

Preventing Child Deaths

in Missouri



**The Missouri Child Fatality
Review Program
Annual Report for 2013**



**THIS REPORT IS PROUDLY PRESENTED BY THE
STATE TECHNICAL ASSISTANCE TEAM
(2013)**

**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
Ryan “Chad” Bailey, Investigator
Michael Gray, Investigator
John Pehle, Investigator
Cory Stoff, Investigator**

Douglas Beal, MD, 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**





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

Brian Kinkade, Director
Missouri Department of Social Services

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Office of Administration

PREVENTING CHILD DEATHS IN MISSOURI

THE MISSOURI CHILD FATALITY REVIEW PROGRAM

ANNUAL REPORT FOR 2013



**Missouri Department of Social Services
State Technical Assistance Team**

PO Box 208

Jefferson City, Missouri 65102-0208

(800) 487-1626

(573) 751-5980

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

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The Child Fatality Review Program State Panel (2013)

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

Brian Keedy
Camden County Prosecutor
Camdenton

Catherine Vannier
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

Dr. Keith Norton
Southwest Missouri
Forensics
Nixa

Law Enforcement

Sgt. Steve Tucker
St. Louis County Police
St. Louis

Colonel Bill Carson
Maryland Heights Police
Maryland Heights

Lt. Col. Sandra Karsten
Missouri State Highway
Patrol
Jefferson City

Children's Division

Candace Shively, Director
Jefferson City

John Steinmeyer
Jefferson City

Public Health Service

Doug Beal, M.D.
Forensic Pediatrician
Columbia

Terra Frazier, DO
Child Abuse Pediatrician
Children's Mercy Hospital &
Clinics
Kansas City

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

Sharmini Rogers, MBBS,
MPH, Chief
Department of Health and
Senior Services
Jefferson City

Juvenile Office

Tammy Walden
26th Judicial Circuit
Camdenton

Emergency Medical Services

Virginia Wilson
MU Health System
Columbia

Optional Members

Kirk Schreiber
Missouri Children's Trust
Fund
Jefferson City

Kelly Schultz
Office of Child Advocacy
Jefferson City

Joel Anderson
Missouri Division of Legal
Services
Jefferson City

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DEDICATION



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

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. Over 25 years of research has proven 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 Panels 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 continued evolution, the Missouri Child Fatality Review Program (CFRP) succeeds in remaining effective, relevant and sustainable. The success of the program is due in large part, to the support of county-based panel members, administrators and other child protection professionals who volunteer for this difficult work, which is a true expression of advocacy for children and families in our state.

Missouri legislation requires that every county in our state (including the City of St. Louis) maintain a multidisciplinary panel, at a minimum comprised of Coroner/ Medical Examiner, Law Enforcement, Juvenile/Family Court, Emergency Medical Services, Prosecutor, Public Health and Children's Division, to examine the deaths of all children under the age of 18. If the death meets program criteria, or by request of the coroner/medical examiner, it is referred to the county's multidisciplinary CFRP panel. Optional members may be added at the discretion of the panel. **The panels do not act as an investigative body.** Their purpose is to enhance the knowledge base of the mandated investigators; evaluate and address potential services needs; identify and implement prevention interventions for the family and community; and enhance multidisciplinary communications and coordination.

Of the average 1,000 child deaths annually in Missouri, approximately 40% merit review. To come under review, the cause of death must be unclear, unexplained, or of a suspicious circumstance, to include all injury, homicide or suicide deaths. All sudden, unexplained deaths of infants one week to one year of age are all 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, spikes 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.

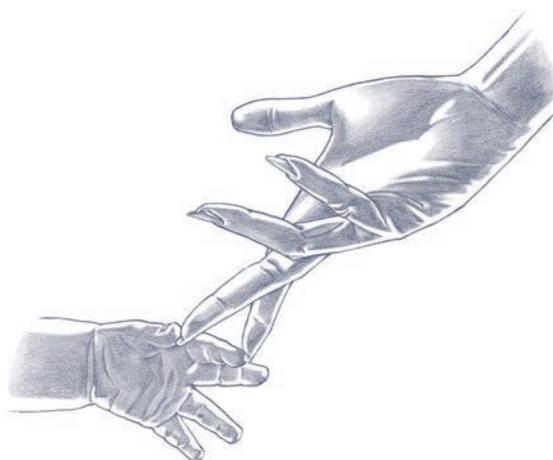
WHEN A CHILD DIES

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) 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, to 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 and implement ways to prevent similar deaths from occurring. **All information is kept confidential.**

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



MISSOURI INCIDENT FATALITIES

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

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

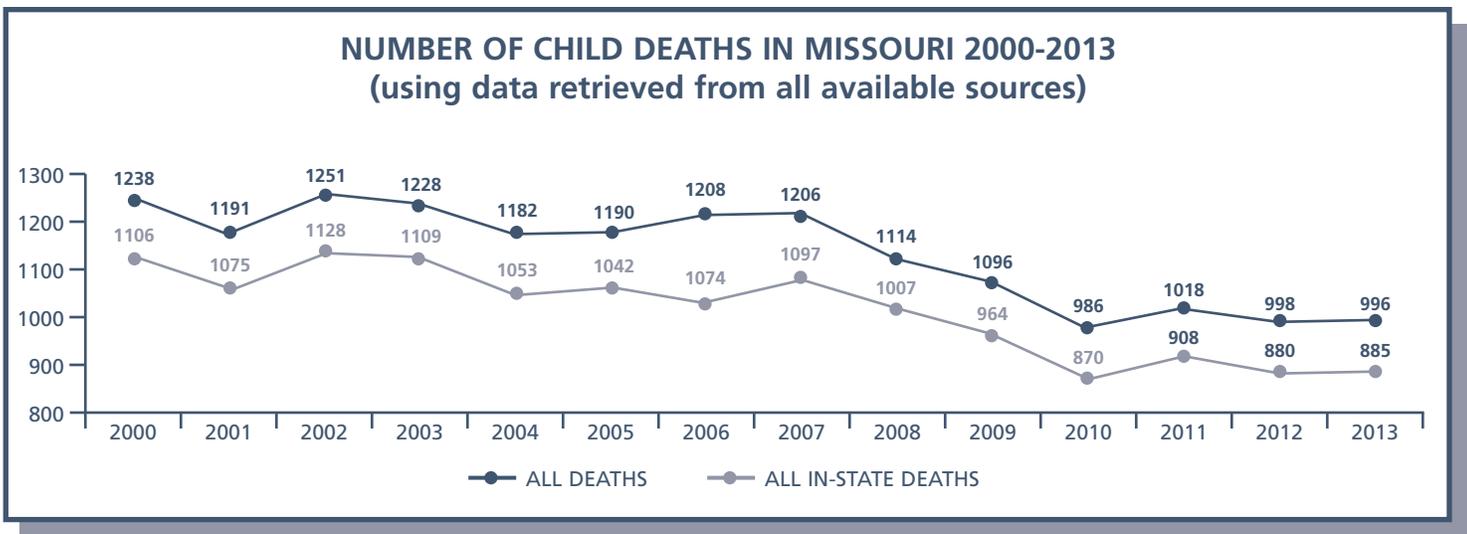
Missouri Child Fatalities refers to all children age 17 and under, who died in Missouri, without regard to the state of residence or the state in which the illness, injury or event occurred. (For example, a child who is a resident of Kentucky, injured in a motor vehicle crash in Illinois and is brought to a Missouri hospital, where he subsequently dies, would be considered as a “Missouri Child Fatality”.) All illness, injury and events 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 such deaths would be deemed non-reviewable, as the installations have their own review processes.

Missouri Incident Fatality refers to a fatal illness, injury or event, which occurs within the state of Missouri. 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.)

- Every Missouri incident child fatality is required to be initially reviewed by the coroner/medical examiner and the county CFRP panel chairperson to determine if death meets program 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, medical nonfeasance 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.
- CFRP data management 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 2013, although some cases may not have been brought to county panel review until 2014. Additionally, in a small number of cases, panels did not complete all of the information requested on the Child Death Review Case Reporting System.

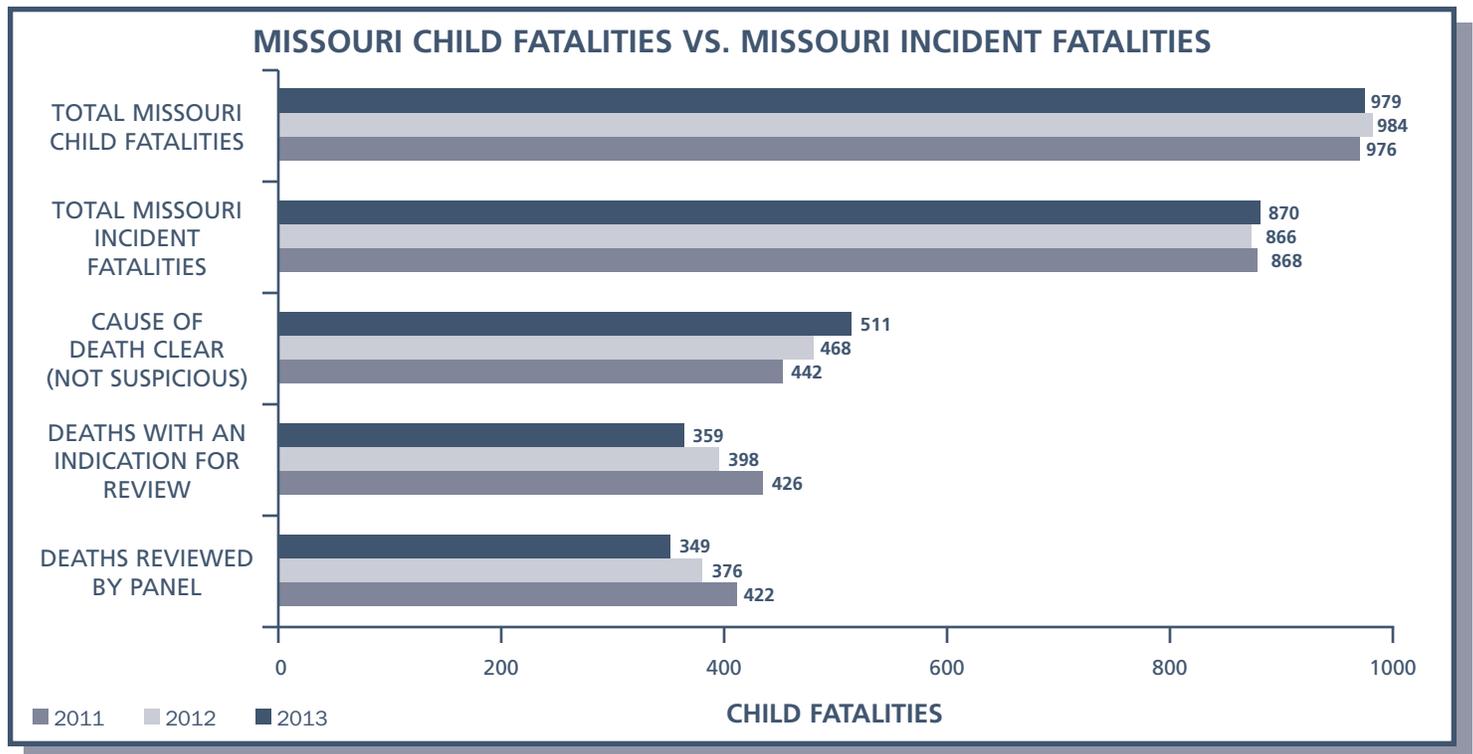
- **One Hundred Nine** Missouri Child Fatalities were due to events that occurred in either other states or on federal installations in Missouri. Although documented in the CDR Case Reporting System and a part of the total number of Missouri Child Fatalities, these deaths are not considered Missouri Incident Fatalities and are not otherwise addressed in this report.
- Of **359** Missouri Incident Fatalities with indication for review as reported in Child Death Review Case Reporting System in 2013, **10** did not receive required CFRP panel review, or panel findings were not entered. These fatalities are included in this 2013 CFRP Annual Report, because the data, though incomplete, is useful and accurate within the limitations of the information provided.
- **Fifteen** Missouri Incident Fatalities reported to the CFRP by death certificates from the Department of Health and Senior Service, were neither initially entered into the CDR Case Reporting System; nor, if applicable, received required CFRP panel review and panel findings entered. From information provided by the death certificates, six of those 15 fatalities (40%) had at least one indicator for review (motor vehicle fatalities). 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% and county child death reviews is 96%. 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 2013.



SUMMARY OF FINDINGS

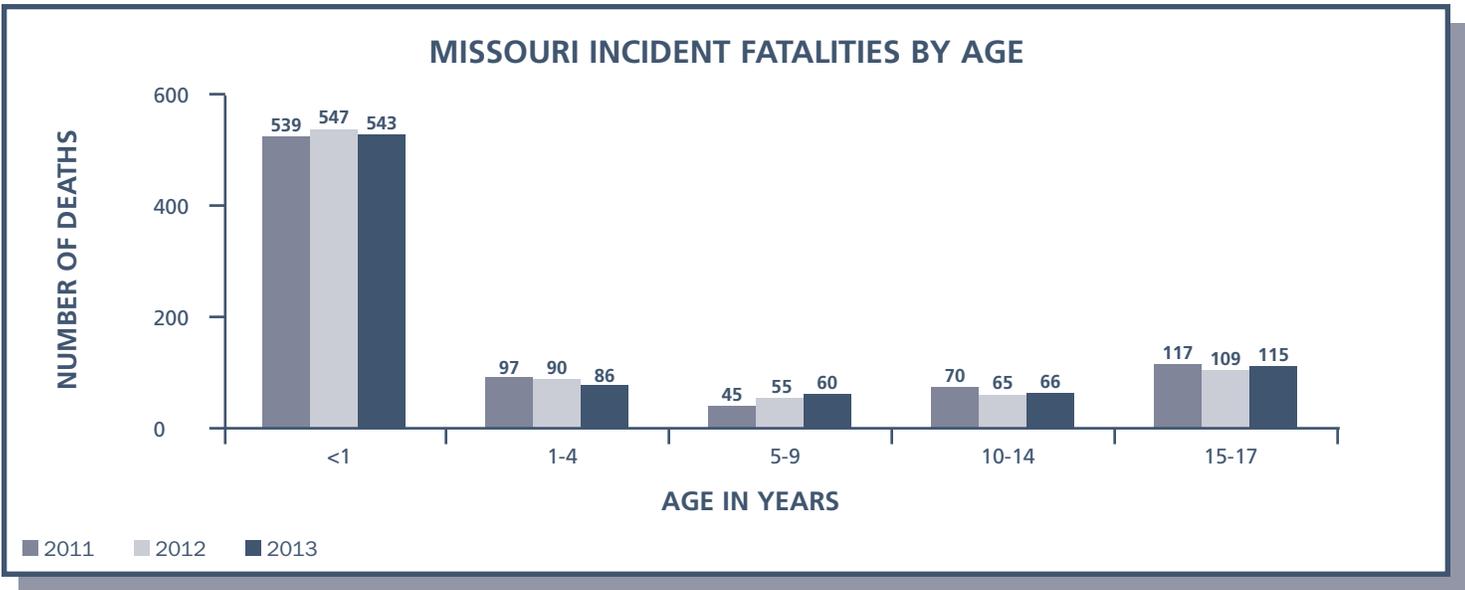
Missouri Incident Fatalities

In 2013, CFRP received information on **979** children age 17 and under, who died in Missouri. **One hundred and nine** deaths were due to events out of state or on federal installations. The remaining **870** 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 **511** (59%) determined to have not met criteria for detailed panel review. The remaining **359** (41%) had indicators for review and of those, **349** (97%) were reviewed by the county panels.

