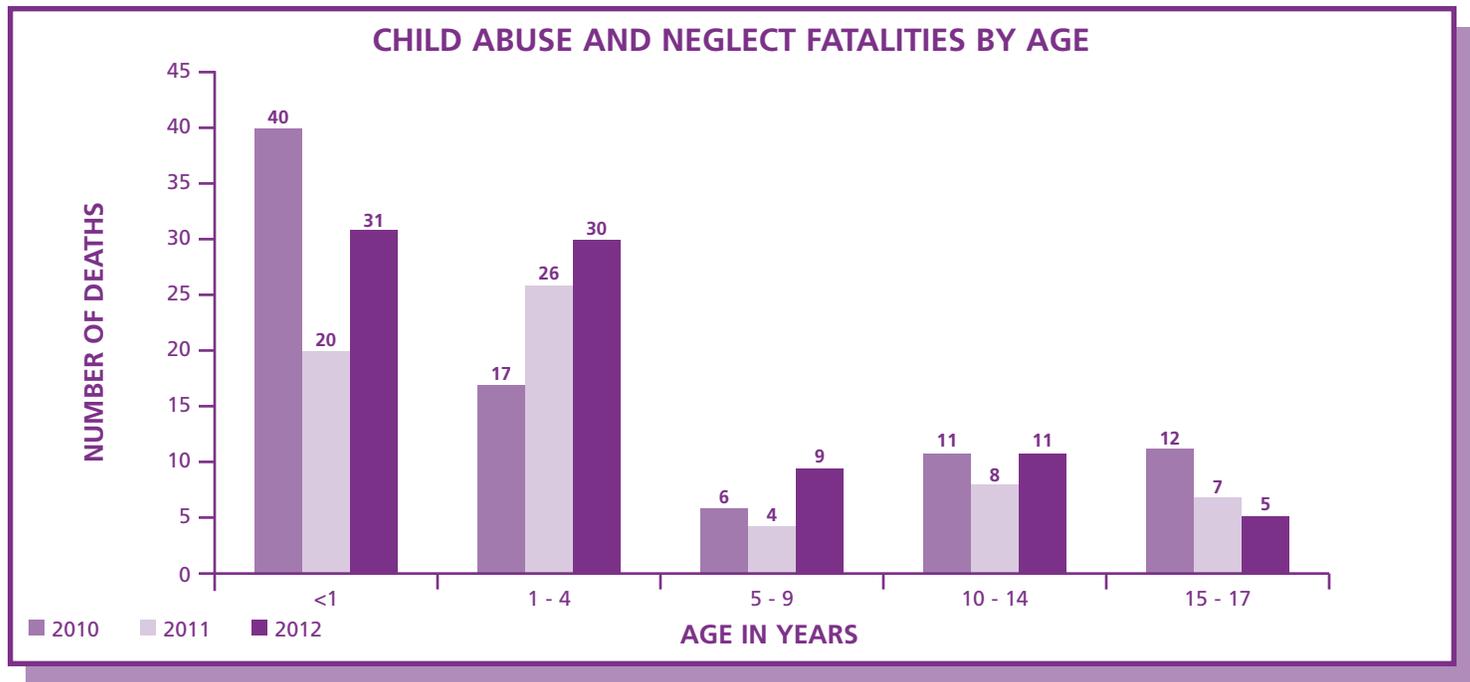
- **Domestic violence issues between adults often spills over onto children.**

A ten-month-old child died and his three-year-old sister was critically injured in a fire. Their father had locked the doors and set fire to their apartment, after shooting their mother and grandmother.

Mom killed three children, ages one, ten and eleven, and then herself. She had taken the kids with her to her ex-boyfriend's house, killed them in the van and then shot herself on the doorstep. She had sent an email to her ex-boyfriend that he received after the killing.

CHILD ABUSE AND NEGLECT FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	37	23	42	WHITE	61	43	55
MALE	49	42	44	BLACK	19	19	25
				OTHER	6	3	6
	86	65	86		86	65	86



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, lack of autopsy, inadequate investigation by law enforcement or child protection, misdiagnosis by a physician, or coroner determination of cause. 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 addressing 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.

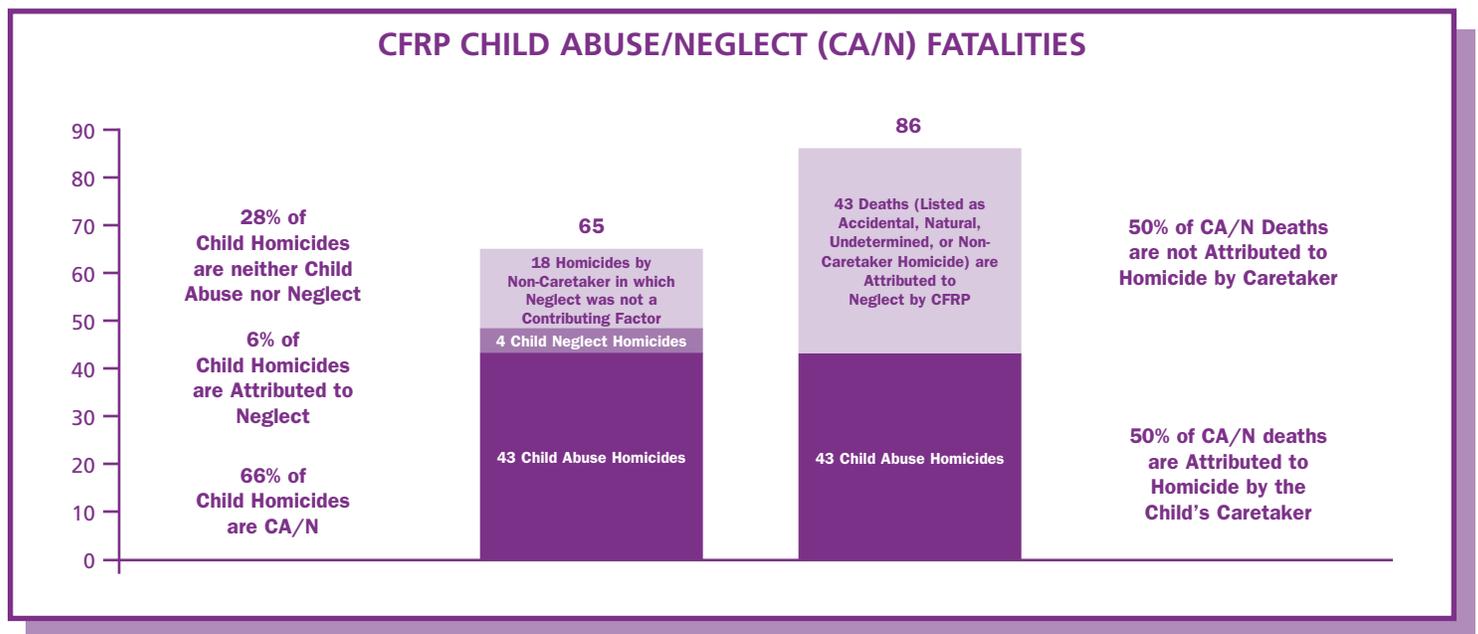
After a report of child abuse or neglect has been made, investigations that return sufficient evidence supporting the report are classified as *preponderance of evidence child abuse and neglect*. When there is sufficient evidence to prove that a child who died was abused or neglected, or when this finding 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.