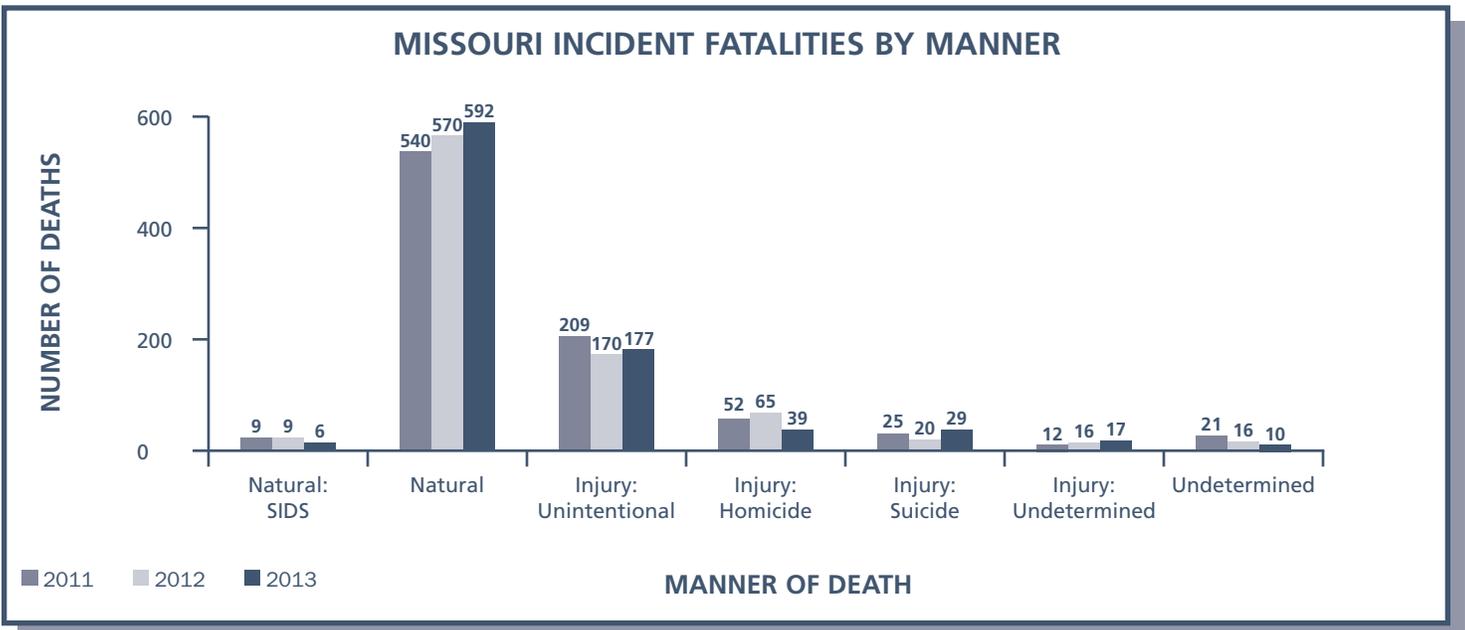


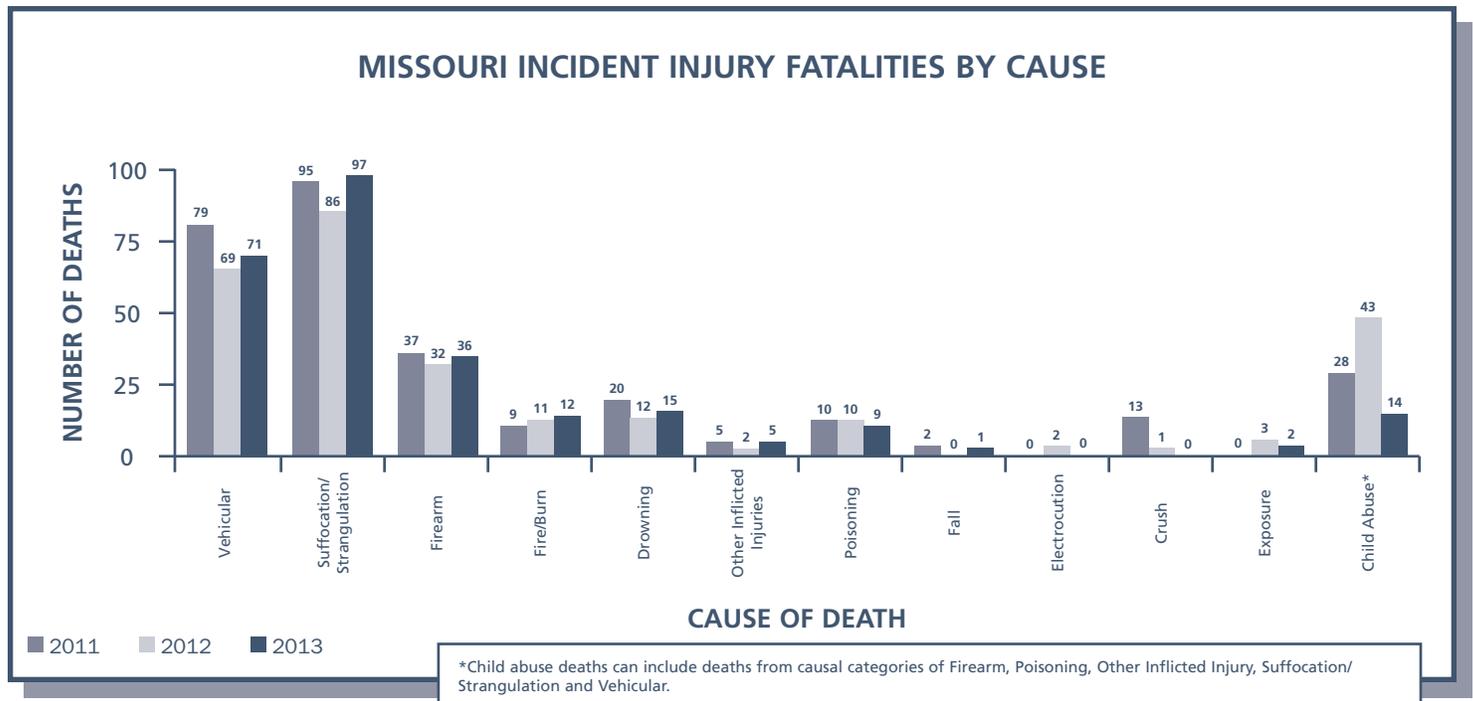
MISSOURI INCIDENT FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	351	365	365	White	584	610	600
Male	517	501	505	Black	249	227	232
				Hawaiian	0	0	1
				Pacific Islander	1	2	0
				Asian	12	6	12
				Multi-Racial	22	21	25
	868	866	870		868	866	870



“There is no footprint too small to leave an imprint on this world.”
-Author Unknown





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*

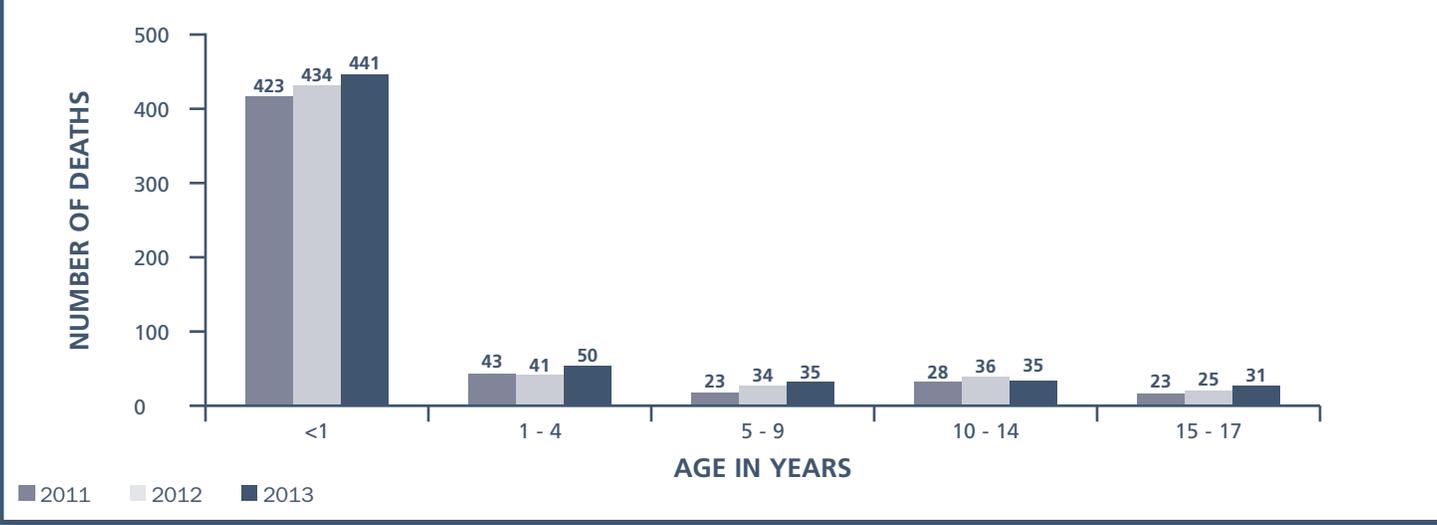
Natural fatalities, other than SIDS, were responsible for the deaths of 592 Missouri children in 2013, representing 68% of all Missouri incident fatalities.

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.

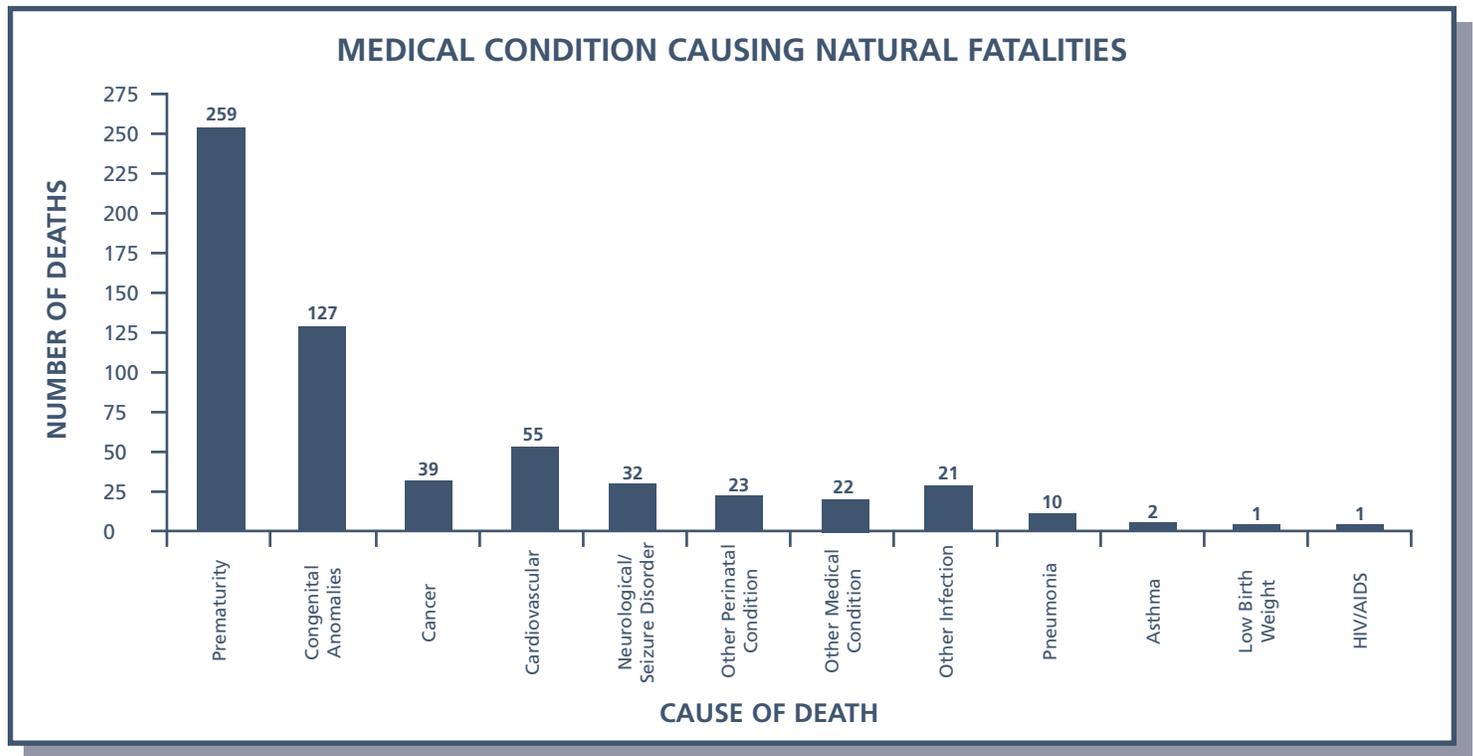
NATURAL FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	231	249	262	White	353	407	407
Male	309	321	330	Black	160	142	160
				Asian	9	5	11
				Multi-Racial	18	16	14
	540	570	592		540	570	592

ILLNESS/NATURAL FATALITIES BY AGE



Children die from a variety of medical conditions, but premature birth is the leading cause. Of the **592** natural deaths of children in Missouri in 2013, **259** (44%) 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 56th in the world for infant mortality, being behind such countries as Cuba and Croatia. 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. 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. This and other initiatives have helped to reduce the number of preterm births in the United States to a 15-year low of 11.5% in 2012.

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 2012, the most recent year with data available, the Center for Disease Control and Prevention (CDC) reports that the

**PERCENTAGE OF LIVE BIRTHS IN THE UNITED STATES BORN PREMATURE
(<37 weeks gestation) 1996-2012**



preterm rate is down to 11.5% of all births. Missouri’s rate for 2012 is higher than the national average at 11.7%, according to data provided by the March of Dimes in their 2013 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.

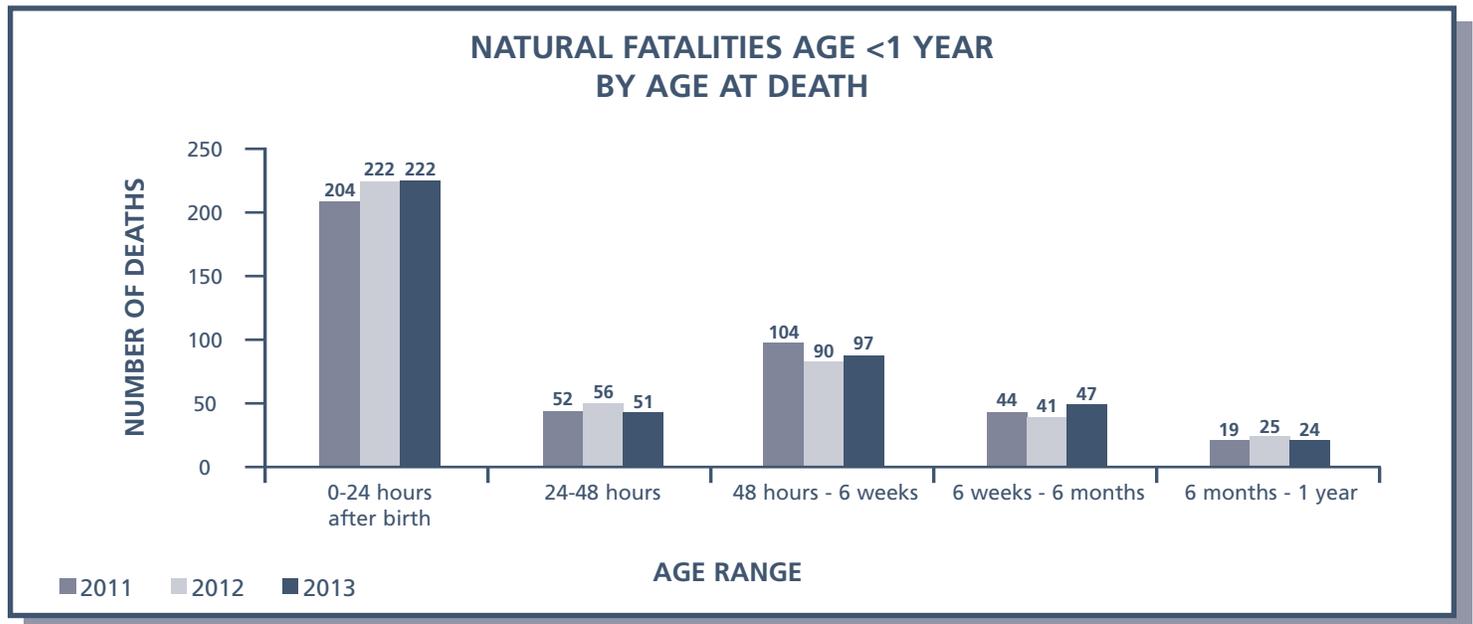
In Missouri, the infant mortality rate decreased from 6.6 to 6.5 deaths per 1000 live births, which is higher than the national rate of 6.17 deaths per 1000 live births.

MISSOURI INFANT FATALITIES PER 1,000 LIVE BIRTHS



*2012 data were corrected from previous years for finalized numbers from the Department of Health and Senior Services.
**2013 data was provisional as of the date of this report

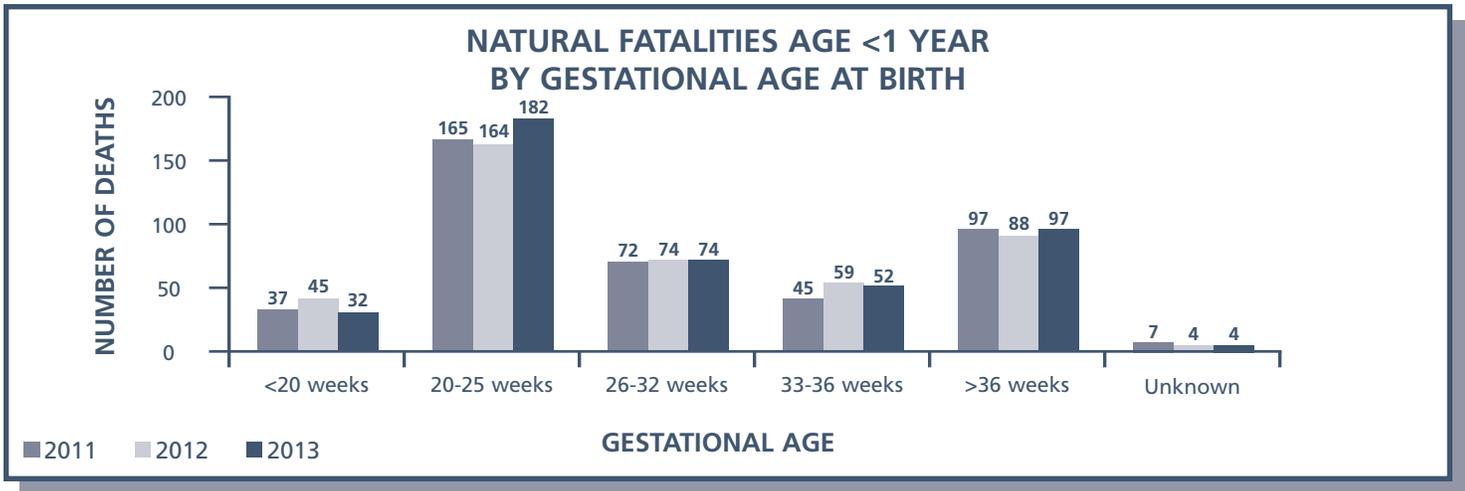
Infants less than one year of age comprise the majority of natural cause deaths in 2013, with **441** (75%). Of the **272** deaths that occurred within the first 48 hours, **222** (82%) occurred within 24 hours after birth.



NATURAL FATALITIES AGE <1 YEAR BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	179	189	201	White	269	304	292
Male	244	245	240	Black	135	114	126
				Asian	7	5	10
				Multi-Racial	12	11	13
	423	434	441		423	434	441

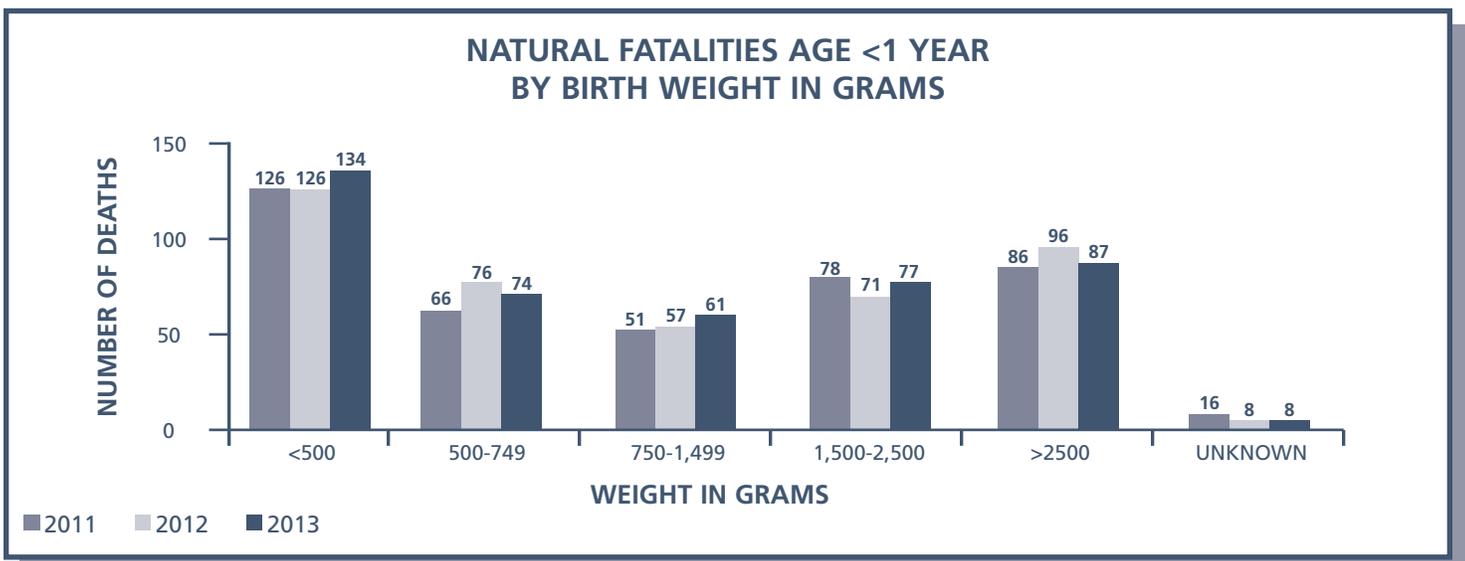
Infants can be classified as premature for two different reasons: according to the CDC, they first can be born “preterm” because of a “curtailed gestation (gestational age of <37 completed weeks)”; or they can be “premature by virtue of birth weight (2,500 grams or less at birth)”. Children in the second 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 2013, **340** infants were reported to be born preterm on the CDR Case Reporting System, while **346** low weight births were reported during that same period.



Of the **340** deaths to infants born preterm in Missouri in 2013, **214** (63%) were born at 25 weeks or less. *Very preterm* babies are usually born with severe health issues and are more unlikely to survive, **176** (82%) of preterm infants died within 24 hours of birth. The youngest premature infant ever known to have survived for an extended period was born at 21 weeks and five days. Prematurity was the direct cause of **202** of *very preterm* infant deaths, the rest died from congenital defects or birth trauma.

Seventy-four (22%) of the preterm infants were in the *moderately preterm* range of 26-32 weeks; **32** (43%) of these infants died within the first 24 hours. **Thirty-five** (47%) lived longer than a week with **five** infants living seven months or longer. **Forty-eight** (65%) of the *moderately preterm* infants died from causes directly related to prematurity, the rest died from various congenital anomalies and infections.

Fifty-two deaths (15%) were *late preterm* deaths; **32** (42%) of these infants died within the first 24 hours. **Twenty-five** (48%) lived more than a week with **five** infants living for seven months or longer. Only **four** (8%) of these deaths were directly related to prematurity, **38** (73%) were from congenital anomalies, and the rest died from birth-related events or infections. *Late preterm* births are the focus of the March of Dimes “Healthy Babies are Worth the Wait” initiative.



Infants can be born with low birth weights for other reasons than prematurity. In 2013, there was one infant born at 21 weeks gestation who weighed 1853 grams (approximately 4 pounds, 1 ounce) and one born at 39 weeks that weighed 1361 grams (approximately 3 pounds). Babies born from multiple-birth pregnancies are more likely to be born small. **Thirty-three** of the infants who were born at less than 500 grams were from multiple-birth pregnancies. The smallest baby ever known to have lived long enough to leave a hospital was 260 grams (8.6 ounces) and was born at 26 weeks gestation.

Maternal health issues, and 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 2013, **28** mothers had medical complications such as diabetes or preeclampsia, **16** admitted to smoking during pregnancy, **nine** abused prescription drugs, **one** was injured in a car accident and **one** was the victim of intimate partner violence.

According to the US Department of Health and Human Services, “Early and continuous prenatal care helps identify conditions and behavior that can result in low birth weight babies...Babies born to mothers who received no prenatal care are three times more likely to be born at low birth weight, and five times more likely to die, than those whose mothers received prenatal care.” In 2013, **28** of the children who died from natural causes within the first year of life were known to have had no prenatal care. **Twenty-seven** of these children were both known to have been born before the 37th week of gestation and be of low birth weight.

The Missouri Department of Health and Senior Services (DHSS) has multiple programs that conduct prevention activities to reduce infant and child mortality and morbidity, such as:

- The Maternal and Child Health Home Visiting Programs where pregnant women and their families receive home visiting services prenatally through to the child’s age two or up to age five (depending on the program).
- The Newborn Health Program promotes healthy birth outcomes through educational activities and materials. The goals are to increase healthy pregnancies, positive birth outcomes, and decrease childhood injuries, infant mortality, and child abuse and neglect through home-based services.
- The Maternal Child Health Services Program which supports efforts of local public health agencies in addressing priority health issues including adverse birth outcome and injury prevention through funding to support community collaboration and systems development; i.e., prenatal case management, home visiting, and Safe Kids Coalition activities.

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 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 what factors contribute to the death, what services and resources need to be provided and how to potentially prevent future deaths. Upon completion of data gathering, the team prepares a summary with de-identified information to protect the confidentiality of those associated the death and subsequent review and presents the information to the case review team for discussion, analysis and recommendations for further action.

The second stage of the process involves the FIMR community action 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 Congress 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 149 infant and fetal deaths, and completed 55 maternal interviews to add detail and context for understanding the complexity of these deaths.

In 2004, the Mother & Child Health Coalition of Greater Kansas City began a Fetal Infant Mortality Review program in the five ZIP codes with the highest infant mortality. Since its inception, the Greater Kansas City FIMR has abstracted and reviewed more than 179 cases of 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

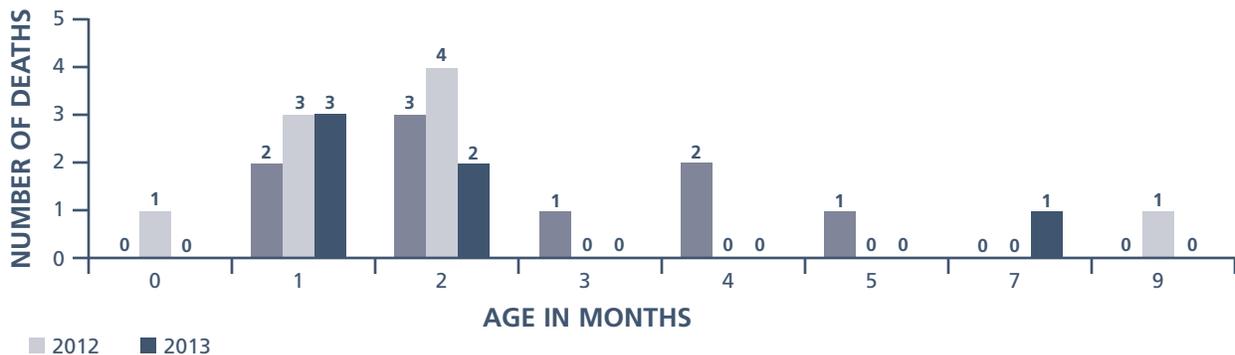
In 2013, Sudden Infant Death Syndrome (SIDS) was the cause of death of six Missouri infants.

The term Sudden Infant Death Syndrome (SIDS) was proposed in 1969, to describe the sudden unexpected deaths of infants under one year of age, typically during their sleep, which remain unexplained **after** an examination of the death scene, a thorough case investigation, performance of a complete autopsy and review of medical and social histories. Currently, SIDS remains 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	2011	2012	2013	RACE	2011	2012	2013
Female	5	4	2	White	7	6	5
Male	4	5	4	Black	2	3	0
				Multi-Racial	0	0	1
	9	9	6		9	9	6

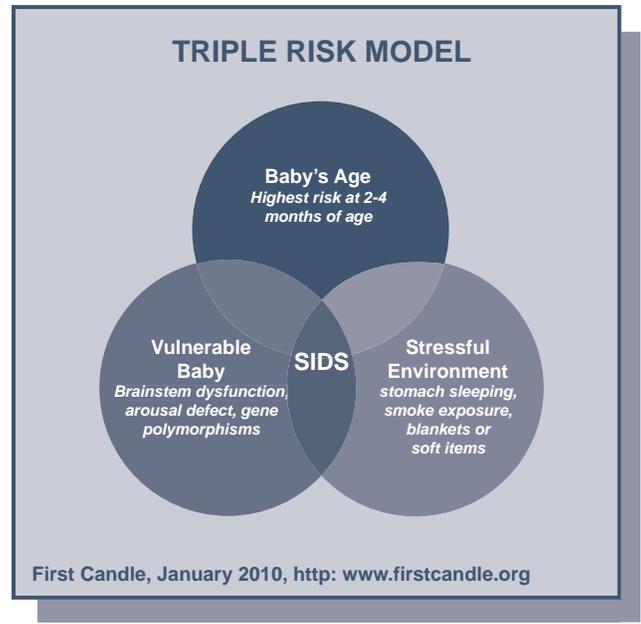
SIDS FATALITIES BY AGE



Current Research Findings and Theories

In 2010, the National Institutes of Health stated that scientists found that the brains of infants who die of 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. 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 brain abnormalities, especially during the first six months may cause its 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.



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. The CDC has recently updated the Sudden Unexplained Infant Death Investigation Report Form, which is available at www.cdc.gov/sids/SUIDRF.htm, to help standardize and improved collection of data on SIDS and SIDS-type deaths. They have also assisted in developing the SUID Case Registry to enhance the current National Center for the Review and Prevention of Child Death-Case Reporting System, which will enhance identification of risk factors, facilitation of risk reduction efforts and implementation of prevention best practices. Based upon what has been learned, this knowledge will have an even greater impact in saving infant lives.

Other Risk Factors

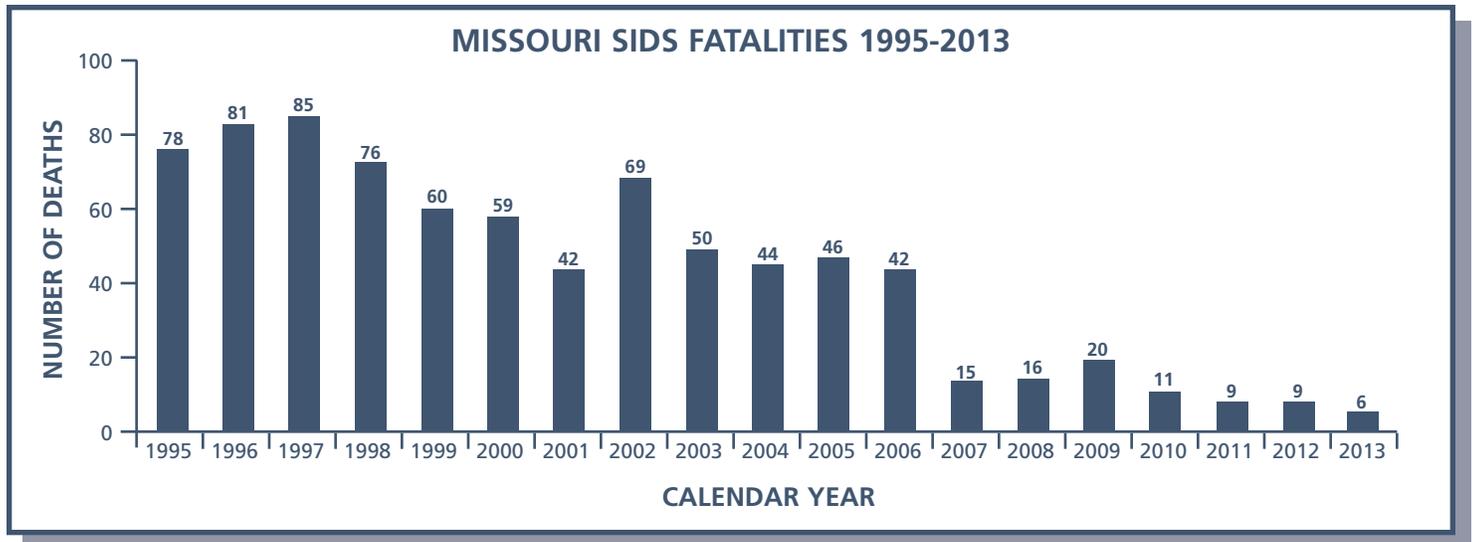
Other risk factors, many associated with the mother’s health and behavior, place the infant at a significantly higher risk of sudden, unexpected infant death.

- 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.

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

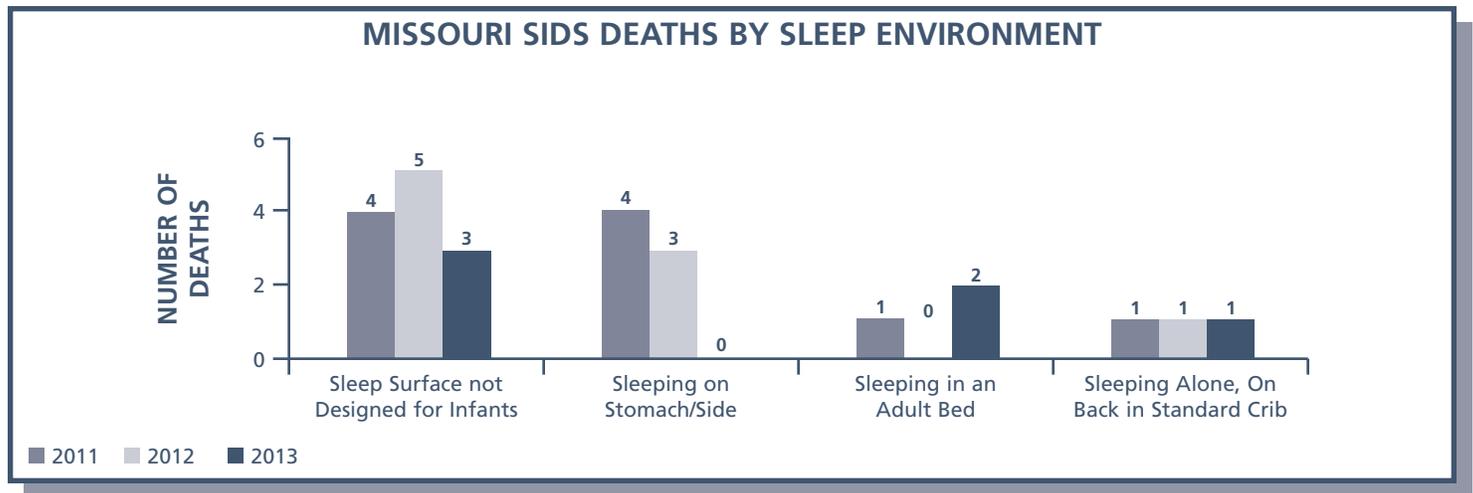
Environmental stressors are modifiable and the reduction of these risk factors through parent/caretaker education has great potential to save infant lives.



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 2013, of **six** sudden unexpected infant deaths reviewed by county CFRP panels and diagnosed as SIDS, **three** infants were listed as “unknown sleeping position,” possibly due to a lack of thorough scene investigation or the reluctance of caregivers to admit they may have placed the child in a compromising sleep position. The other **three** were on their backs. 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 2013, **90** infant deaths were determined by the county CFRP panels to be sleep-related, of which **six** were diagnosed as SIDS, **three** as natural, **six** as undetermined manner and **75** as suffocation. In summation, **81** infant deaths (31% 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:

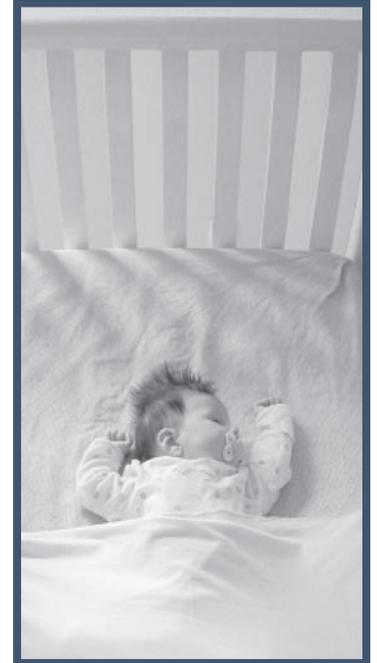
- Always place your baby on his or her back for every sleep time.
- Always use a firm sleep surface. Car seats and other sitting devices are not recommended for routine sleep.
- The baby should sleep in the same room as the parents, but not in the same bed.
- Keep soft objects or loose bedding out of 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.
- Law enforcement should utilize SUID forms in investigating sudden unexpected infant deaths, to ensure thorough investigations.

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/sids.html#SIDSmodule>.
- Mandatory child death scene investigation training for law enforcement.

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 providing services, 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.

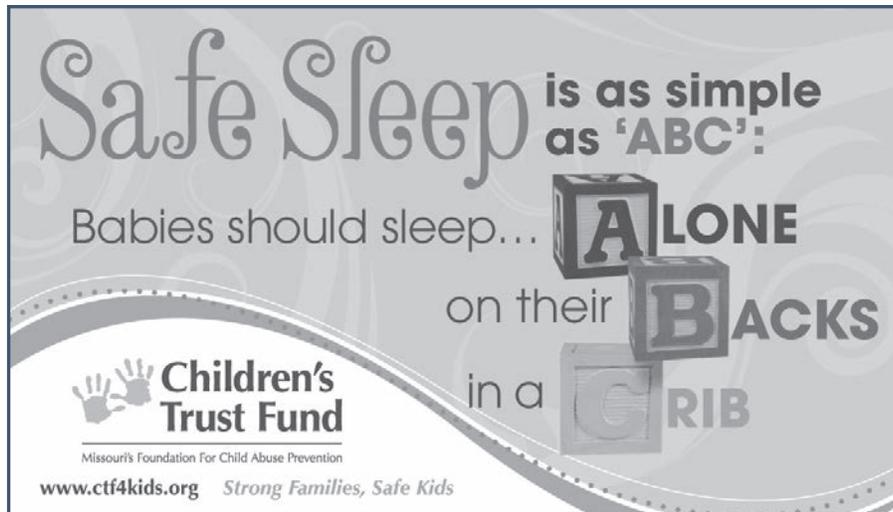
Something We Can Do: Safe Cribs for Missouri

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 the Children's Trust Fund. The program is implemented through participating Local Public Health Agencies (LPHAs). The LPHAs initiate referrals and provide 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:

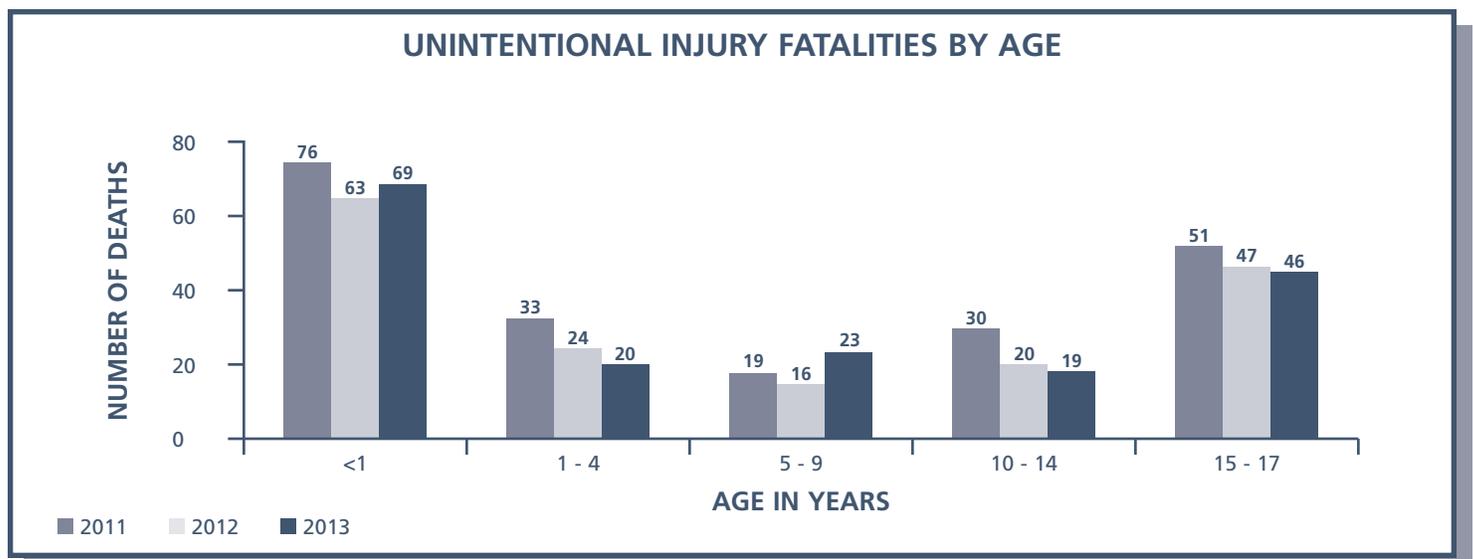
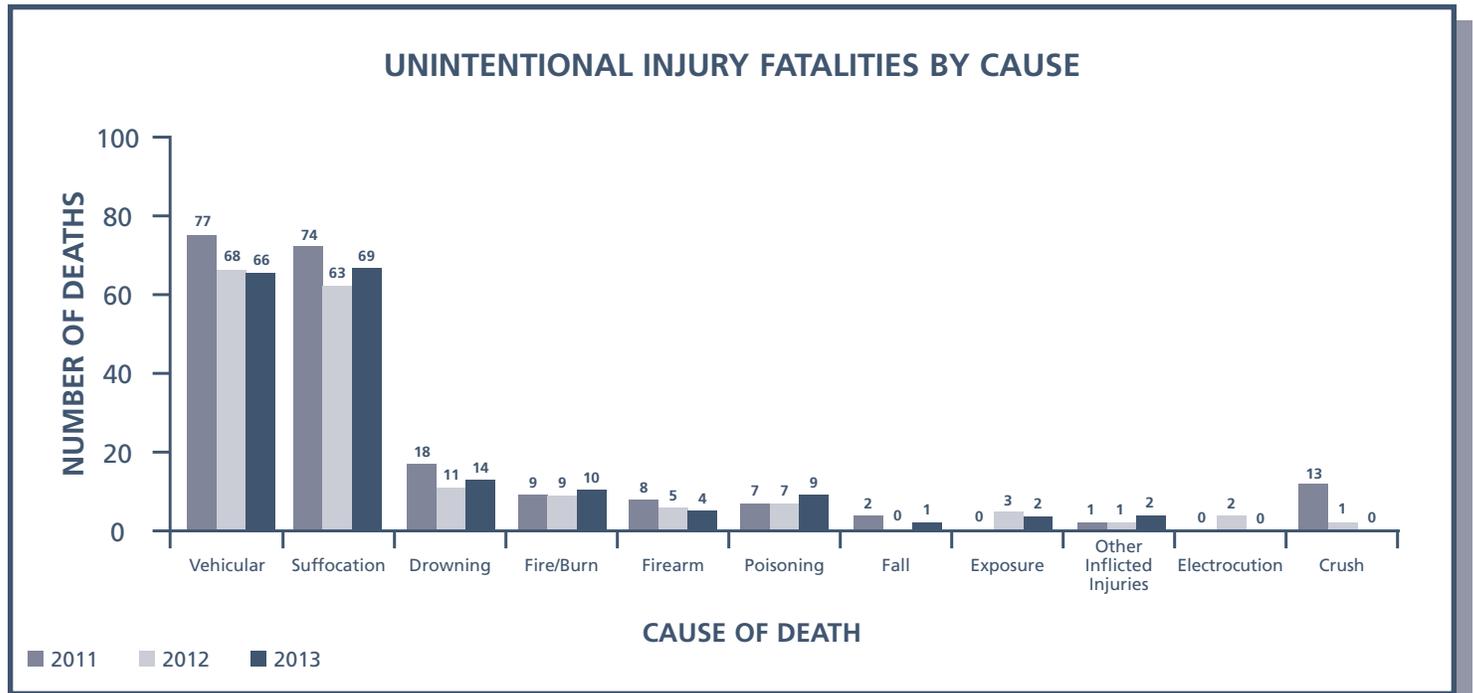
- Missouri Fetal and Infant Mortality Review. <http://health.mo.gov/data/fimr/index.php>
- American Academy of Pediatrics' Healthy Child Care America Safe Sleep Campaign. <http://www.healthychildcare.org/sids.html>
- SIDS Resources, Inc. 135 West Monroe, St. Louis, MO 63122
Counseling and support, research, training and education. <http://www.sidsresources.org/>
- Consumer Product Safety Commission - new crib standards . . . <http://www.cpsc.gov/onsafety/2011/06/the-new-crib-standard-questions-and-answers/>
- The National Center for Education in Maternal Child's Health <http://www.mchlibrary.org/suid-sids/index.html>



UNINTENTIONAL INJURY FATALITIES

In 2013, there were 177 unintentional injuries fatalities among Missouri children.

In 2013, **177** Missouri children died of unintentional injuries, making up 20% of all Missouri incident fatalities. The leading causes of unintentional injuries are suffocations at **69** (39%) and vehicular deaths at **66** (37%) and drowning at **14** (8%).



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	2011	2012	2013	RACE	2011	2012	2013
Female	80	68	69	White	157	128	129
Male	129	102	108	Black	45	34	41
				Asian	3	3	1
				Multi-Racial	4	5	6
	209	170	177		209	170	177

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 (**seven**), allowing toddlers access to loaded weapons (**one**), or to climb on unanchored shelves (**one**), and placing babies in unsafe sleeping environments (**68**), are all ill advised, yet these actions resulted in the deaths of **81** children in Missouri, in 2013, 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 2013, **24** (48%) of the 50 children who died while either driving or riding in a motor vehicle, were known to be unrestrained at the time of the crash.

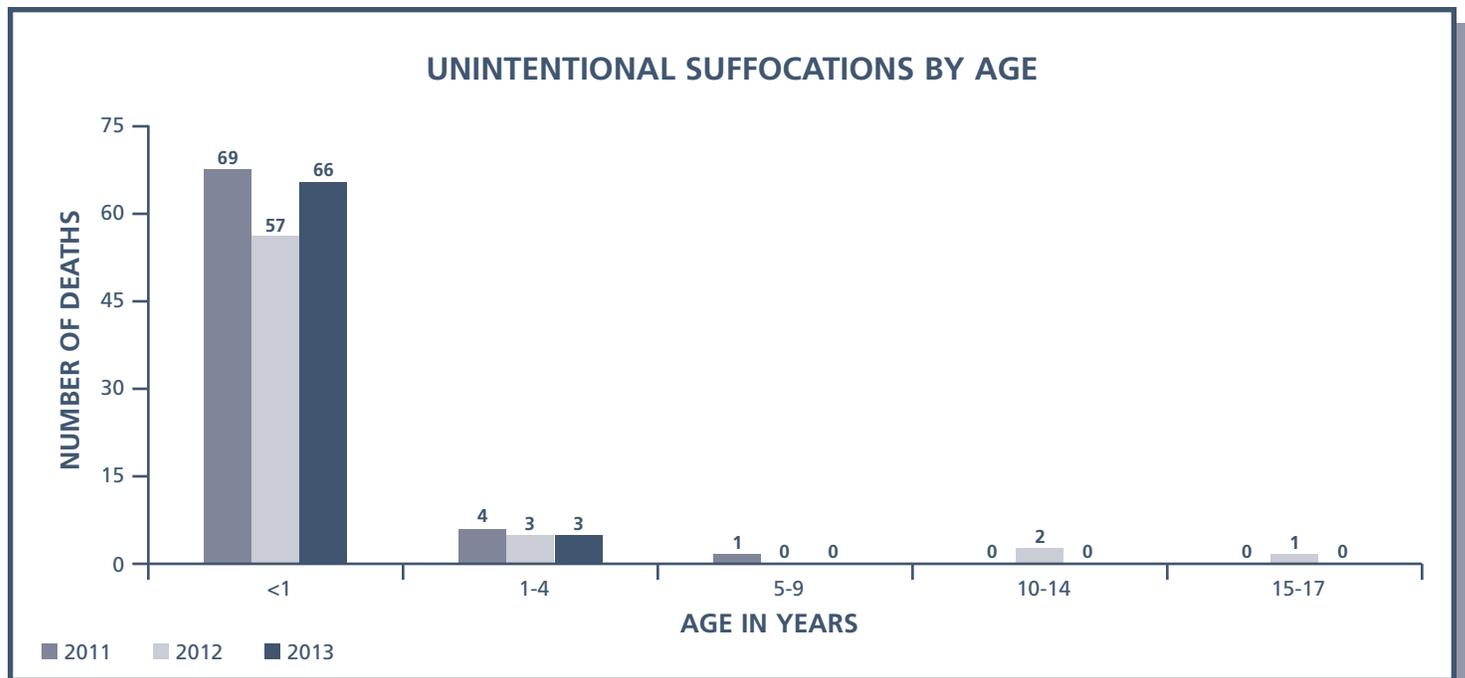
UNINTENTIONAL SUFFOCATION

“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

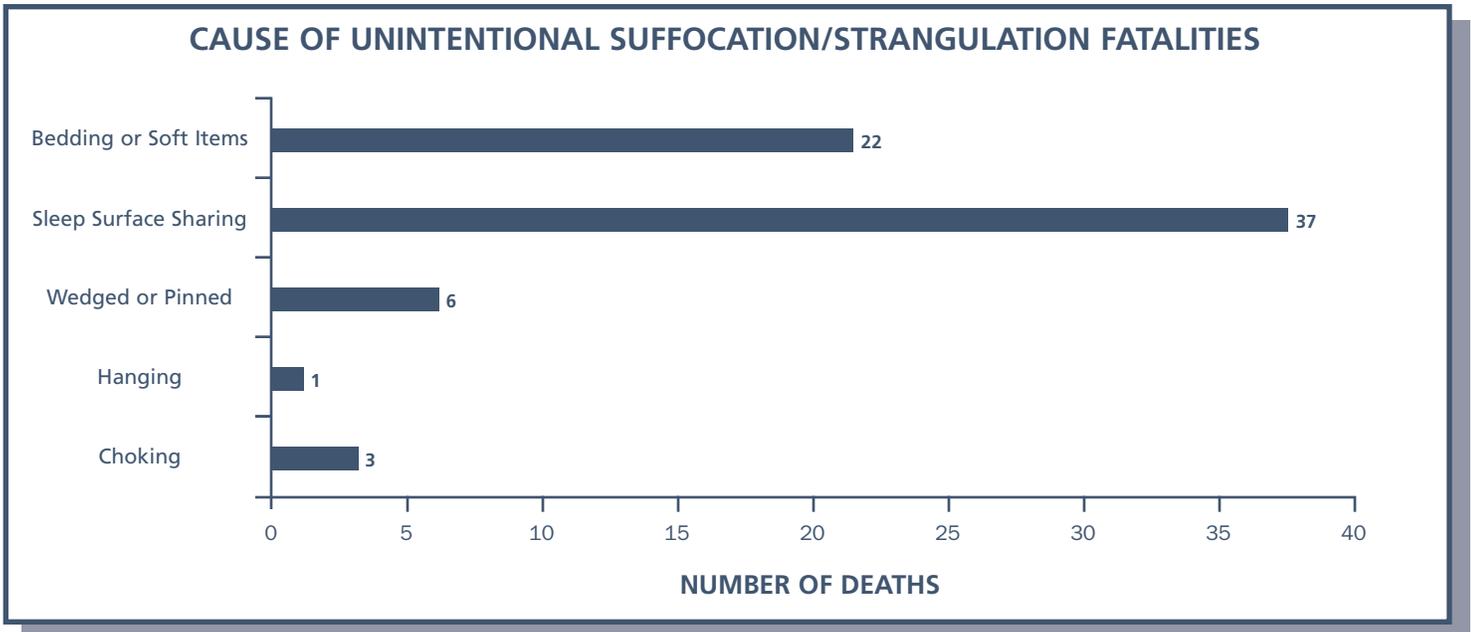
In 2013, unintentional suffocation was the cause of death of 69 Missouri children.

Deaths by unintentional suffocation are much more prevalent among children under one year of age, than from any other age range. In 2013, **66** (96%) of the unintentional suffocation deaths of children were under one year of age, **three** (4%) were one to four years of age.



UNINTENTIONAL SUFFOCATIONS BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	30	19	31	White	46	39	44
Male	44	44	38	Black	25	20	23
				Asian	2	0	0
				Multi-Racial	1	4	2
	74	63	69		74	63	69



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. The CDC states that Accidental Suffocation and Strangulation in Bed (ASSB) is the leading cause of infant injury deaths. There are several possible mechanisms which can cause sleep-related suffocations in infants; i.e., suffocation by soft bedding, overlay, wedging, or entrapment and strangulation.

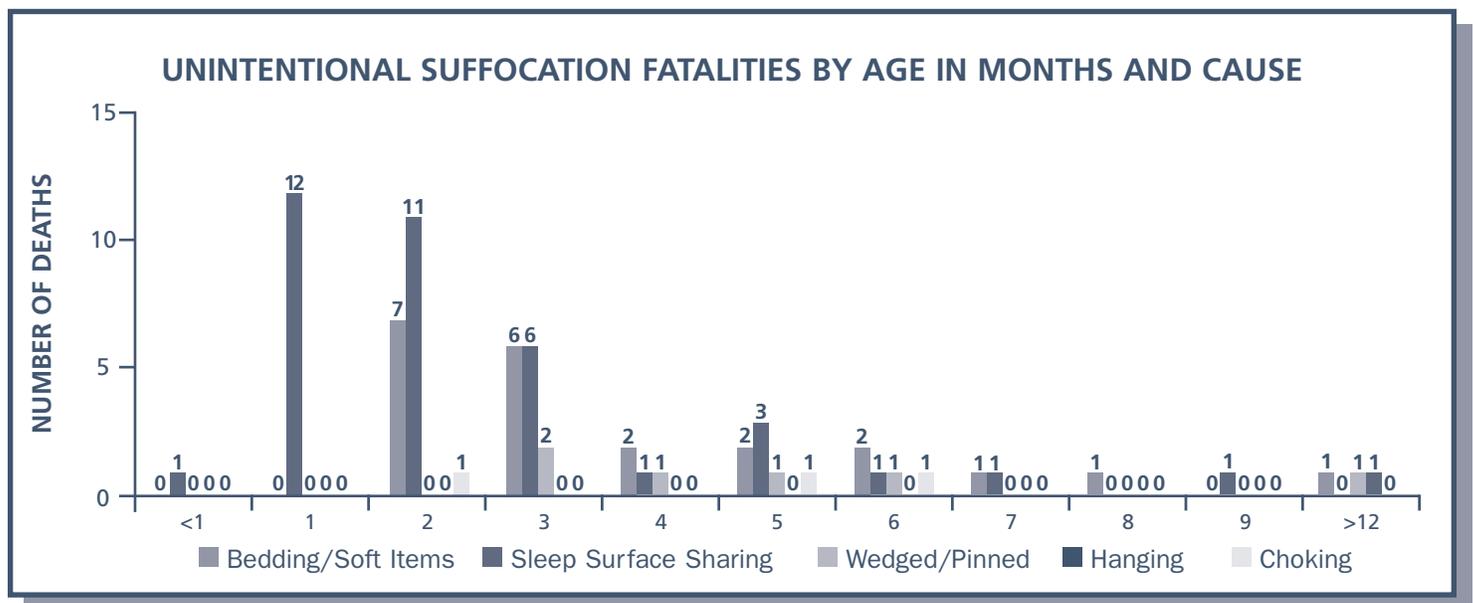
Many parents and caregivers do not understand the risks associated with unsafe sleeping arrangements. Infants can, by means of smothering or rebreathing, suffocate when placed in compromising positions, such as with a soft mattress, cushion, pillow, comforter or bumper pad, or when their faces, noses and mouths become covered by soft bedding, such as pillows, quilts, comforters and sheepskins. Sleeping surfaces such as being propped by a pillow, placed in a bean bag chair or on an air mattress can cause an infant to rollover and these surfaces have the ability to form around the child's face, if placed face down. **Twenty-two** Missouri infants died due to soft bedding. **Four** children died in their cribs because of soft bedding and/or bumper pads. **One** was placed face down in a bassinet on soft bedding. **Seven** were placed on adult beds with either pillows or comforters. **Four** were placed face down directly onto pillows. Two were on sofas with soft blankets. **Three** were placed face down in a pack 'n play and **one** was placed face down on a pallet of blankets on the floor.

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. In 2013, there were **four** wedging deaths in Missouri. **One** infant was sleeping with her mother on a sofa and was found wedged between the sofa and an ottoman. **One** infant, placed on an adult bed, scooted off the edge of the bed ending up wedged between the mattress and wall. **One** year-old child tried to climb out of its crib and became wedged between the side of the crib and the wall. **One** infant rolled over on a chair becoming wedged in the back of the seat.

While it might be convenient to let your child sleep in a car seat, stroller, bouncy seat or infant carrier, it could be dangerous. The semi-upright position can lead to the infant’s head slouching forward pushing the infant’s chin down against its chest, thus causing the windpipe to narrow or close. Also, infants wiggle, even during sleep, and when a child is left unattended in a bouncy seat or other lightweight infant carrier, they can overturn it, pinning themselves and suffocating. There were **two** such deaths in Missouri in 2013. In both cases, the infants flipped over a bouncy seat. One child was pinned face down against the carpet, and the other landed with a toy under its neck, suffocating from the pressure against his windpipe.

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) who either rolls over on or entrap 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; i.e., having the infant sleep in the parents’ room, but on a separate sleep surface (crib, bassinette or pack ‘n play) 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 **66** babies, less than one year of age, that died of unintentional suffocation in 2013, **37** (56%) were sharing a sleep surface with one of more individuals. Of those, **one** suffocated when her mother fell asleep while breastfeeding her. **Twenty-eight** were sleeping in an adult bed, **six** were sleeping on a sofa, and **two** were 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. There were **four** suffocation deaths that fell under this category in 2013. **One** two-year-old child died when it became entangled in a window blind cord. **Two** infants choked on plastic bags and **one** infant choked on some pennies. Unintentional suffocation deaths in older children are often related to circumstances associated with choking, aspiration and/or strangulation.

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.
- Do not leave potentially hazardous items accessible around small children and infants; i.e., plastic bags, coins, marbles, game pieces and other small items that can be placed in the mouth.