FATAL CHILD ABUSE: INFLICTED INJURY

“Murder is no less a crime because a child, rather than an adult, is the victim.”

-Unknown

In 2012, 43 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 2012, **33** of the **43** Missouri children (77%) who died from inflicted abuse or neglect at the hands of a parent or caretaker were four years of age or younger. Of the **43**, **13** (30%) were infants under the age of one year.

In 2012, there was an alarming rise in the phenomenon of a parent or guardian killing their entire family, usually followed by their own suicide. There were **seven** such incidents in 2012, resulting in the deaths of **17** victims, **13** of which were children. **Three** of these incidents were carried out by fathers, **three** by mothers and **one** by an uncle. In **six** of these **seven** cases, the perpetrator killed themselves afterwards. The exact stressors which drove these caregivers to this extreme are unknown, but in **three** of the incidents the perpetrators were known to have prior mental problems, while the last **four** seemed to be driven by revenge against an ex-spouse or paramour.

FATAL CHILD ABUSE BY AGE	
<1 year	13
1-4 years	20
5-9 years	5
10-14 years	5
15-17 years	0

FATAL CHILD ABUSE BY SEX	
Females	20
Males	23

FATAL CHILD ABUSE BY RACE	
White	28
Black	10
Other	5

FATAL CHILD ABUSE BY CAUSE			
Firearm	13	Drowning	1
Abusive Head Trauma	10	Exposure	1
Blunt Trauma	8	Neglect	1
Suffocation	4	Vehicular	1
Poisoning	3	Fire/Burn	1

In 2012, **eight** 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.

Abusive Head Trauma

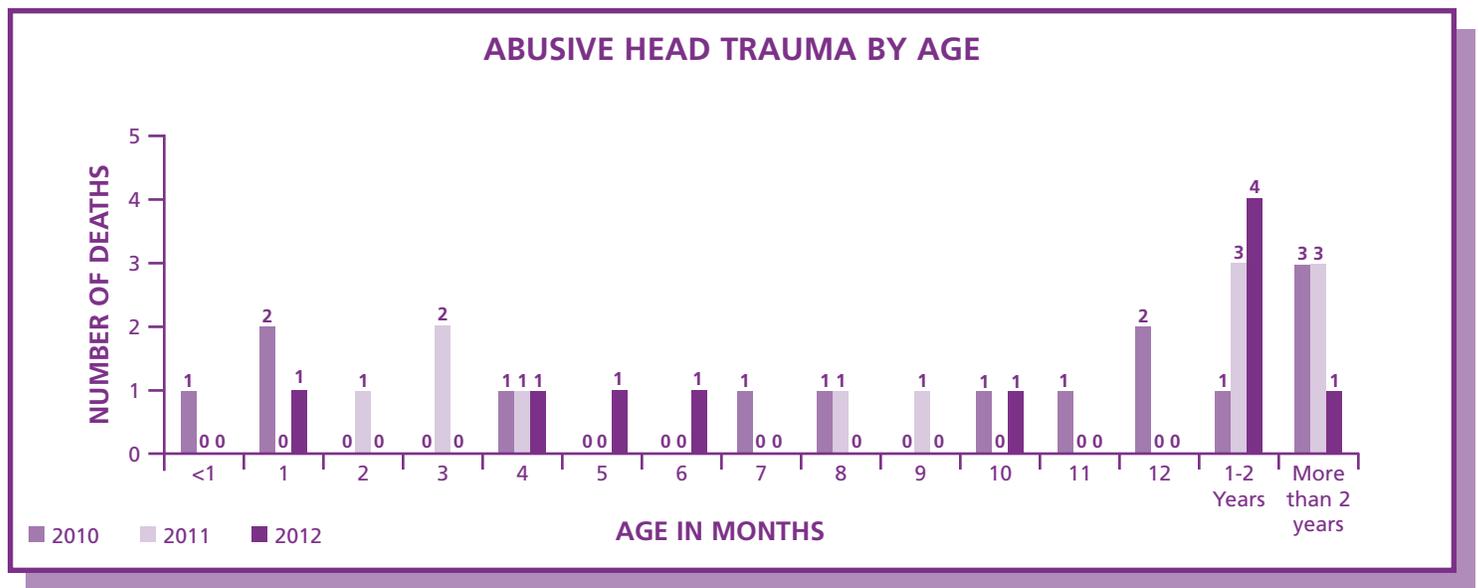
According to Harvard Medical School, in the United States, abusive head trauma is the second most common cause of death due to trauma in children and the cause of more than 95% of serious head injuries in infants less than one year of age. Of the **43** Missouri children who died from inflicted injury at the hand of a parent or caretaker, in 2012, **10** (23%) 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 injuries are 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. In 2012, 50% of the children who died from abusive head trauma were age one or older. It is unknown whether this is due to the better reporting of the deaths of the older children, or a lack of understanding that the prevention message of "Never shake a baby", also applies to toddlers.



ABUSIVE HEAD TRAUMA FATALITIES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	9	6	3	WHITE	8	7	8
MALE	5	6	7	BLACK	4	4	2
				OTHER	2	1	0
	14	12	10		14	12	10

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 in infants does tend to increase on a daily basis, starting at about one to two weeks, getting worse for up to two to three months and then starts to decline. 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, much 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 **10** children who died of abusive head trauma, crying is listed as the triggering event in **three** deaths (NOTE: **Six** 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 2012, perpetrators of abusive head trauma fatalities in Missouri included **four** birth fathers, **four** mother’s boyfriend, **one** aunt, and **one** birth mother.



FATAL CHILD NEGLECT: INADEQUATE CARE AND GROSSLY NEGLIGENT TREATMENT

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

Negligent treatment of a child is an act of omission, which is often fatal when due to grossly inadequate physical protection, withholding nutrition or health care necessary to preserve life. Child deaths resulting from grossly negligent treatment are frequently difficult to identify, because neglect often results in illnesses and infections that can be attributed to natural causes, 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, 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. Examples would be a child less than one-year old, who is left unattended in a bathtub with water running; or small children unrestrained while riding in a vehicle driven by an intoxicated parent.

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 2012, CFRP panels found that Grossly Negligent Treatment had contributed to the deaths of **86** Missouri children; of those **47** were designated as Homicide by death certificate – 43 were discussed in Fatal Child Abuse. The remaining **four** homicides are included in Other Homicides section. For data purposes, all 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	
4	Drowning	2	0	1	1	Two children died when they were unsupervised near a swimming pool. One child with Cerebral Palsy went unchecked for 17 hours and drowned when her feeding tube became dislodged. The last child had been given alcohol by an adult, before they went swimming.
1	Fire/Burn	0	0	0	1	One child died in a house fire and its sibling was critically injured. The smoke detector in the house were not working.
6	Firearm	3	0	2	1	Three children died from unsupervised access to firearms. Two teens died from suspected gang activity. One teen was killed while attempting to rob someone.
3	Illness/Natural Cause	1	0	2	0	One child died from maternal drug use, one child died from meningitis and one died from viral myocarditis. Both the latter children were ill for days and not taken to the doctor.
14	Suffocation	1	2	3	8	Ten children died from suffocation after sleeping with their parents. One died when a large feather pillow fell off the bed onto it while sleeping in a bouncy seat. One died from being wrapped tightly in a comforter and place face down on a bed and the last died from rebreathing after being placed in an unsafe sleep environment.
2	Undetermined	0	0	1	1	One child was found unresponsive with bruising on lower pelvis to vaginal area and both thighs. The autopsy was inconclusive. One child died from undetermined causes in a known meth house.
13	Vehicular	7	1	1	4	Two children in vehicle accidents years before, died from medical issues stemming from their injuries. Five pedestrians died from lack of proper supervision. Two children died when they were unrestrained during a vehicle crash. One child's car was struck by another vehicle driven by an intoxicated driver. One child died from a drag racing accident. One child died while unsupervised on an ATV. One child was backed over in the driveway.
Total Child Deaths = 43		14	3	10	16	

Investigation and Prosecution of Physical Child Abuse and Homicide

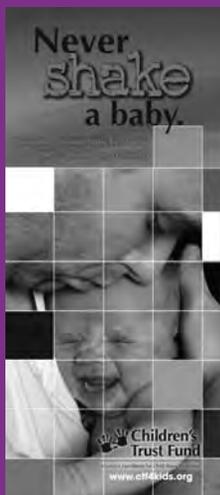
Most serious child abuse occurs in the privacy of the home, and seldom in the view of family or other witnesses. If evidence does exist, it is often concealed or destroyed. Perpetrators rarely fit the image of a criminal, and most jurors and judges find it hard to accept that any parent or caretaker 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, fatality 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.

National Center for Prosecution of Child Abuse, a program of the National District Attorneys Associationhttp://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.

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.

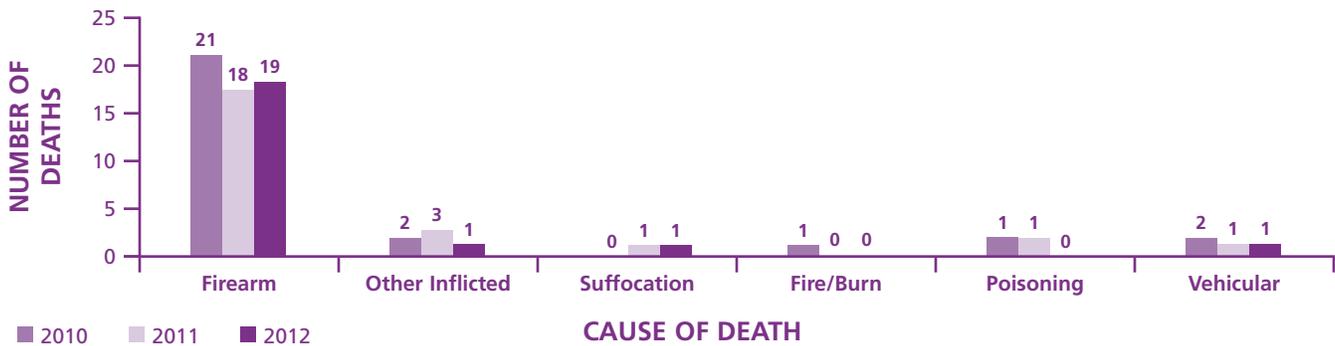
Resources and Links:

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

OTHER HOMICIDES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	5	7	7	WHITE	8	8	3
MALE	22	17	15	BLACK	17	15	19
				OTHER	2	1	0
	27	24	22		27	24	22

OTHER HOMICIDES BY CAUSE



Seventeen of the deaths were related to youth violence. **Ten** deaths were caused by the victim being involved in harmful behaviors which put them at risk, such as gang membership, illegal activities or involvement with drugs. 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 2009, 16% 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/violenceprevention>
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/>
Stop Bullying <http://www.stopbullying.gov>

SUICIDES

In 2012, 20 Missouri children committed suicide.

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

- D. L. Conway

Representative Cases:

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

A 17-year-old boy sent a text message to a girl that he was going to kill himself at 7:00 a.m. She did not get the message until nearly 7:30 a.m., at which time she called the police. His brother found him in his room dead from a shotgun wound to the head. The child had talked of suicide the day before. His mother had talked to him and “thought he was okay”.

A 17-year-old girl with a history of mental and emotional issues, and self-harming behaviors, was in a store with her mentor. She stole a bottle of aspirin and downed most of them. The mentor thought she was eating candy. The child died of aspirin poisoning.

- **Parents should monitor their children’s online activity.**

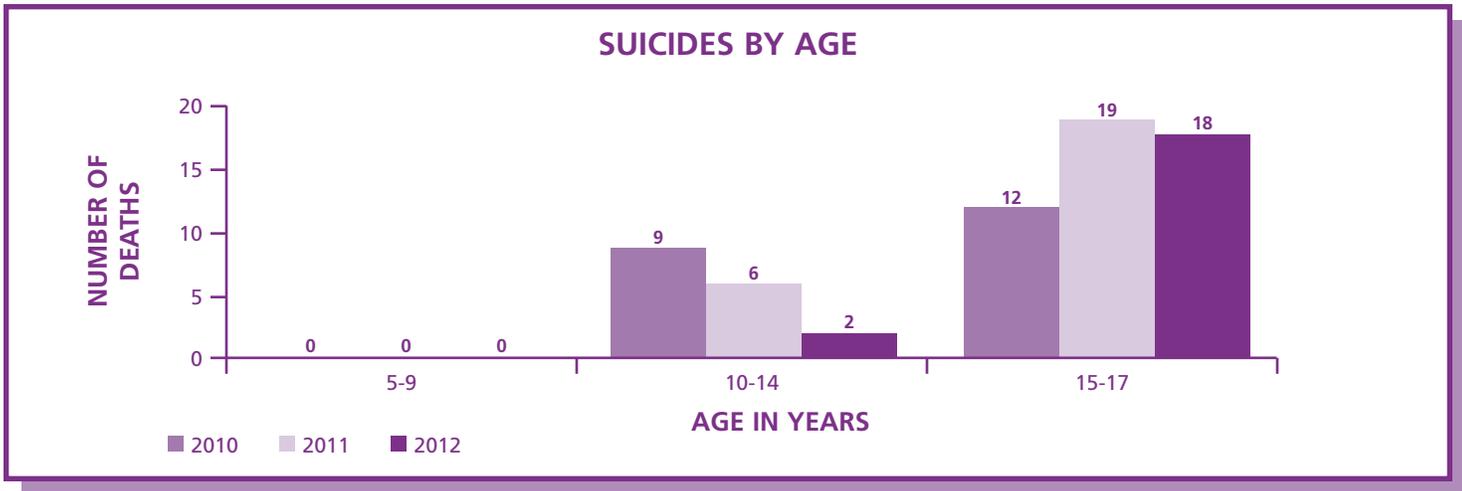
A 17-year-old boy died from a lethal amount of drugs. He had made a suicide pact with a girl in Canada. When he was discovered it was too late. There was no known history of suicide attempts or idealization, but he was bipolar with ADHD. The girl did not go through with the pact.