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, “Campaigning for Crib Safety” <http://ctf4kids.org/2010/10/campaigning-for-crib-safety/>
American College of Surgeons “Injury Prevention” <http://www.facs.org/trauma/injuryprevent.pdf>

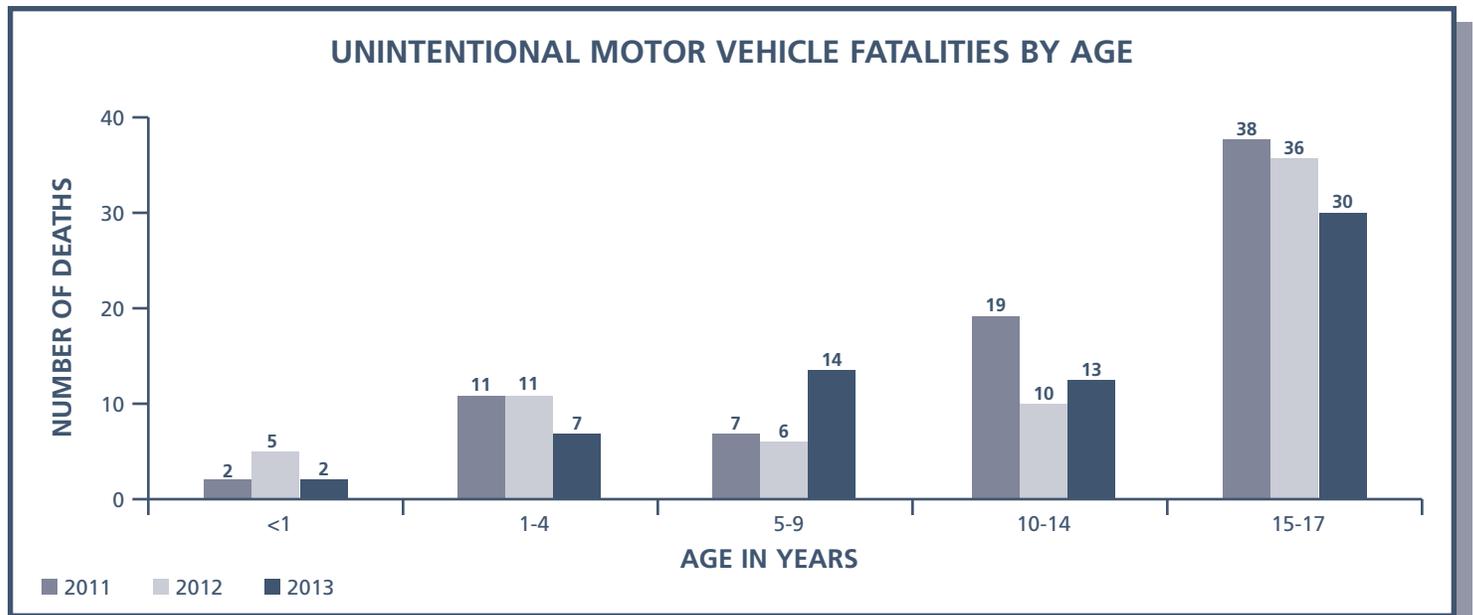
UNINTENTIONAL MOTOR VEHICLE FATALITIES

There were **77** motor vehicle fatalities among Missouri children in 2013. Of those, **71*** were reported to the CFRP on the Child Death Review Case Reporting System.

*Note: **Four** vehicle deaths were determined to be homicide and **one** was undetermined. These deaths will be discussed in the pertinent sections of this report.

In the United States, motor vehicle crashes are the leading cause of injury deaths for children and adults and the second leading cause of injury death for children ages birth to one. In Missouri for the past five years, unintentional vehicle crashes are the second leading cause of injury deaths for children. 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.

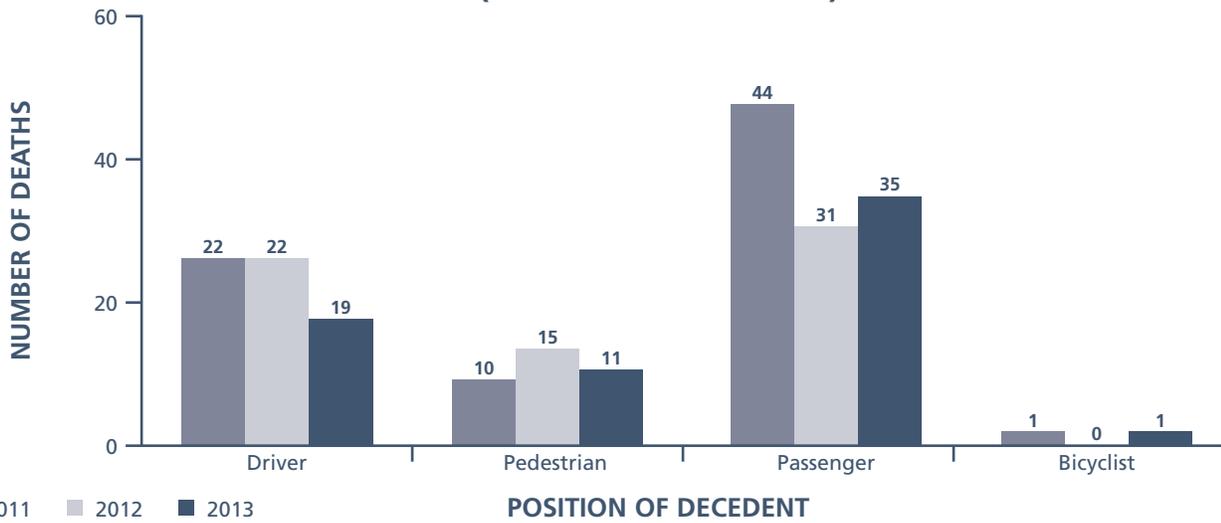
Of the **77** motor vehicle deaths among Missouri children in 2013, **66** were reported as unintentional; of which **61** were reviewed by local CFRP panels.



UNINTENTIONAL MOTOR VEHICLE FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	36	34	28	White	63	54	57
Male	41	34	38	Black	12	11	6
				Asian	1	2	1
				Multi-Racial	1	1	2
	77	68	66		77	68	66

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



TYPE OF VEHICLE	
Car	38
Truck	9
SUV	6
Van	6
ATV	3
Tractor	1
Bike	1
Skateboard	1
Airplane	1

LOCATION OF CRASH	
Highway	24
Rural Road	21
City Street	9
Residential Street	4
Driveway	3
Sidewalk	1
Parking Area	1
Off Road	1
Wooded Area	1
Alley	1

CONTRIBUTING CAUSES OF CRASH*			
Driver Inexperience	15	Unlicensed Driver	3
Speeding	12	Poor Line of Sight	3
Flip Over	12	Back/Front Over	2
Recklessness	11	Car Changing Lanes	2
Drug or Alcohol Use	9	Road Hazard	2
Unsafe Speed for Conditions	7	Poor Visibility	2
Poor Weather	6	Fatigue/Sleeping	1
Driver Distraction	5	Ran Stop Light/Red Light	1
Other Driver Error [^]	4	Medical Event	1
Child in the Road	4	Cell Phone Use	1

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

ROAD CONDITIONS**			
Normal	39	Inadequate Lighting	1
Gravel	7	Other Condition (High Wind)	1
Wet	6	Unknown Condition	2
Ice/Snow	3	Not Answered	9

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

RESTRAINTS – LAP BELT	
Present, Used Correctly	23
Present, Not Used	21
Present, Used Incorrectly	1
Not Applicable	16
Needed, But None Present	2
Unknown	3

RESTRAINT – CHILD SEAT	
Not Applicable	63
Present, Used Correctly	1
Unknown	2

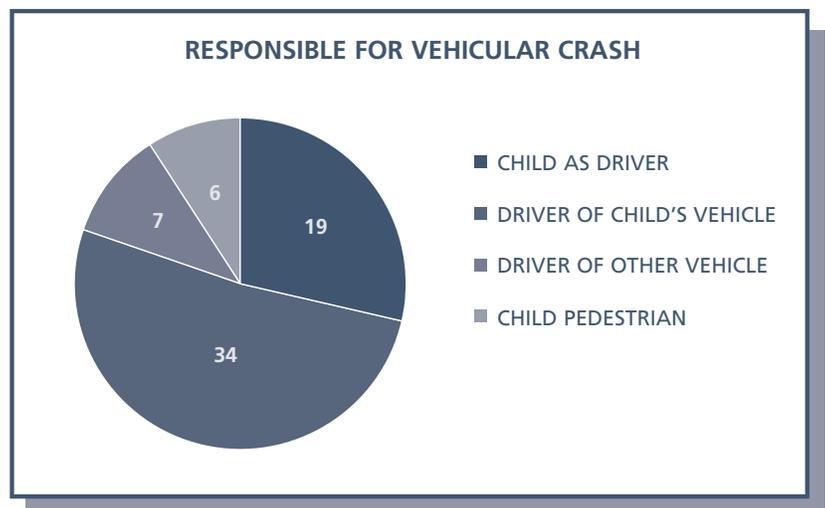
HELMET USE	
Not Applicable	61
Needed, But None Present	5

ALCOHOL AND/OR OTHER DRUG USE			
Decedent as Driver Impaired	1	Driver of Other Vehicle Impaired	1
Driver of Decedent’s Vehicle Impaired	7	Not Applicable	57

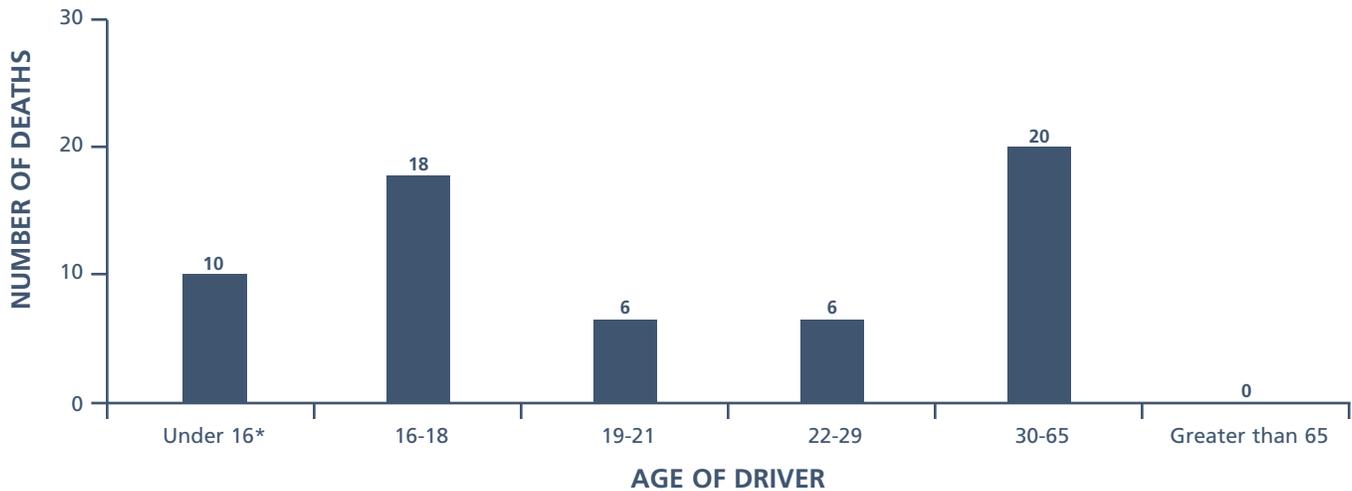
Most vehicle crashes occur due to the actions of one or more persons, be it recklessness, impaired driving, inattention or simple inexperience.

Of the **66** reported motor vehicle fatalities, the driver of the child’s vehicle was responsible for **34** (52%) of the accidents, **nineteen** (29%) were caused by the child as driver (note this includes operators of bicycles and skateboards), and **seven** (11%) were caused by the driver of another vehicle. **Six** 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 **60** motor vehicle fatalities in which a driver was determined to be responsible for the accident, **34** (57%) were age 21 or less, of which **18** were between 16 and 18 years old and **10** were below 16 years of age.



UNINTENTIONAL MOTOR VEHICLE FATALITIES BY AGE OF RESPONSIBLE DRIVER



* Includes drivers of bicycles, skateboards and ATV's as well as underage and unlicensed drivers.

Driver and Passenger Fatalities

Of the **66** reported motor vehicle deaths in Missouri in 2013, **54** (81.8%) involved drivers and passengers.

Representative Cases:

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

A fourteen-year-old girl took a car without the owner's permission. She and a twelve-year-old friend were driving on a gravel road when for an unknown reason, the car swerved on the roadway before rolling over in a ditch. Neither child was restrained.

A sixteen-year-old boy, who had just gotten his learner's permit, missed a curve and left the roadway, before hitting a tree. The child was operating the vehicle without an adult in the car, in violation of Missouri's graduated driver license law.

A fifteen-year-old girl was operating a van with six other people in the vehicle. She lost control of the vehicle which left the roadway and overturned several times. An eight-year-old girl was ejected from the vehicle and died.

A seventeen-year-old girl was riding with three older teens in a convertible. The vehicle was going at an excessive rate of speed and all four had been drinking. The driver was unable to negotiate a curve and the vehicle went airborne, striking a culvert, a deck and several trees. Three of the people in the vehicle died.

The National Center for Injury Prevention and Control lists two factors as most significant in contributing to motor vehicle-related fatalities among children: (1) unrestrained children and (2) drunk drivers. Unrestrained children refer to infants and toddlers who are not properly restrained 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 2013, **24** of the **54** 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 **66** reported unintentional motor vehicle fatalities, **nine** involved either a victim or a driver who was impaired. In 2013, **one** death involved a teen driver. **One** death involved everyone drinking in the vehicle, including the minor, but the driver was an adult. **One** death occurred when a teen was operating a vehicle and was hit by a drunk driver. The remaining **six** alcohol-related deaths were of children riding with their impaired parents.

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.

Distracted driving is any activity that takes a person's attention away from the task of driving, be it eating fries or changing the radio station, but because text messaging requires visual, manual and cognitive attention from the driver, it is by far the most alarming distraction. According to distraction.gov, 71% of teens and young people say they have composed / sent text messages while driving, and 78% of teens and young adults say they have read one while driving. Currently, Missouri law bans all drivers 21 and younger from text messaging and commercial drivers from texting or using handheld cell phones.

In 2013, **one** teen, while driving, was known to be composing a text at the time of her fatal crash. But, regulations alone cannot address teen driver safety. Graduated licensing for teen drivers and texting bans 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. Parents often believe that their child would never participate in such foolish behaviors, but 54% of the high school participants in the 2013 Missouri Youth Risk Behavior Survey indicated that they had talked on a cell phone, while driving within the past 30 days. Forty-six percent of the participants admitted to texting or emailing while driving, and nine percent of them said that they had driven while drinking within the same timeframe.

Seatbelts are known to reduce the risk of fatal motor vehicle injury by as much as 45%. In 2013, there were **30** teenagers, age 15-17, that died in motor vehicle fatalities; **14** were passengers, and **16** were drivers. Of these **30** teen driver and passenger deaths, **16** (53%) were known to be unrestrained at the time of the crash.

Pedestrian Fatalities

Of the **66** reported motor vehicle fatalities among Missouri children in 2013, **11** were pedestrians. Of these children, **one** was under the age of one, **five** were age four and under, **four** were between the ages of five and nine, and **one** was between 10 and 14.

Representative Cases:

- **Young children should never be left alone in or around a vehicle.**

Two children, one five-year old and a one-year old, were playing in a van. The one-year old got out and walked behind the vehicle, as the five-year old somehow knocked the vehicle out of gear. The one-year-old child was stuck and run over.

- **Young children should be closely supervised when around moving vehicles.**

A grandmother was pulling a SUV into her driveway. She saw two children playing and motioned to them to stay back. They stopped and she continued to back up. Unfortunately, the two-year old kept moving, was struck and killed.

A father saw his two-year-old son playing on a mower in the front yard, but the child moved as he was backing up a pickup truck and was run over.

Four children died in 2013, when they were backed over in their own driveway. This makes up **36%** 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. Only **one** of the **11** pedestrian deaths in 2013, age 14 and above, was struck when a group of friends were crossing the highway.

Bicycle-Related Fatalities

By definition, motor vehicle fatalities include bicycle-related injuries that occur when children are either struck by a motor vehicle or other circumstance. Of the 66 reported motor vehicle fatalities among Missouri children in 2013, one was a bicyclist.

Representative Cases:

- **Children should be taught to obey the rules of the road, while on bicycles.**

A fourteen-year-old male was riding a bicycle and failed to stop at a red light. The teen was struck by at least two vehicles and dragged by one. The teen was not wearing a helmet.

That National SAFE KIDS Campaign states, with the exception of the automobile, bicycles are associated with more childhood injuries than any other consumer product. Head injury is the leading cause of death in bicycle crashes and is the most important determinant of bicycle-related death and permanent disability. Scientific evidence has shown that the single most effective safety device available to reduce head injury and death from bicycle crashes is a helmet. In the event of a crash, wearing a bicycle helmet reduces the risk of head injury by as much as 85% and the risk of brain injury by as much as 88%.

Children ages 10 to 14 are at greater risk for traumatic brain injury from a bicycle-related crash compared with younger children, most likely because helmet use declines as children age. According to 2013 Missouri Youth Risk Behavior Survey, among students that rode a bicycle in the past 12 months, 56.7% of middle school students and 86.7% of high school students never or rarely wore a bicycle helmet.

More than 80% of bicycle-related deaths are directly connected to the bicyclist's actions. Such actions as riding into a street without stopping, turning left or swerving into traffic that is coming from behind, running a stop sign and riding against the flow of traffic are all too common, and are often fatal. Children should be taught the rules of the road and to obey all traffic laws.

All-Terrain Vehicle Fatalities

Three of the **66** reported motor vehicle fatalities in 2013, involved all-terrain vehicles (ATV's). **None** of the **three** children were known to have been wearing helmets.

Representative Cases:

- **Small children should never ride on ATVs.**

A three-year-old child was riding with his parents in a large ATV. The father was driving, ran off the side of the road, overcorrected and overturned, ejecting all occupants. Child was pronounced at the hospital.

- **Children should always wear motorcycle-style helmets when riding ATVs.**

A thirteen-year-old boy was driving an ATV when he ran off the side of the road, struck a tree and was ejected. The child landed 18 feet away. Not wearing a helmet, he died from major head trauma.

- **ATVs are heavier than most people realize and a child may not be able to get it off himself if the ATV overturns.**

A nine-year-old boy was driving a 4-wheeler, weighing over 800 pounds, alone with no protective gear. He overturned the ATV while doing donuts in a farm pasture and was pinned beneath it. The pasture was over one mile from the closest residence. The boy was later found by father, when he was late in returning home.

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 **three** ATV-related child fatalities in 2013, 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. All **three** of the child ATV deaths were in violation of these laws.

Trends in vehicular fatalities:

Decades of motor vehicle safety prevention efforts are making a positive difference in the number of deaths on Missouri roads. Since 2000, the annual number of vehicular fatalities in Missouri has dropped 33%. In comparison, the number of child deaths from vehicle crashes in Missouri, has dropped 52%. This

MISSOURI MOTOR VEHICLE FATALITIES 2000-2013			
Year	Child Fatalities	Total Fatalities	Percentage of Total Fatalities
2000	161	1157	13.92%
2001	127	1098	11.57%
2002	137	1208	11.34%
2003	147	1232	11.93%
2004	135	1130	11.95%
2005	137	1257	10.90%
2006	133	1096	12.14%
2007	105	992	10.58%
2008	99	960	10.31%
2009	80	878	9.11%
2010	58	821	7.06%
2011	85	786	10.81%
2012	72	826	8.72%
2013	77	757	10.17%

means that not only have the numbers gone down, but percentage of children, age 17 and under, who died from vehicle crashes has also decreased.