A 17-year-old boy was found hanging from a rope, by his father. He had a history of depression, abusing alcohol and drugs. His older brother had committed suicide previously. He had posted his intentions on Facebook the day before committing suicide.

- **Bullying and other social pressures can drive a child to suicide.**

A 15-year-old girl was found by her father, at 6 a.m., hanging from the rafters in her room. Her parents and school officials were aware she was being bullied at school, but there were no indications she was suicidal. There was no actual suicide note, but the girl wrote nasty insults to herself on her mirror, prior to hanging herself.

National Center for Injury Prevention and Control statistics report that from 2000 to 2010, 300 to 450 kids ages 12 to 15 killed themselves every year — about one a day. Suicides, in general, claim the life of someone in the United States every 15 minutes. According to Missouri Department of Mental Health, for over a decade, the suicide rate in Missouri has been higher than the national rate. In 2010, Missouri’s suicide rate was the 22nd highest in the nation. Suicide rates for older adolescents and young adults ages 15-24 had decreased since peaking in the early 1990s, but have again been on the increase since 2009. In 2012, **20** children died of self-inflicted injuries; **18** were ages 15-17; the remaining **two** were children ages 10-14.

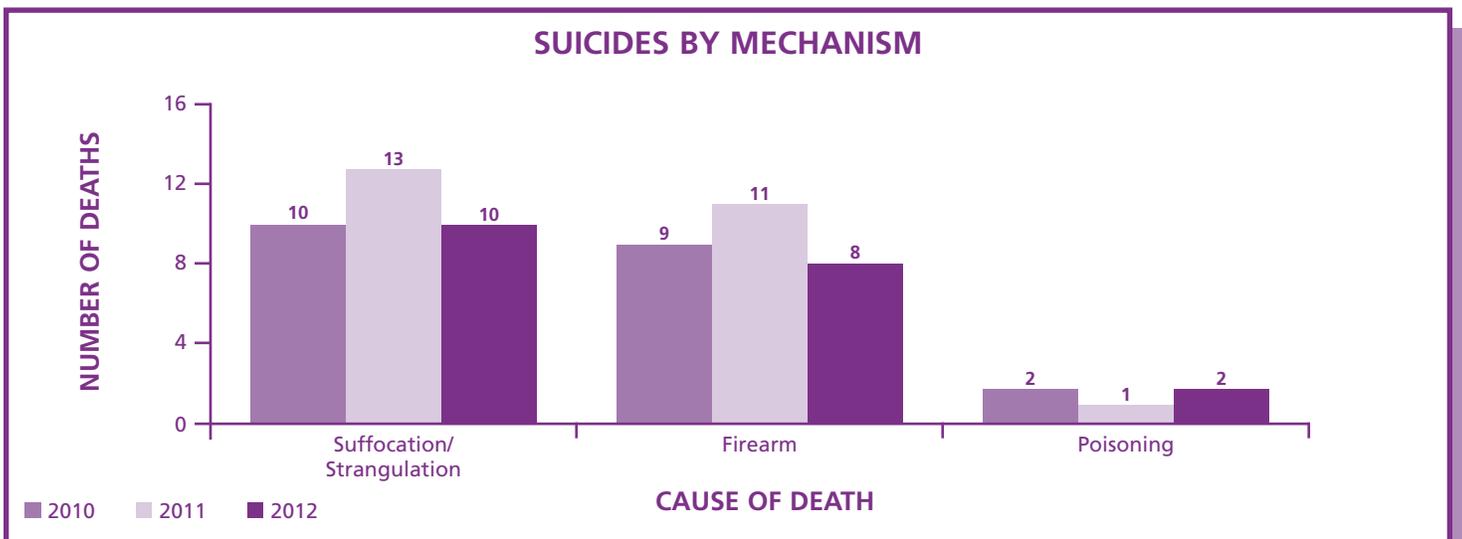


The Missouri Student Survey in 2012, found that 12.4% of all Missouri high school students and 15.7% of female high school students reported they seriously considered suicide in 2012. Many more students attempt suicide than those that succeed. In 2012, there was one successful suicide for every nine attempts. The suicide attempt rate for females ages 15-24 is more than double the rate for all Missourians, but more males succeed than females. Overall, males took their lives at nearly four times the rate of females, representing 78% of all suicides in Missouri.

SUICIDES BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	7	6	4	WHITE	20	23	17
MALE	14	19	16	BLACK	1	1	3
				OTHER	0	1	0
	21	25	20		21	25	20

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



Suicide is rarely a spontaneous decision and most people give warning signs that they are contemplating taking their own lives. Of the **20** Missouri children who committed suicide in 2012, **11** had displayed one or more warning signs.



While suicide is rarely spontaneous, many times it is brought about due to a personal crisis. **Thirteen** of the children who committed suicide in 2012, had a recent history of one or more personal crises.

RECENT HISTORY OF PERSONAL CRISES			
Drug or Alcohol Use	8	Parent’s Divorce/Separation	1
Argument with Parent/Caregivers	3	Bullying as a Victim	1
Problems with the Law	3	History of Running Away	1
Breakup with Boyfriend/Girlfriend	2	History of Self Mutilation	1
Argument with Boyfriend/Girlfriend	2	Physical Abuse/Assault	1
Suicide by Friend or Relative	2	Involvement with the Internet	1
History of Family Discord	1	None Known	1

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 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

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 – A Collaborative Effort – Bringing a National Dialogue to the State, Revised 2012, 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:

- Maintain open lines of communication with a willingness to listen, understand and discuss your children's concerns.
- 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.
- Maintain contact information for local mental health resources.

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
Offers suicide prevention training to school personnel.

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

American Foundation for Suicide Prevention <http://www.afsp.org/>

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

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

Children’s Safety Network: Suicide Prevention Resource Guide 2012
. <http://www.childrenssafetynetwork.org/sites/childrensafetynetwork.org/files/YouthSuicidePreventionResourceGuide2012.pdf>

Center for Disease Control and Prevention–Suicide Prevention
. http://www.cdc.gov/violenceprevention/pub/youth_suicide.html

“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.”

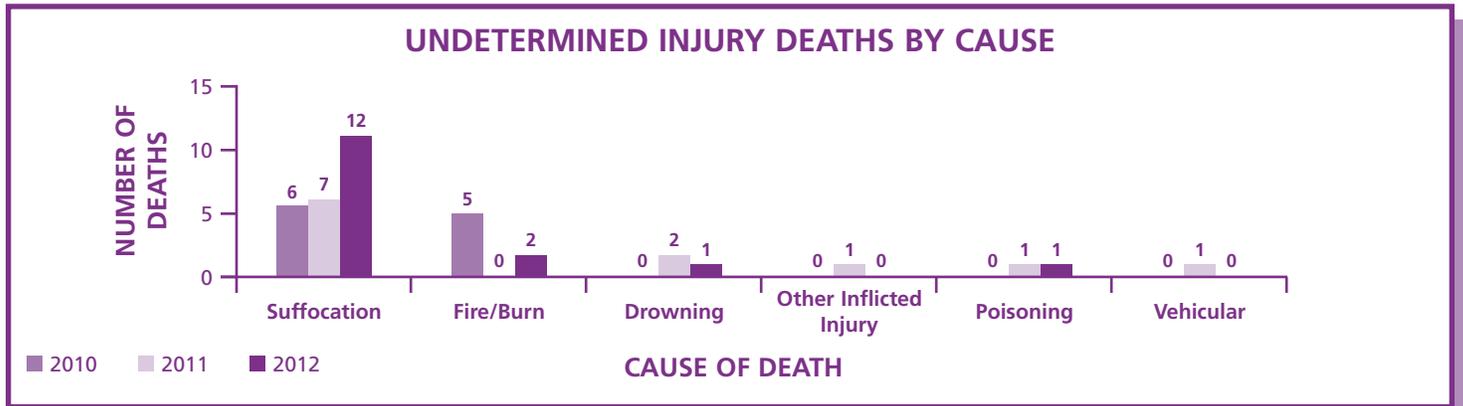
-National Strategy for Suicide Prevention

UNDETERMINED INJURY

In 2012, 16 children died of injuries whose manner could not be determined.

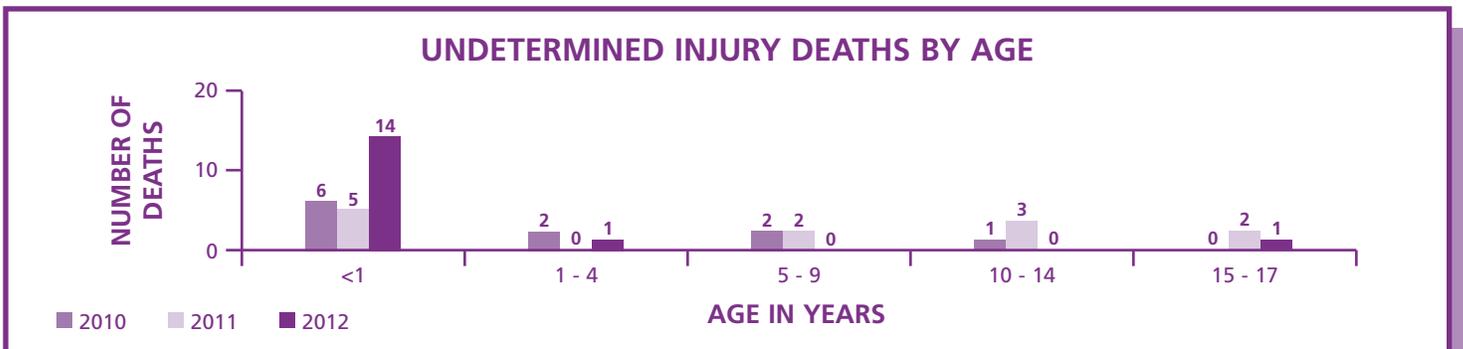
When a child dies, the cause of death is often evident, but the actual intent might not be readily determined. For example, when a teenager dies from suffocation, poisoning, pedestrian injury or vehicle crash, the difference between the event being intentional or unintentional is sometimes impossible 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 2012, there were **16** injury deaths of undetermined manner.



UNDETERMINED INJURY DEATHS BY SEX AND RACE

SEX	2010	2011	2012	RACE	2010	2011	2012
FEMALE	6	4	8	WHITE	9	9	6
MALE	5	8	8	BLACK	1	1	9
				OTHER	1	2	1
	11	12	16		11	12	16



THE PRACTICAL APPLICATION OF CHILD FATALITY REVIEW: PREVENTION OF CHILD DEATHS

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.

State and local CFRP panels 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 CFRP 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 and has expanded to 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 CFRP 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 CFRP 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?)** The national-level, standardized case reporting tool and Internet-based data collection system is improving and protecting the lives of all children and adolescents on both the state and national level. The collection of uniform data allows for the opportunity to identify valuable state and 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 fatality 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 SAFE KIDS Worldwide and the National Center for Injury Prevention at CDC and the American Academy of Pediatrics provide research and prevention information.
- **Implementation of strategies where they currently do not exist. (How do you do it?)** Outcomes for prevention initiatives are generally functions of structure and duration. Short-term, emergency and educational programs are effective in the short term; unfortunately, such programs are usually based on the effort and enthusiasm of a few individuals and a limited funding source. Prevention initiatives that are integrated into communities as state systems are sustainable and effective in the long term. Examples include state laws that require proper restraints for child passengers in motor vehicles and helmets for children riding bicycles. In many areas, schools include safety education for children and health care providers who are in a unique position to assist in the prevention of child maltreatment, and actively promote health and safety for children. Many state and local entities responsible for licensing child care providers are mandating education on safe sleep for infants and toddlers, and prevention of child abuse, including abusive head trauma as part of their curricula.

Resources:

American Academy of Pediatrics	http://www.aap.org/
Children’s Safety Network	http://www.childrenssafetynetwork.org/
Consumer Product Safety Commission	http://cpsc.gov/
Harborview Injury Prevention and Research Center	http://depts.washington.edu/hiprc/
Missouri Child Fatality Review Program	http://www.dss.mo.gov/stat/mcfrp.htm
Missouri Child Death Pathologists Network	http://www.dss.mo.gov/stat/cpn.htm
Missouri Children’s Trust Fund	http://ctf4kids.org/
Missouri Prevention Center	http://education.missouri.edu/orgs/prevention/
National Center for Injury Prevention and Control	http://www.cdc.gov/injury/index.html
National Center on Shaken Baby Syndrome	http://www.dontshake.org/
National Center for Review & Prevention of Child Deaths	http://www.childdeathreview.org/
SAFE KIDS Worldwide	http://www.safekids.org/

PREVENTION FINDINGS: THE FINAL REPORT

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

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

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

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

The death of a child is a sentinel event that captures the attention of the community, creates a sense of urgency and a window of opportunity to respond to the questions, “What can we do?” County-based prevention activities serve to raise awareness, educate parents and caretakers, influence public policy and involve the community in prevention initiatives that protect and improve the lives of children. In 2012, 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 car full of teenage girls was parked on the railroad tracks telling ghost stories. When they heard the train, their car would not start and some of the girls could not get out of their seatbelts. Three teens died. The county plans to step up the enforcement of laws related to railroad tracks crossings and implement a plan to speak at schools about railroad crossing safety.
- Parents took their one-month-old child to bed, falling asleep with the baby cradled in her mother’s arms. They awoke to find the child under the blankets, deceased. The county plans to run a media campaign on safe sleep practices. A local billboard company volunteered to support the campaign by providing a roadway billboard.