There are many safety and prevention factors that have played a part in this reduction such as improved passive safety systems in vehicles such as airbags and crumple zones; active technologies such as electronic stability control and sensor systems; child safety restraint equipment; traffic safety prevention programs and active law enforcement efforts.

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).
- Never leave young children unsupervised in or around vehicles, especially if they are moving.

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 to identify and address prevention messages for your community.
- Address 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.

According to The Department of Meteorology and Climate Science, an average of 38 US children die each year from heatstroke after being left in cars and more than half of these children were under two years of age. Safe Kids Worldwide states that nearly seven children, ages one to 14, go to the emergency room each day with injuries sustained from a vehicle backing up. Of that group, an average of 230 die each year. The US Department of Transportation states that an average of seven children die each year from vehicles being accidentally put into gear.

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



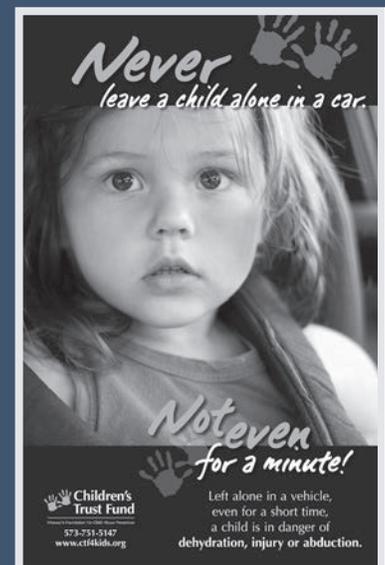
The Children’s Trust Fund (CTF) points out that a child left alone in an automobile is a potential tragedy that can be prevented. For additional information, or to order education materials, contact CTF at 573-751-5147 or visit www.ctf4kids.org.

Resources and Links:

Heatstroke Deaths of Children in Vehicles
<http://ggweather.com/heat/>

Slow Down, Walk Around
<http://www.safekids.org/blog/slow-down-walk-around>

Non-in-Traffic Surveillance: Fatality and Injury Statistics in
Non-Traffic Crashes, 2008 to 2011
<http://www-nrd.nhtsa.dot.gov/Pubs/811813.pdf>



UNINTENTIONAL FIRE/BURN FATALITIES

In 2013, 10* Missouri children died of fire/burn injuries.

*Note: Two fire/burn fatalities were ruled as undetermined cause. These deaths will be discussed in the pertinent sections of this report.

Representative Cases:

- **All smoking materials must be disposed of properly.**

An 11-year old was the last to die in a fire that also took two other members of her family. The fire was later determined to have been caused by the child's father smoking in bed.

- **Improper use of space heaters is a leading cause of house fires.**

A one-year-old child died in a house that was heated by multiple space heaters. The heater in his room fell over and caught the carpet on fire. The rest of the family managed to escape.

Two children, seven and one year of age, died in a trailer fire along with their mother. The fire was started by a space heater that was plugged in behind a sofa.

- **Children with developmental delays may be less likely to understand the dangers associated with fires.**

A five-year-old autistic child died in a house fire. His mother had gotten him out of the home safely, but he followed her back inside, when she went in to save his sibling. The mother was unaware the child had followed her until it was too late.

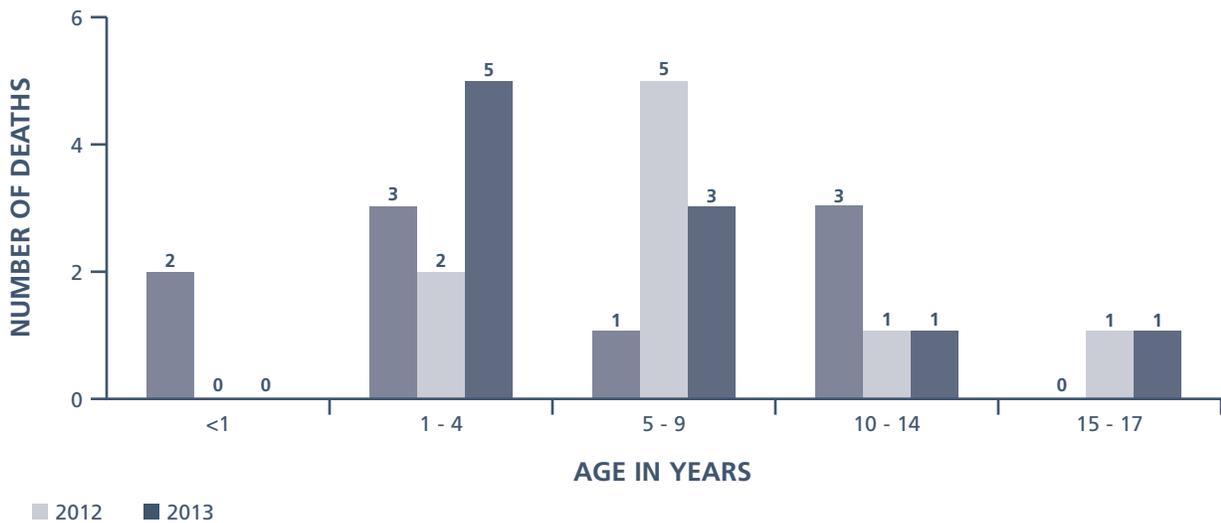
According to the 2010 SAFE KIDS Worldwide-US Fact Sheet, fires and burns were the third leading cause of unintentional death among children one to nine years of age, and fourth among ages 10-14. Approximately 308 children, age 14 and under, died in residential fires, nationwide. Children ages one to four were at much higher risk than any other age group 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 **ten** fire/burn fatalities among children in Missouri in 2013, **five** were age four or less. 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.

FIRE/BURN FATALITIES BY AGE



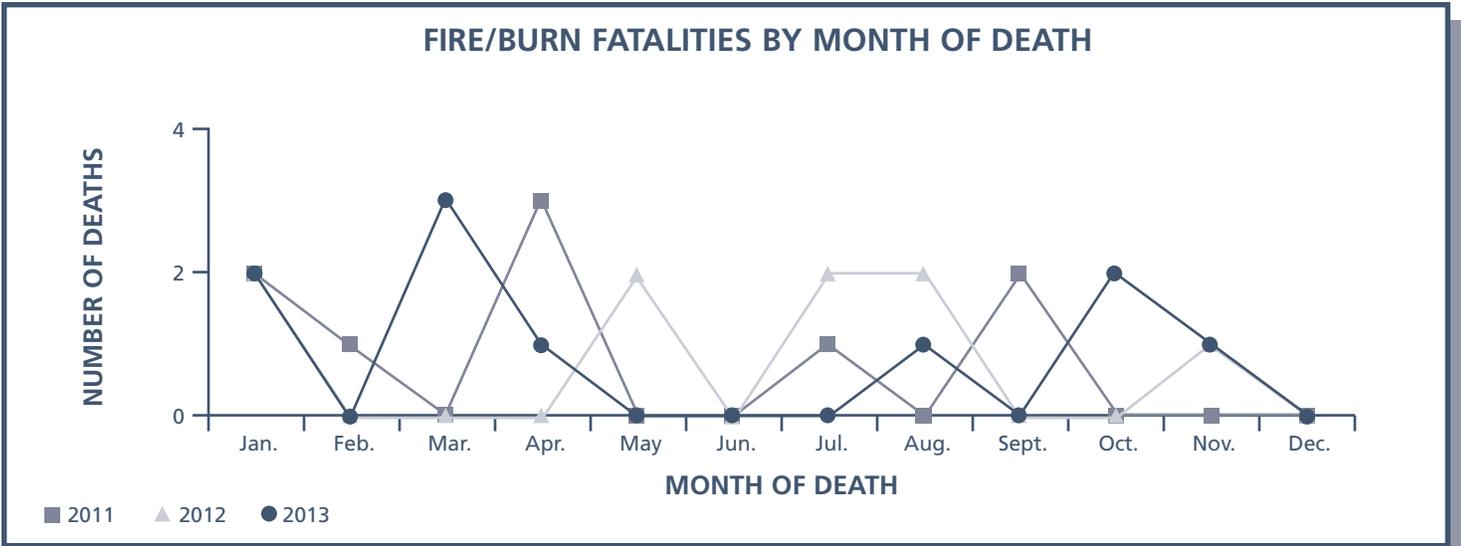
UNINTENTIONAL FIRE/BURN FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	4	3	2	White	9	8	8
Male	5	6	8	Black	0	0	2
				Multi-Racial	0	1	0
	9	9	10		9	9	10

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. **Six** of the **ten** fire deaths in Missouri in 2013, were in rural areas.

Of the fatal Missouri fires reviewed in 2013, four were indicated to have smoke detectors. In two cases, the detectors were not working. In the other two cases, it is unknown if they were working or not. Smoke alarms have been promoted as an invaluable tool for preventing fire and burn injury. Nationwide, increases in the prevalence of smoke alarms in homes, and the passage of legislation requiring smoke alarms for new and existing dwellings, partly explain the downward trend in the fire and burn death rate.

Intensive public education campaigns by federal agencies such as the CPSC and U.S. Fire Administration, national organizations and fire departments that promote residential fire safety and burn prevention have also 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.



SMOKE ALARM PRESENT	
Yes	4
No	1
Unknown	5

SMOKE ALARM IN WORKING ORDER	
Yes	1
No	1
Unknown	2
Not Applicable	6

FIRE STARTED BY	
An Adult	1
A Child	0
No One	7
Unknown	2

TYPE OF BUILDING	
Single Home	7
Apartment	1
Trailer/Mobile Home	2

WAS STRUCTURE A RENTAL PROPERTY	
Yes	5
No	4
Unknown	1

MULTIPLE FIRE DEATHS	
Yes	2
No	8
Unknown	0

SOURCE OF FIRE					
Cigarette or Cigar	1	Heating Stove	1	Electrical Outlet	1
Cooking Stove	1	Space Heater	3	Undetermined	3

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

While there were no deaths caused by juvenile firesetting in Missouri in 2013, it is still a large problem in the United States. The U.S. Fire Administration states that between 2007 and 2011, playing with fire was responsible on average for 49,300 fires reported to U.S. municipal fire departments per year. These fires caused annual averages of 80 civilian deaths, 860 civilian injuries, and \$235 million in property damage. Thirty-nine percent of home fires involving play began in the bedroom, were responsible for over 54% of fire-related deaths and 57% of fire-related injuries.

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.

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. Beginning in 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 helped spread the prevention message. Since then, St. Louis Area Fire Departments incorporated a smoke alarm installation program, a fire safety house program and other fire safety presentations.

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 make landlords responsible for ensuring that rental properties have working smoke detectors.
- Enforce building codes and conduct inspections.

For professionals:

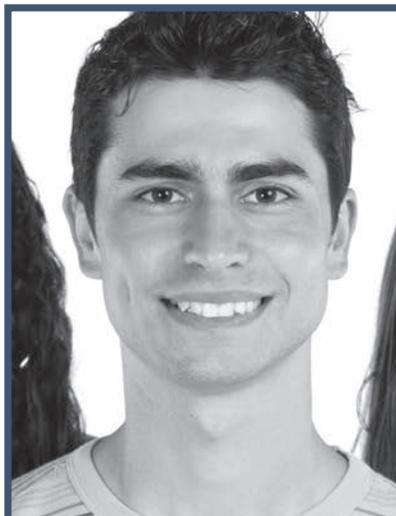
- Smoke detector giveaway programs have proven useful when high-risk areas are targeted. Implement such programs in your community.
- Implement a multi-faceted community campaign to prevent burn injuries, targeting a well-defined population with a very specific message.

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 the residence, and if a working smoke detector was present in the home. Use that information to develop an action plan; i.e., work to establish or change building codes or pursue prosecution, if negligence or lack of appropriate supervision occurred.

Resources and Links:

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



UNINTENTIONAL DROWNINGS

In 2013, 14* children died from accidental drownings in Missouri.

*Note: One drowning is listed as undetermined manner. This death will be discussed in the pertinent section of this report.

Representative Cases:

- **Small children need constant supervision.**

A two-year-old child was playing in a pool with several other kids. Both parents thought the other one was supervising. The other children left the pool, leaving the two year old behind. She was found at the bottom of the pool by her mother.

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

A five-year-old autistic boy was playing in the backyard of his grandparent's house. His caregiver went inside for a few minutes and when she returned, he was gone. The backyard was next to the river and it appears the child slid into the river and drowned.

A 14-year-old boy with autism was playing outside unsupervised. He wandered approximately a mile to a pond where he was later found dead.

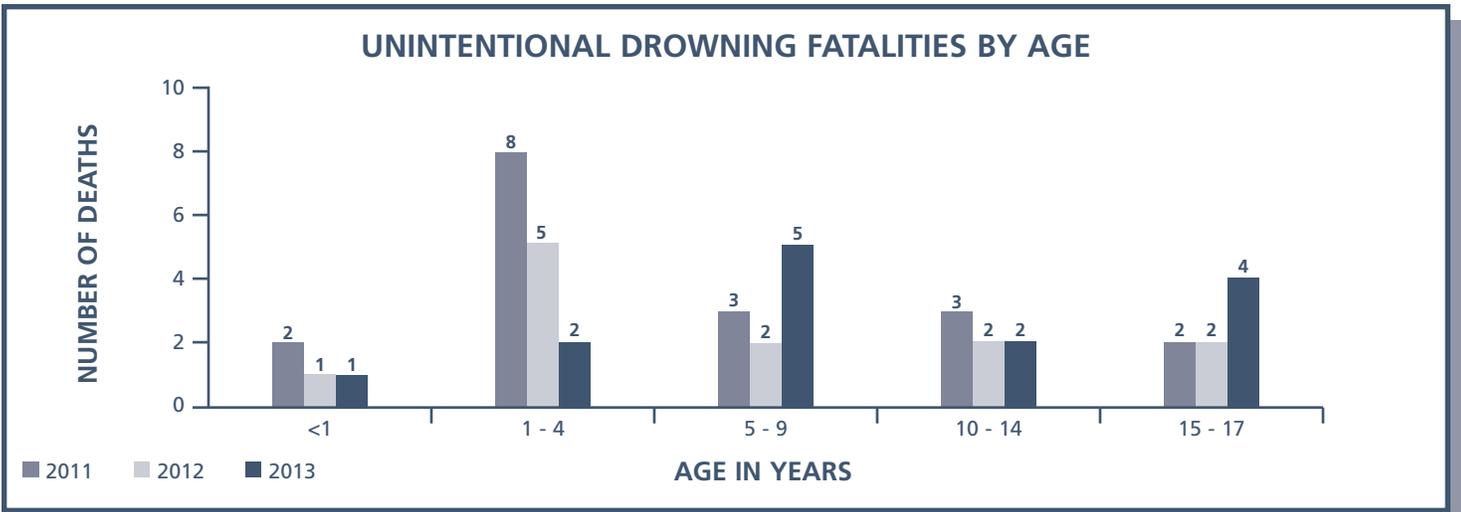
- **U.S. Coast Guard approved personal flotation devices should be worn at all times in and around open water.**

Two people were riding on a jet ski, a 17-year old and a 20-year old. They were thrown off and the 17-year old never surfaced. Parents had told the teen to wear a life vest, but he was not wearing one at the time.

- **Drainage culverts and other flooded areas pose dangers to even older kids.**

A 17-year old was playing in several feet of water near a culvert, when he was swept away by the current and pulled down into a drain. His body was recovered the next day, approximately a mile from the location where he fell in.

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 **14** Missouri children who drowned in 2013, **three** (25%) were age four and under and **seven** (58%) were ages five to 14.



DROWNING FATALITIES BY SEX AND RACE

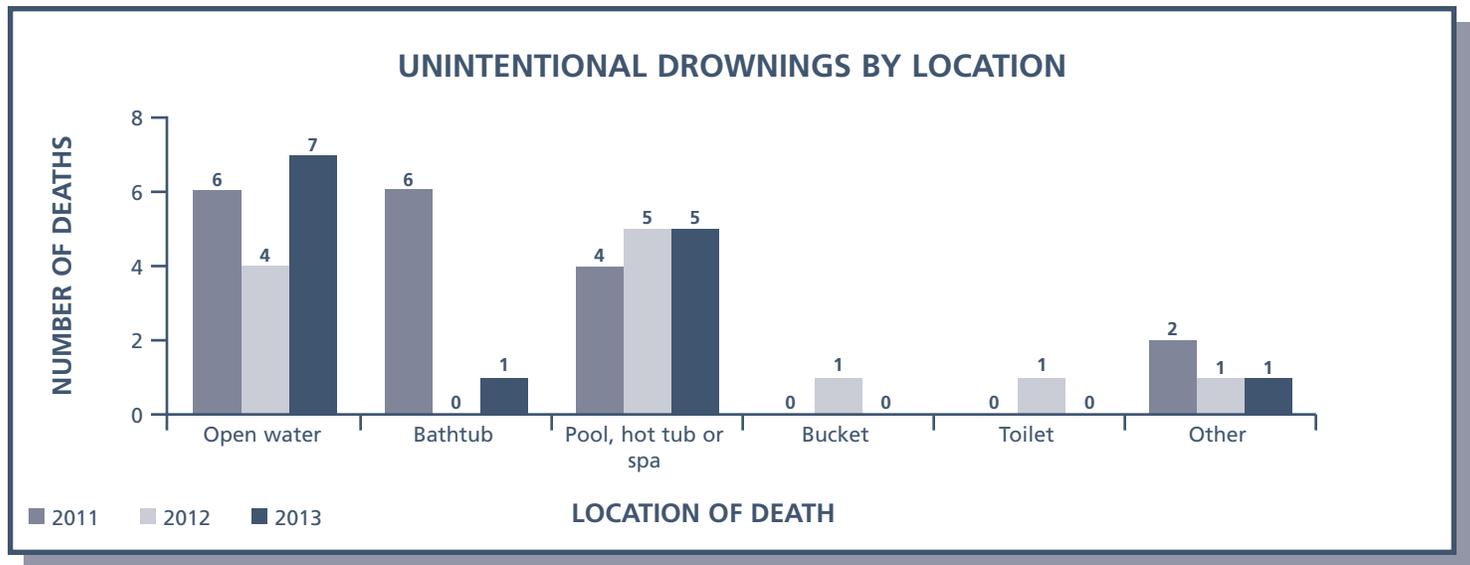
SEX	2011	2012	2013	RACE	2011	2012	2013
Female	2	6	4	White	14	12	6
Male	16	6	10	Black	4	0	6
				Multi-Racial	0	0	2
	18	12	14		18	12	14

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 **14** Missouri children who drowned in 2013, **five** (36%) occurred in swimming pools hot tubs or spas, **seven** (50%) occurred in open water locations, **one** (7%) occurred in a bathtub, **one** (7%) occurred in an “other” location (drainage culvert).

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. The belief that a drowning victim will make lots of noise while thrashing around in the water, before actually drowning, is not accurate. So experts say just being in the area, reading a book or a tablet is not enough. You need to be actively looking and listening at all times.