Legislation, Law or Ordinance:

- A seven-year-old boy in the custody of his father, was found dead by firefighters in his bedroom in a charred trailer. Investigation found that the cause of the fire was arson, and the boy had been dead before the fire was started. The father was arrested and charged with murder, arson and child abuse. The CFRP panel recommended amendments to existing laws or new laws be passed to provide

a mechanism for the checking of criminal or abuse and neglect history of individuals in all cases involving custody or visitation rights of a child. They are also seeking a modification of local court rules relative to the appointment of Guardian Ad Litem in cases, or the triggering of more in-depth reviews of history of persons seeking custody of a child.

- Two children, ages eight and fourteen, were swimming near a dock and were electrocuted from improperly grounded equipment on the dock. The CFRP panel recommended changes to local regulations and/or ordinances concerning proper electrical maintenance around docks.

Community Safety Project:

- A fourteen-year-old, unrestrained passenger died when the vehicle she was riding in was struck by another car on a rural Missouri road. The other vehicle had traveled off the side of the road, overcorrected and struck the child's car. Both vehicles unsuccessfully tried to avoid the collision. In response, the CFRP panel arranged to have their state legislator meet with the Missouri Department of Transportation to discuss adding a shoulder to that section of the road to make both it and the nearby intersection safer.
- After numerous sleep-related infant fatalities in a greater metropolitan area, the surrounding counties CFRP panels recommended creation of a community safety project to focus attention on the problem. One of the larger metropolitan hospitals initiated a *Safe to Sleep* campaign to expand upon the successes of the previous *Back to Sleep* campaign.

Educational Activities In School:

- A seventeen-year-old boy with a history of drug problems was found in the park with a self-inflicted gunshot wound to the head. The local juvenile officer worked with the area schools to ensure information was available on both youth substance abuse and suicide prevention.
- A seventeen-year-old boy was at a party when he was shot by a fifteen-year-old boy. It is suspected that gang activities had something to do with the incident. The local CFRP panel recommended educational activities in local schools, that emphasized working on gang and other violence-related issues. A community Silence the Violence program has been enacted to help bring the issues to the forefront and let those causing the violence know that their actions will not be tolerated.

Changes In Agency Practices:

- A four-year-old child died from abuse by his step-mother. There had been multiple reports in three counties. The CFRP panel recommended review and possible changes in how child protective services follows abuse reports from county to county, as well as education in how to interview potential victims.

Education – Parent Education:

- An eleven-year-old child was riding an ATV in a field near his home. He attempted to jump a hill in the field, when he was thrown from the ATV, which then landed on the boy. There were other children in the area, but no adults and the child wasn't wearing any protective gear. The panel arranged to have a newspaper article published on the laws governing ATV use by minors, as well as classes at the local schools about the dangers of riding ATV's.

- A three-month-old child died while sleeping with his parents on a mattress on the floor. He was found under the covers, face down against the wall. The CFRP panel plans to contact local medical providers and provide educational materials for them to share with pregnant patients, as well as contact local medical facilities to ensure that they are providing new parents with information on safe sleep practices. They are also working with a local child advocacy group that plans to provide a billboard on safe sleep, make arrangements for WIC to begin giving information to prenatal clients and provide programs for breastfeeding moms.
- A nine-year-old child, who had recently gotten over the flu, took ill again and passed shortly thereafter. The autopsy found that the child died of Reyes Syndrome, which is a disease of unknown causes, which seems to occur when products containing aspirin are used in conjunction with a viral illness. The CFRP panel is working with the local public health department to get information on Reyes Syndrome to parents of young children.

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

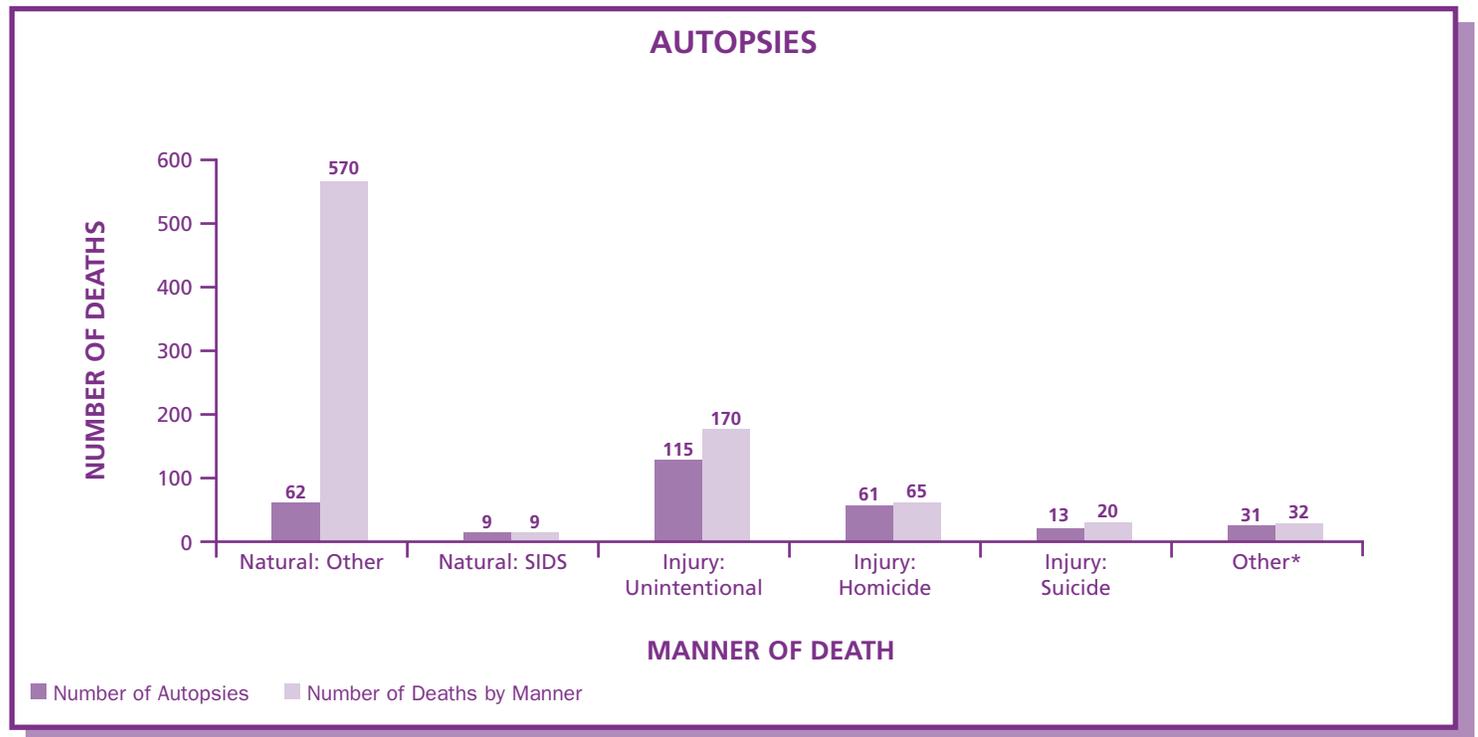


APPENDICES

APPENDIX 1. AUTOPSIES

In most cases, information gathered from an autopsy is a critical component in accurately determining the medical cause and manner of death, especially in the case of sudden unexpected infant deaths, but also provide answers to aid in a family’s grieving process or support adjudication of criminal cases. Missouri state statute, 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”. The need for all other child autopsies are based upon the circumstances surrounding the death, and determined by coroners and medical examiners in consultation with their local Certified Child Death Pathologist.

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. 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 CFRP panel (114 counties and City of St. Louis).

The county CFRP 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.

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

Certified child-death pathologists must perform child autopsies.

Knowingly violating reporting requirements is a Class A misdemeanor.

When a child's death meets the criteria for review, activation of the CFRP 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 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2010-2012

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Adair	1	3	0	1	3	0	0	2	0
Andrew	2	1	1	1	1	0	1	1	0
Atchison	0	0	0	0	0	0	0	0	0
Audrain	4	0	3	1	0	1	2	0	2
Barry	2	5	6	2	3	1	2	1	5
Barton	1	1	1	1	1	1	1	0	1
Bates	3	2	1	2	2	0	1	2	0
Benton	2	2	3	2	1	3	2	2	3
Bollinger	0	2	1	0	0	1	0	0	1
Boone	27	26	27	3	6	8	3	3	5
Buchanan	20	19	13	10	7	6	8	6	5
Butler	8	5	9	1	4	7	1	3	6
Caldwell	2	1	0	2	1	0	2	1	0
Callaway	2	6	5	1	3	4	1	3	1
Camden	6	2	3	3	1	2	1	1	2
Cape Girardeau	7	8	8	3	2	4	3	1	3
Carroll	4	2	1	3	2	1	3	2	0
Carter	4	1	2	4	1	0	2	0	0
Cass	11	5	10	6	4	7	5	3	6
Cedar	7	1	0	5	1	0	5	0	0
Chariton	1	0	1	1	0	1	1	0	1
Christian	5	3	7	4	2	5	4	1	3
Clark	1	1	2	1	1	1	1	1	1
Clay	19	24	19	9	11	13	4	5	7
Clinton	1	6	5	1	4	3	1	2	3
Cole	11	9	12	3	2	1	2	1	2
Cooper	0	1	2	0	1	2	0	1	1
Crawford	2	3	4	2	1	0	2	1	3
Dade	1	0	1	1	0	0	0	0	0
Dallas	2	2	1	1	2	1	0	2	1
Davies	0	2	0	0	1	0	0	1	0
DeKalb	1	0	0	1	0	0	1	0	0
Dent	2	2	2	1	2	1	0	2	1
Douglas	1	3	1	1	3	1	1	3	1
Dunklin	2	2	7	1	1	3	1	1	2
Franklin	16	13	17	11	11	12	9	9	9
Gasconade	0	1	1	0	1	1	0	1	1
Gentry	4	1	0	4	0	0	2	0	0
Greene	42	41	46	17	11	14	13	9	11
Grundy	1	2	1	0	1	1	0	0	0
Harrison	0	1	4	0	1	4	0	1	3
Henry	4	3	4	2	2	1	2	2	0

APPENDIX 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2010-2012

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Hickory	2	3	3	2	3	2	2	1	2
Holt	0	0	0	0	0	0	0	0	0
Howard	0	1	1	0	1	0	0	0	0
Howell	7	4	11	3	3	9	3	2	7
Iron	0	1	3	0	1	2	0	1	2
Jackson	120	112	132	67	54	63	31	29	34
Jasper	9	19	11	6	16	5	6	16	3
Jefferson	20	17	24	14	14	11	8	11	8
Johnson	8	6	3	4	5	0	1	2	1
Knox	1	1	2	1	0	1	1	1	1
Laclede	4	5	2	2	4	1	4	1	0
Lafayette	3	2	1	3	1	0	1	0	1
Lawrence	1	5	4	1	4	1	1	2	0
Lewis	0	1	0	0	1	0	0	1	0
Lincoln	3	6	3	2	4	3	2	3	3
Linn	1	1	1	0	1	0	0	1	0
Livingston	0	1	0	0	1	0	0	1	0
McDonald	4	5	0	2	3	2	2	3	2
Macon	1	3	1	0	3	1	0	2	1
Madison	2	3	0	2	0	0	2	1	0
Maries	0	0	1	0	0	1	0	0	1
Marion	5	8	3	5	3	1	5	2	1
Mercer	0	2	5	0	2	0	0	2	0
Miller	0	6	4	0	6	2	0	5	3
Mississippi	1	1	6	1	1	5	0	1	2
Moniteau	3	2	1	2	2	0	0	2	0
Monroe	2	1	1	2	1	0	2	1	0
Montgomery	0	1	1	0	1	1	0	1	0
Morgan	3	2	5	3	2	4	2	1	4
New Madrid	5	7	2	4	7	1	3	5	1
Newton	11	7	14	8	2	5	7	2	5
Nodaway	0	2	0	0	0	0	0	0	0
Oregon	1	2	2	0	1	0	1	0	0
Osage	1	2	4	0	2	2	0	2	1
Ozark	2	1	0	2	1	0	2	0	0
Pemiscot	8	3	5	7	3	4	4	0	4
Perry	1	0	0	1	0	0	0	0	0
Pettis	9	2	5	7	1	0	5	1	1
Phelps	1	7	9	0	7	6	0	5	4
Pike	1	2	1	0	1	1	0	1	1
Platte	7	14	12	2	8	5	1	6	3
Polk	8	8	3	4	6	2	2	6	2