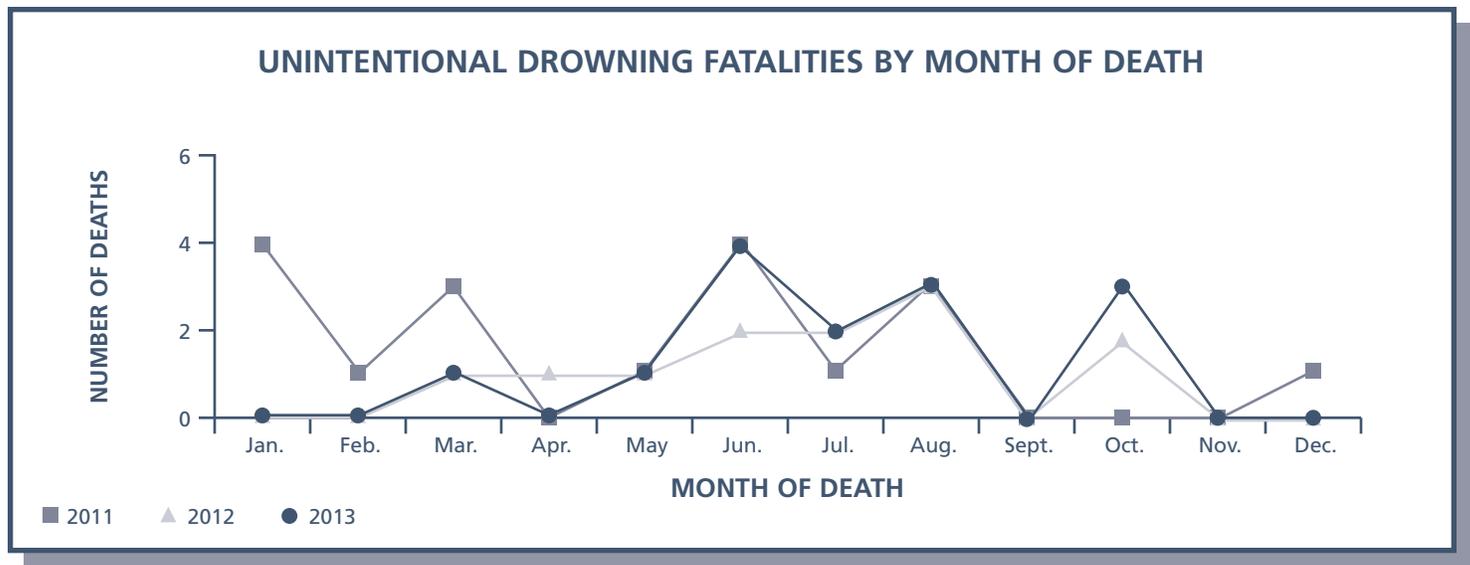
Even good swimmers can drown. A cramp, an injury, or even swallowing water the wrong way when a wave hits you in the face can cause you to flounder and go under. That is why it is recommended that everyone use Coast Guard approved flotation devices when swimming and never swim alone.



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 2013, 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/>

UNINTENTIONAL POISONINGS

In 2013, nine* children died of unintentional poisoning.

*Note: **One** additional child died of poisoning, but that death was considered child abuse and will be discussed in the later section of this report.

Representative Cases:

- **People must be careful to properly dispose of prescriptions.**

A 12-year-old girl was found lifeless in her bed in the morning. She had found one of her grandmother's fentanyl patches in the trash and had placed it on herself.

- **Medical conditions and drug abuse can lead to lethal complications.**

A 16-year-old boy with a history of sleep apnea and asthma was found dead. He had been non-compliant with using the machine for his apnea, and had starting abusing oxycodone. He died of obstructive sleep apnea and bronchial asthma exacerbated by his oxycodone use.

- **Synthetic drug use can be fatal.**

A 15-year-old boy died and another boy was hospitalized after taking what they thought was LSD, but instead was a synthetic hallucinogenic drug.

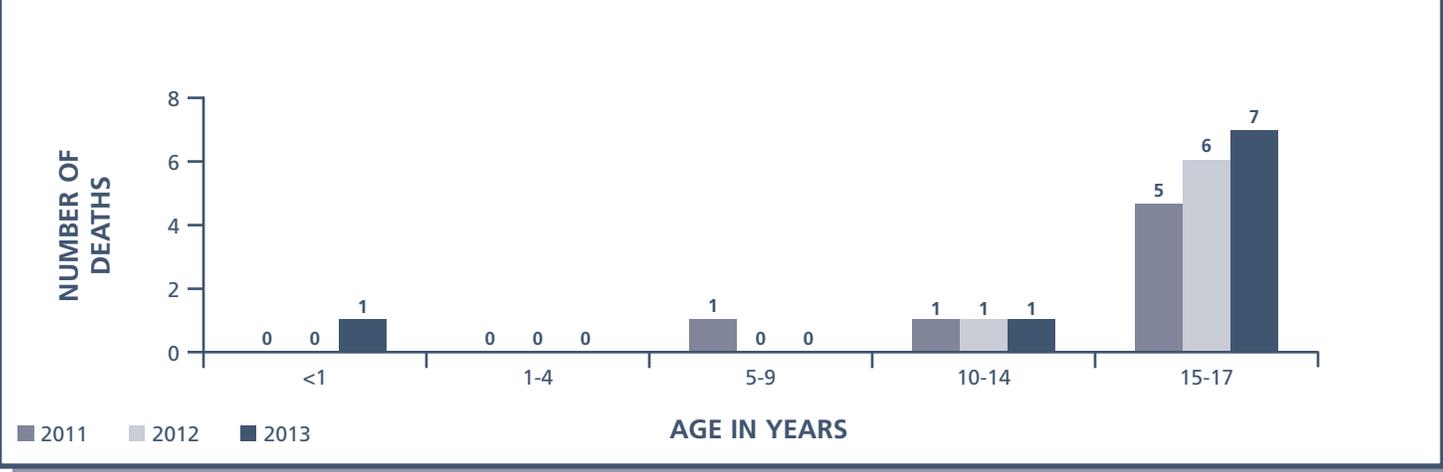
A poison is a substance that is harmful to the body when ingested, inhaled, injected or absorbed through the skin. Children are at risk of poisoning from household and personal care products, medications, vitamins, indoor plants, lead and carbon monoxide.

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 objects and toys, pesticides, art supplies and alcohol; with the remaining 40 percent by pharmaceuticals. Only **one** child in that age range died in Missouri in 2013, and that child died from fetal maternal drug use.

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.

UNINTENTIONAL POISONING FATALITIES BY AGE



UNINTENTIONAL POISONING FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	6	5	3	White	7	7	7
Male	1	2	6	Black	0	0	2
	7	7	9		7	7	9

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.

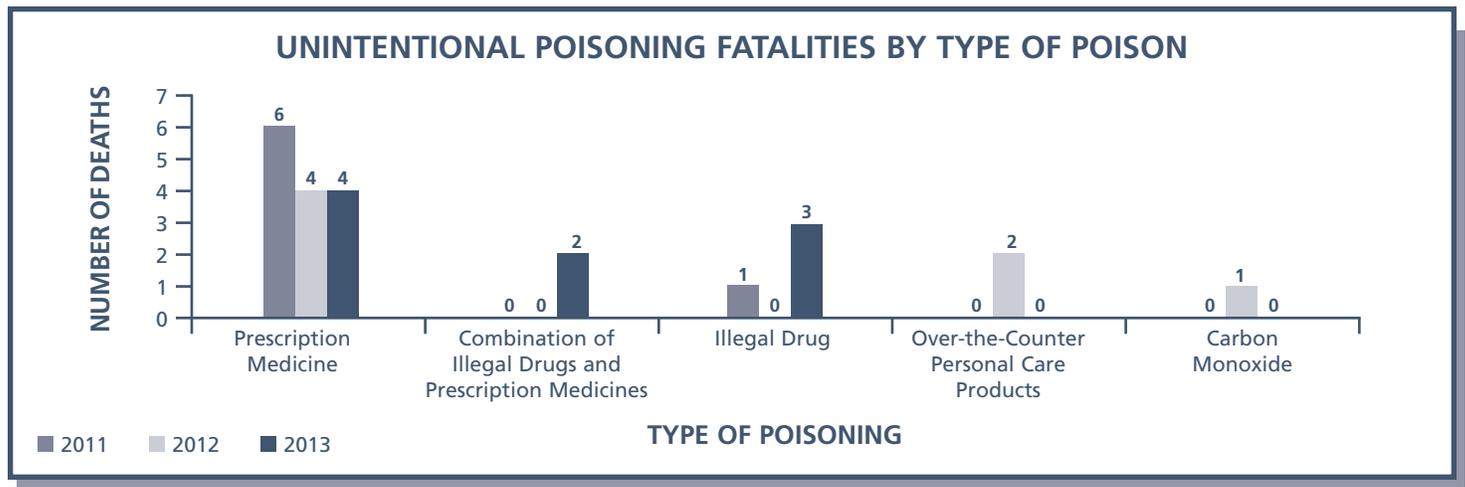
Seven Missouri teens, ages 15-17, died of unintentional poisoning in 2013, **two** died from illegal drugs, **three** died from prescription medications and **two** died from a combination of illegal and prescription medications.

Among teens, prescription drugs have become the second most abused illegal drug, behind marijuana. It is thought that there are two reasons for this increase. First off is how easy it is for teens to get their hands on prescription medications. According to the CDC, "Health care providers wrote 259 million prescriptions for painkillers in 2012, enough for every American adult to have a bottle of pills. Secondly, surveys have shown that many teens believe that taking prescription drugs is much safer than using illegal street drugs. 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.

Missouri is currently the only state which does not keep a prescription drug database. This type of database is how the other 49 states identify people who acquire excess prescriptions for addictive painkillers and tranquilizers, as well as the physicians who overprescribe them. This lack not only makes it difficult for Missouri to combat prescription drug abuse, but also attracts people from neighboring states who wish to make untracked purchases. These monitoring systems track opioid painkillers (such as oxycodone and hydrocodone) and tranquilizers (such as Xanax and Valium). **Five** (56%) of the **nine** children who died of accidental poisoning in Missouri died, from one of these type of drugs.

In 2013, Missouri had the first child death from so-called “designer drugs.” Created to try and get around national drug laws, these compounds are sold under such misleading names as “herbal incense,” “potpourri,” “bath salts,” “plant food,” and “research chemicals,” and are formulated to produce effects similar to marijuana, LSD or methamphetamines. Testing has found that the chemical composition of these drugs vary greatly, even within two products that carry the same name, making the effects unpredictable and increasing the danger of overdose.

Missouri is trying to stay ahead of the drug designers, but it is challenging. In 2010, Missouri passed a law against one form of synthetic marijuana known as K2. Soon after, another form of the product called K3 went on the market. In response, in 2011, lawmakers expanded the definition of marijuana to cover synthetics and banned substances marketing as incense or bath salts that mimic the effect of illegal drugs. In 2014, the state legislature is once again looking to expand the definitions to cover the latest drugs on the market.



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. Many local pharmacies take part in a program to help you safely dispose of your unwanted medications. Participating pharmacies can be found on the www.disposemyeds.org.
- Keep all medications where they are not readily accessible by children.

- Keep contact 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.
- Create programs to assist pregnant women in getting off the drugs before they harm their child.
- Pass legislation bringing Missouri in line with the rest of the United States in creating a database to track the sales and prescriptions of the most commonly abused drugs and mandate that doctors and pharmacists enter all prescriptions into this database. Also, require that all prescribers review this history before prescribing additional medications to their patients.

For professionals:

- Increase public education about the hazards to children regarding prescription and over-the-counter medications.
- Reduce the number of hazardous prescriptions available to children by monitoring the number of pain killers being prescribed.
- Make sure that all patients have information on the proper disposal of unneeded medications.

For child fatality review panels:

- Promote public education about the hazards to children regarding prescription and over-the-counter medications.
- Promote public education on proper disposal of unused or unneeded prescription medication.



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 2013, four 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.**

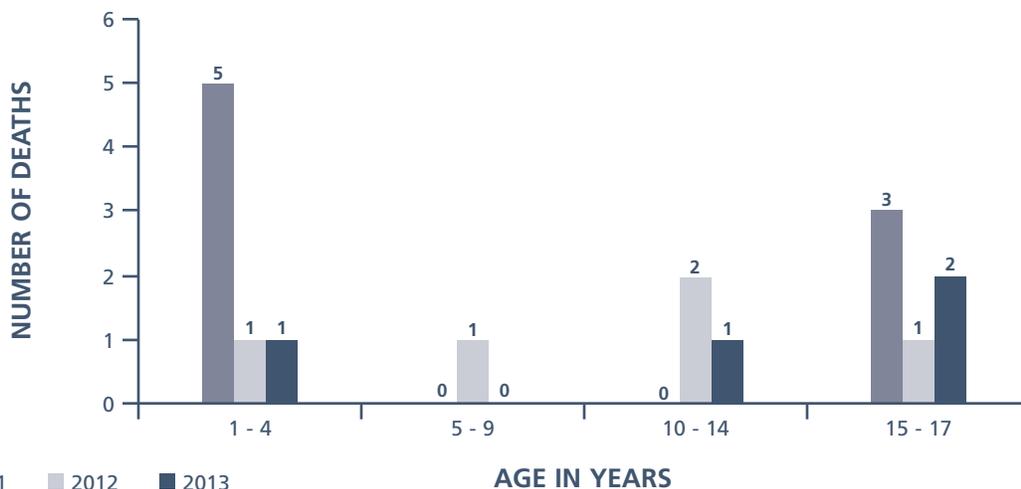
A four-year-old child died when she was accidentally shot by her brother. The child had found the gun in his father’s coat pocket and thought it was a toy. The father was not home at the time and the mother was not aware that the gun was unsecured.

- **Children often fail to understand or respect the risk presented by firearms.**

A twelve-year-old boy was home with siblings and a friend. He retrieved a hand gun from a cabinet and started talking about playing Russian roulette. The other children told him to put the gun away. He turned back to the cabinet and the children heard the gun go off.

According to the Center for Disease Control and Prevention, 78 children died and an additional 1,625 children were injured through the accidental discharge of firearms in 2012. In 2013, **four** Missouri children died of unintentional firearm injuries.

UNINTENTIONAL FIREARM FATALITIES BY AGE



UNINTENTIONAL FIREARM FATALITIES BY SEX AND RACE

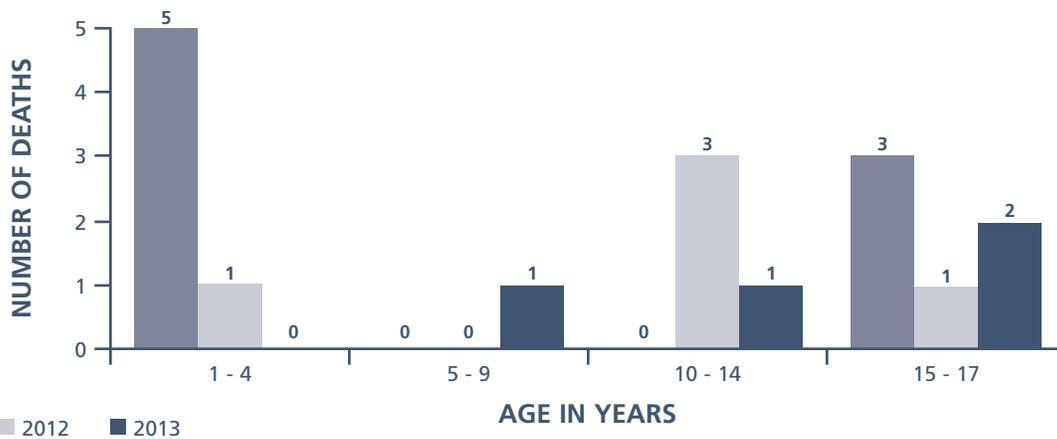
SEX	2011	2012	2013	RACE	2011	2012	2013
Female	6	5	1	White	6	3	3
Male	2	0	3	Black	1	2	1
				Multi-Racial	1	0	0
	8	5	4		8	5	4

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 2011, 79% were males. In Missouri in 2013, **three** (75%) of the victims of unintentional shootings were males.

Nationally, more than 70% of unintentional firearm shootings involve handguns. In 2013, **three** of the **four** unintentional firearm deaths among children involved a handgun, and **one** death involved a rifle.

As last surveyed in 2004, it was estimated that there were 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 **four** unintentional firearm deaths reviewed by CFRP panels in 2013, all **four** of the weapons were owned by family members. **Two** of these weapons were stored loaded and unsecured, **one** was in an unlocked gun cabinet, and the last **one** was being used by a child who was hunting.

UNINTENTIONAL FIREARM FATALITIES - BY AGE OF PERSON HANDLING FIREARM



Unintentional Firearm Fatalities Among Children

Parents need to store their guns safely, preferably unloaded and inaccessible to children.

- 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. **Three** of the **four** Missouri children, who died as a result of unintentional firearm injuries in 2013, 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 old 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:

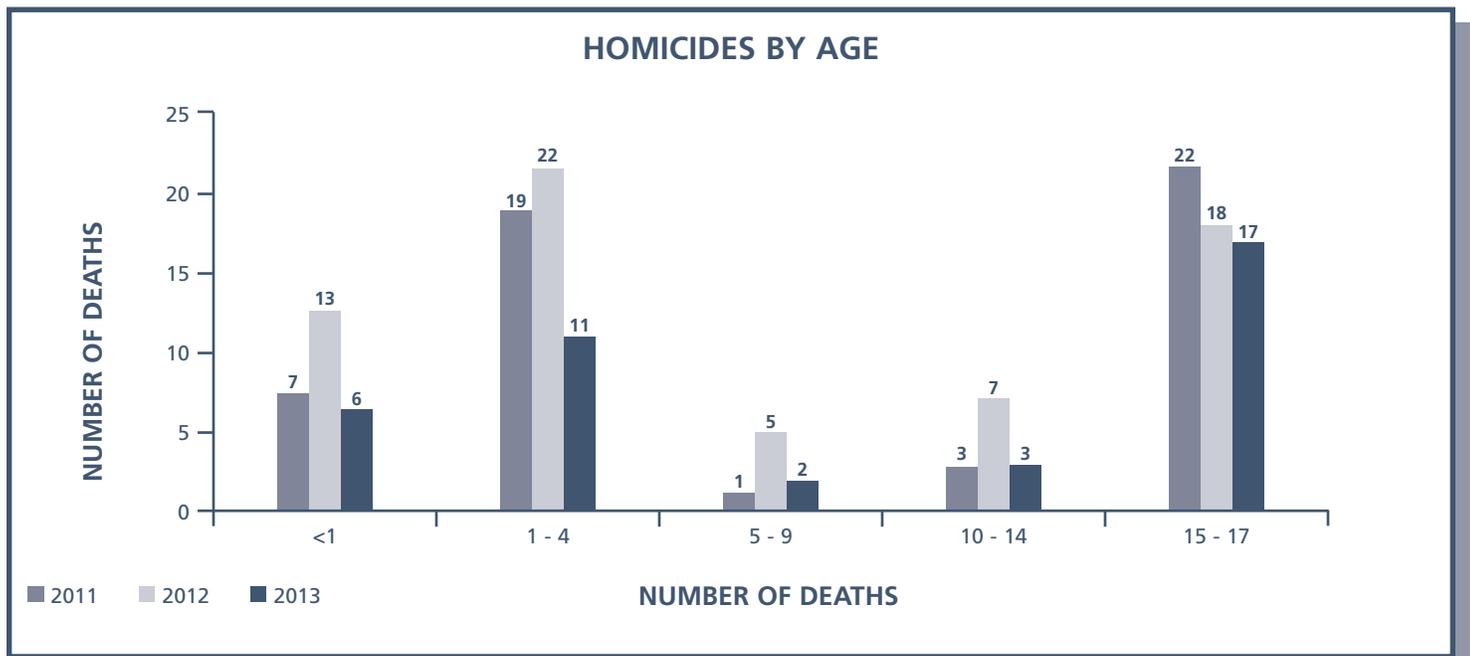
- SAFE KIDS Worldwide <http://www.safekids.org/>
National Rifle Association “The Eddie Eagle GunSafe Program”. <http://eddieeagle.nra.org/>
Missouri Department of Conservation Hunter Education Program
. <http://mdc.mo.gov/hunting-trapping/learn-hunt/hunter-education>

HOMICIDES

In 2013, homicide was listed as the death certificate manner of death for 39 Missouri children.