APPENDIX 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2010-2012

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Pulaski	1	7	1	1	5	0	1	5	0
Putnam	0	0	1	0	0	1	0	0	1
Ralls	1	1	2	1	1	0	1	0	0
Randolph	1	3	3	1	3	2	1	2	1
Ray	1	2	3	1	2	3	1	2	3
Reynolds	0	2	2	0	2	2	0	1	2
Ripley	3	0	2	1	0	1	0	0	1
St. Charles	30	32	19	11	16	5	9	11	3
St. Clair	0	0	0	0	0	0	0	0	0
St. Francois	4	6	10	3	6	10	2	3	5
St. Louis County	155	172	138	31	43	41	19	32	29
Ste. Genevieve	1	1	1	0	0	1	0	1	0
Saline	1	2	1	1	1	1	0	1	1
Schuyler	0	1	1	0	0	0	0	0	0
Scotland	0	1	0	0	1	0	0	1	0
Scott	3	6	8	2	5	3	1	2	0
Shannon	1	1	0	1	1	0	1	1	0
Shelby	1	0	0	0	0	0	0	0	0
Stoddard	3	4	3	3	2	2	1	1	2
Stone	2	0	7	1	0	2	1	0	4
Sullivan	2	0	1	1	0	0	1	0	0
Taney	8	5	4	6	4	0	3	1	0
Texas	6	6	6	0	1	0	1	1	0
Vernon	1	2	0	1	2	0	0	0	0
Warren	4	1	4	3	1	3	3	1	0
Washington	1	1	5	0	1	5	0	1	3
Wayne	1	2	1	1	1	1	1	1	0
Webster	1	2	9	1	1	4	1	1	2
Worth	1	0	0	1	0	0	0	0	0
Wright	2	3	1	1	3	1	1	2	1
St. Louis City	83	117	116	25	43	34	20	32	25
STATE TOTAL	802	868	866	367	422	374	254	298	271

APPENDIX 5. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY AGE, SEX AND RACE 2010-2012

Age	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
0	520	539	547	165	170	156	87	88	90
1	30	39	32	19	30	20	10	21	18
2	18	24	27	14	18	18	10	13	14
3	12	24	15	10	16	9	8	12	8
4	16	10	16	11	7	9	11	6	7
5	9	10	8	3	4	5	4	3	2
6	7	7	11	5	5	7	4	3	4
7	10	9	12	4	9	8	5	5	6
8	10	10	14	8	7	7	5	8	6
9	6	9	10	4	4	6	3	3	3
10	14	11	11	6	9	8	3	4	5
11	10	16	8	3	13	5	3	13	3
12	7	11	14	3	7	7	3	6	7
13	14	18	16	11	14	7	6	12	4
14	22	14	16	18	9	13	16	7	10
15	13	27	25	11	26	15	6	23	15
16	29	45	36	26	42	33	24	40	30
17	55	45	48	46	32	41	46	31	39
TOTAL	802	868	866	367	422	374	254	298	271

Sex	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Female	317	351	365	131	170	144	92	107	105
Male	485	517	501	236	252	230	162	191	166
TOTAL	802	868	866	367	422	374	254	298	271

Race	All Deaths			Reviewed Deaths			Injury Deaths		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
White	563	574	601	264	288	253	191	212	188
Black	197	230	215	85	106	107	47	67	69
Other	42	64	50	18	28	14	16	19	14
TOTAL	802	868	866	367	422	374	254	298	271

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.
- Excludes all injuries, natural (non-injury) causes and births occurring within federal military installations located in Missouri, which are handled the same as out-of-state incidents.

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 CFRP panel meeting process information 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 being due to SIDS.

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

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 or the incident occurred on a federal military installation in 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 or the incident occurred on a federal military installation, 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 *preponderance of evidence* finding for 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 which certified child death pathologist conducted the autopsy and how the autopsy was paid for.

APPENDIX 7. DEATH CERTIFICATE MANNER OF DEATH

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

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

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

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

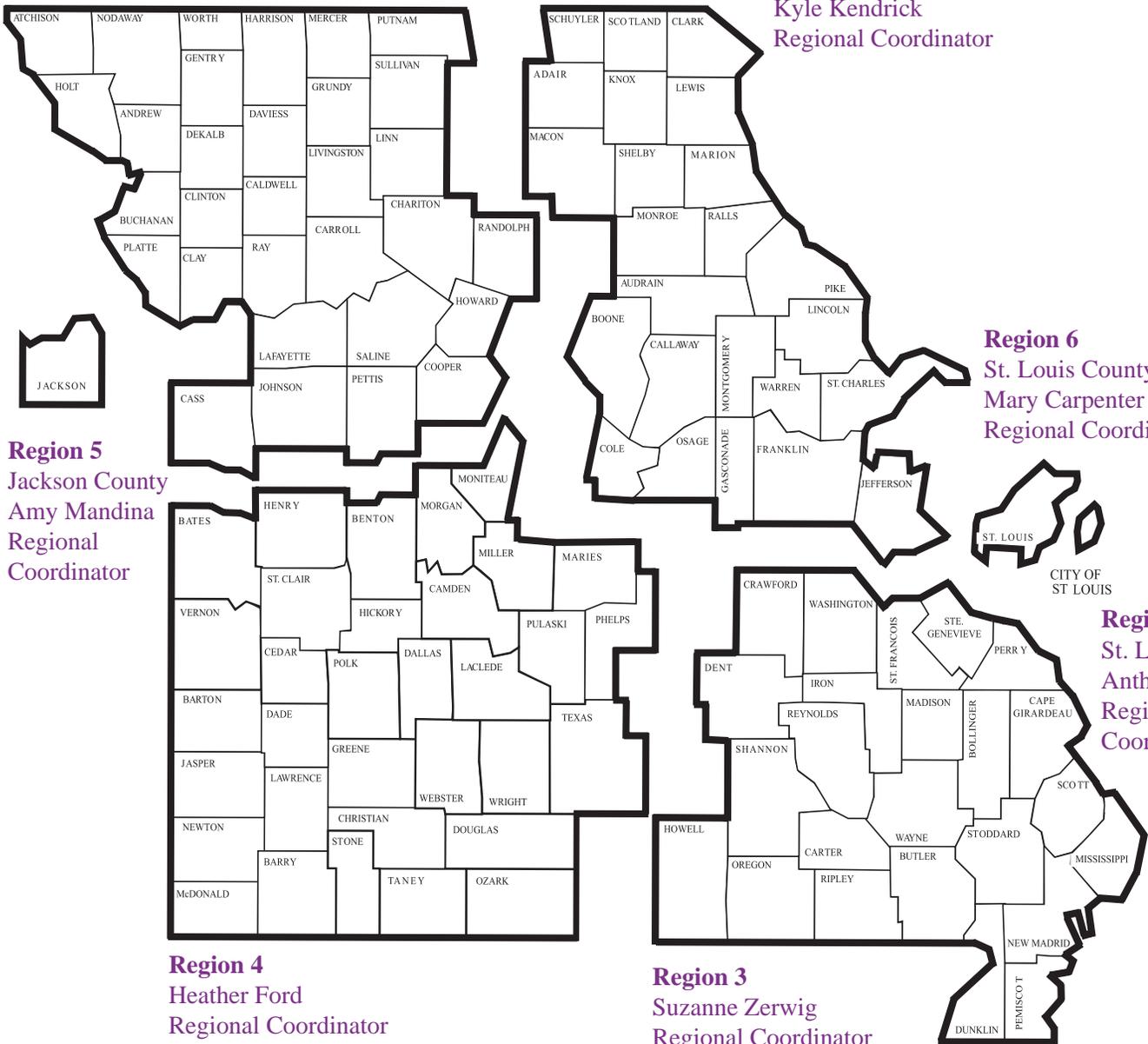
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