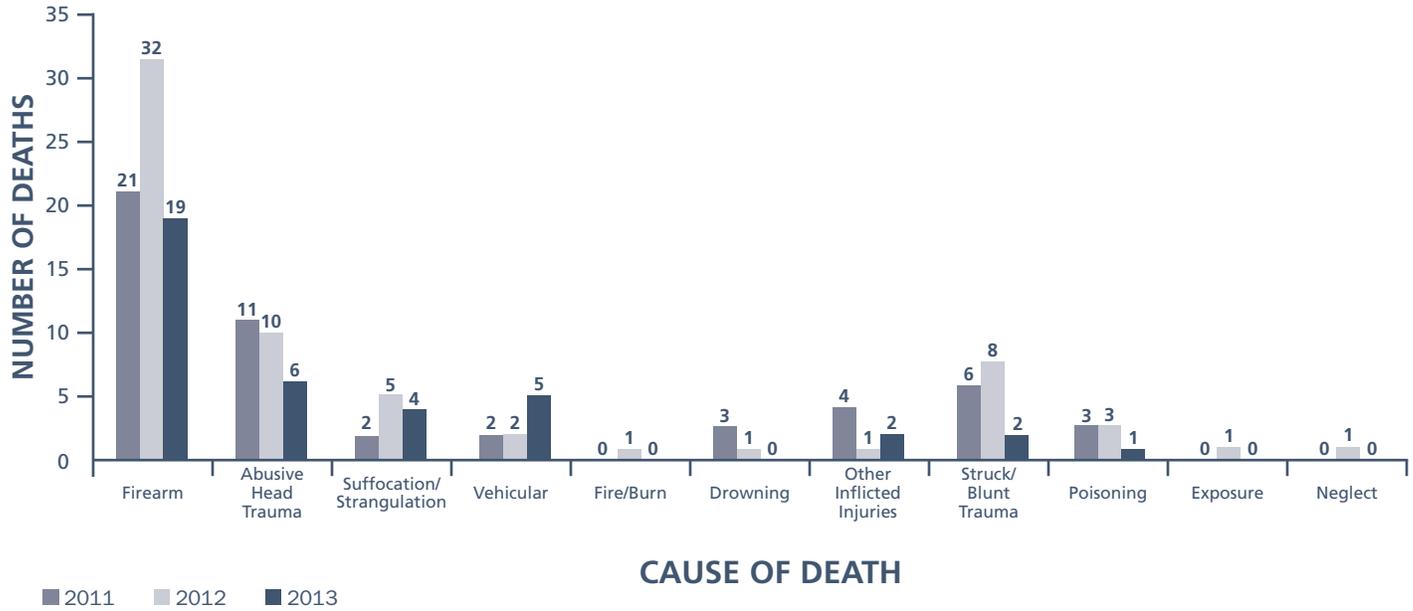
Fatal Child Abuse and Neglect: Child death resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent. This includes, but is not limited to, children whose deaths were reported as homicide by death certificate. In 2013, a total of 68 Missouri children were identified by CFRP panels, as victims of Fatal Child Abuse and/or Neglect; of those, 17 were reported by death certificate as Homicide, with 14 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 25 such fatalities in Missouri in 2013. Of those, the CFRP panels identified three child deaths in which parental negligence was a contributing factor.



SEX	2011	2012	2013	RACE	2011	2012	2013
Female	17	27	14	White	22	32	15
Male	35	38	25	Black	28	29	22
				Multi-Racial	2	4	2
	52	65	39		52	65	39

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 2013, 68 Missouri children were victims of Fatal Child Abuse and Neglect. Of those, 17 were reported as homicide by Death Certificate.

Representative Cases:

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

911 was called claiming that a three-month-old child had choked while feeding. The child was unresponsive and died two days later, when she was taken off life support. Examination revealed the child had suffered blunt force injuries to the head. The father confessed to shaking the baby and was convicted of child abuse resulting in the death.

EMS responded to the call of a ten-week old unresponsive and having trouble breathing. The child was transported to the hospital where she was found to have numerous old and new injuries. The father, who was supposedly angry over being left with the child, was charged with second degree murder.

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

A four-month-old child was found face down in a playpen with his head between the mat and the side. The child had multiple bruises and a skull fracture. The mother confessed to striking the child multiple times because the baby would not stop crying. The mother was charged with first-degree assault, abuse or neglect of a child, and first-degree child endangerment.

- **Parents need to be more careful of who they leave their young children with.**

An eight-month-old child died of suffocation while in the care of a babysitter. The child had been tightly wrapped in a blanket and put in a crib. She was found with her head wrapped in a blanket. The manner of death was determined to be homicide.

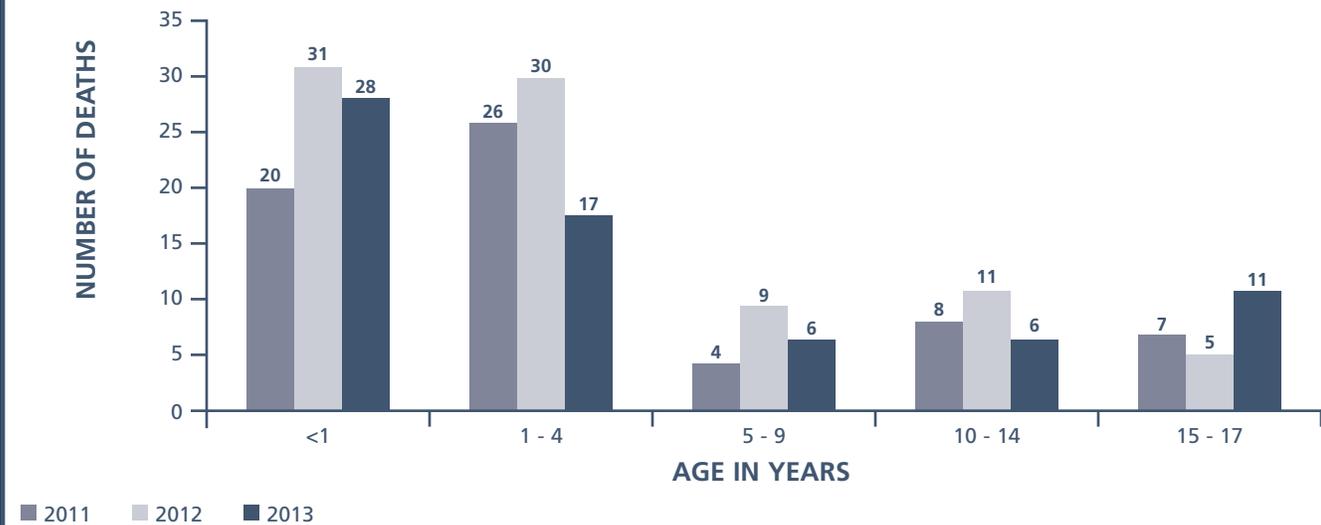
- **Domestic violence issues between adults often spills over onto children.**

A father shot and killed his wife and their three-year-old son, before turning the gun on himself. The mother and child had just moved into the apartment a few days prior. There was a warrant out for the arrest of the father for assault, but he had managed to evade police.

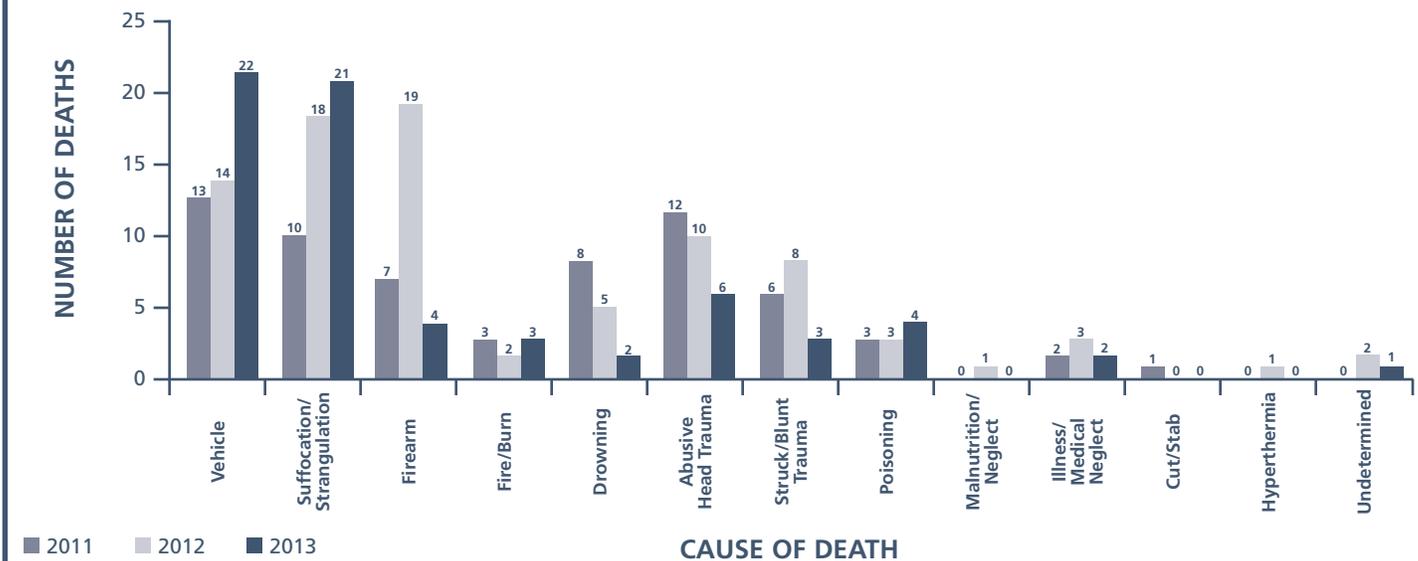
CHILD ABUSE AND NEGLECT FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	23	42	28	White	40	53	44
Male	42	44	40	Black	22	27	21
				Multi-Racial	3	6	3
	65	86	68		65	86	68

CHILD ABUSE AND NEGLECT FATALITIES BY AGE



CHILD ABUSE AND NEGLECT FATALITIES BY CAUSE



Child fatalities are the most tragic consequences of child abuse and neglect. The National Child Abuse and Neglect Data System (NCANDS) reported that in 2012, an estimated 1,640 children died from abuse and neglect at a rate of 2.20 per 100,000 children in the population. However, it is well documented that child abuse and neglect fatalities have been under-reported and that, nationally, the numbers may be much higher. There are a number of reasons for this discrepancy and some of the fundamental problems are highlighted in this section. The CDC has funded an effort to develop a standardized national surveillance system capable of accurately investigating and reporting child abuse and neglect fatalities. On a state level, properly organized and functioning child fatality review systems have improved the accuracy of child death reporting.

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

Vital Statistics and Death Certificate Information

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

Death certificate information is widely recognized as inadequate as a single source for identification of child abuse and neglect deaths. Misidentification of deaths may occur, because of inadequate scene investigation or 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.

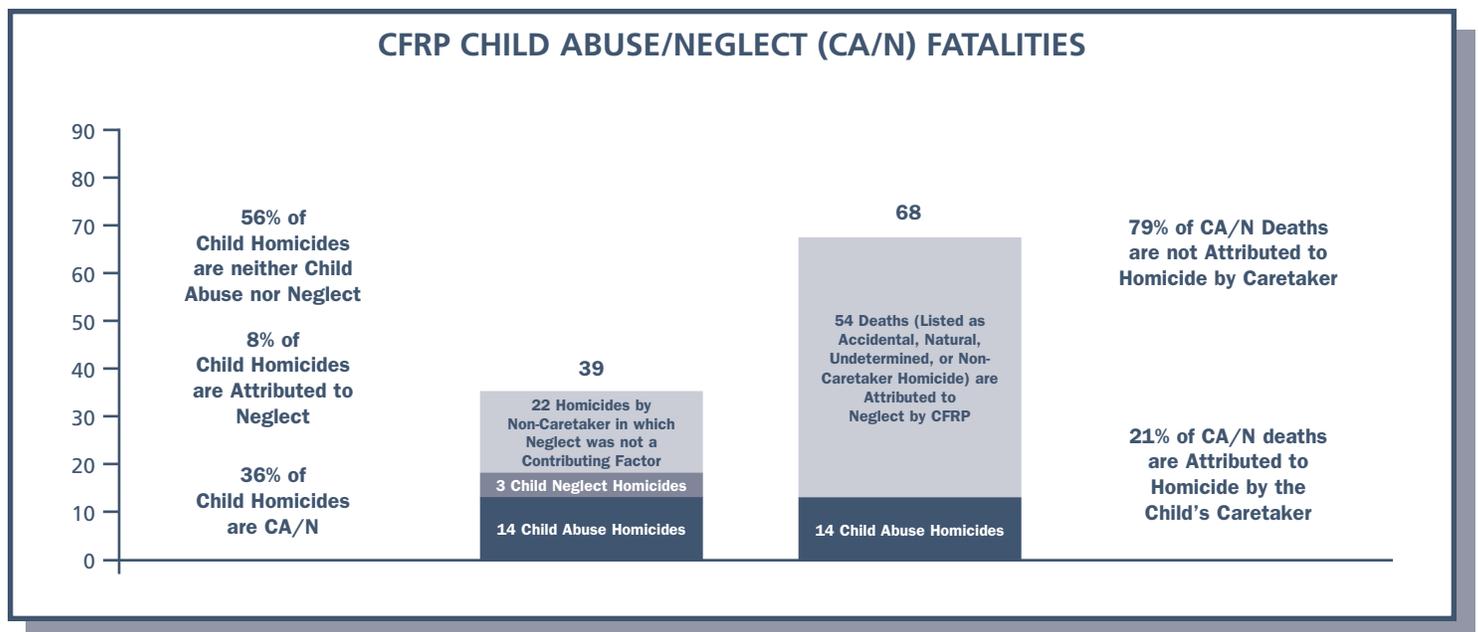
After a report of child abuse or neglect has been made, investigations that return sufficient evidence supporting the report are classified as *preponderance of evidence child abuse and neglect*. When there is sufficient evidence to prove that a child who died was abused or neglected, or when this finding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

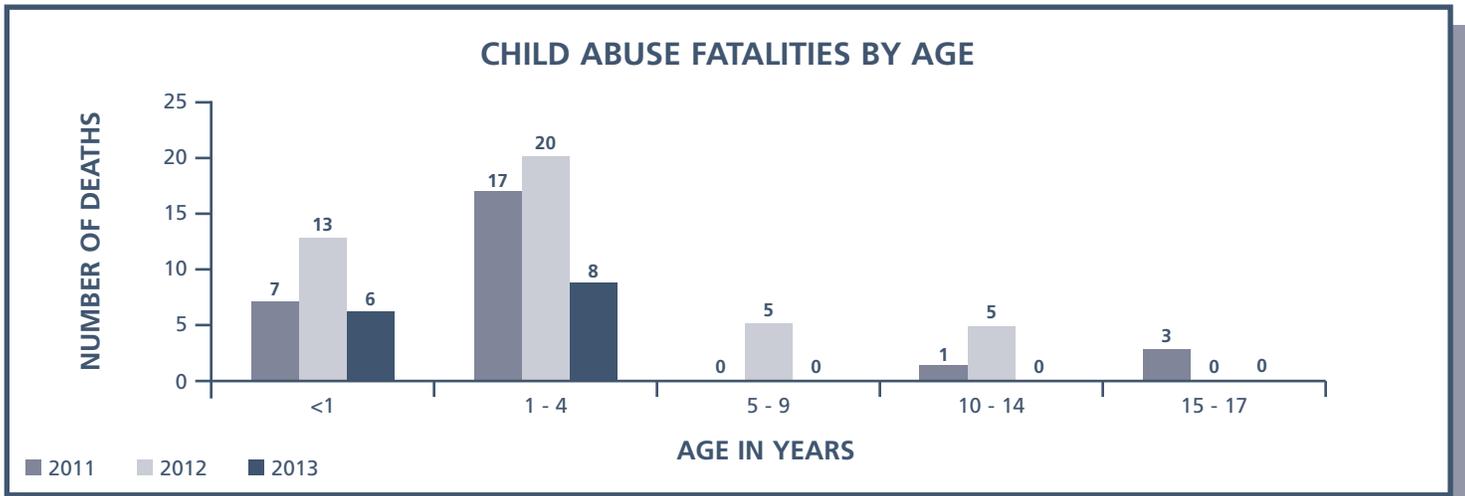
“Murder is no less a crime because a child, rather than an adult, is the victim.”
-Unknown

In 2013, 14 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 2013, all **14** of the Missouri children who died from inflicted abuse or neglect at the hands of a parent or caretaker were four years of age or younger. Of the **14**, **six** (43%) were infants under the age of one year.

There was a large drop in the number of child abuse deaths in 2013. While there are many factors which increase the likelihood of a parent abusing their child, such as lack of support or unrealistic expectations of what parenthood will be like, there is no real way to determined what caused this drop. It may be that the upturn in Missouri’s economy has helped ease the stressors on parents which lead to child abuse.

Even with this decrease in deaths, there were still two incidents where the parent or guardian killed their entire families, followed by their own suicide. These incidents resulted in the death of three children and three adults. One of these incidents was carried out by the child’s father, and the other was carried out by the children’s mother. In one of these instances, there was a history of domestic violence issues and in the other, the perpetrator had a history of mental health issues including homicidal and suicidal thoughts.



CHILD ABUSE FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	10	20	7	White	15	28	8
Male	18	23	7	Black	13	10	5
				Multi-Racial	0	5	1
	28	43	14		28	43	14

FATAL CHILD ABUSE BY CAUSE

Abusive Head Trauma	6	Firearm	1
Suffocation	3	Poisoning	1
Blunt Trauma	2	Vehicular	1

In 2013, **two** 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.

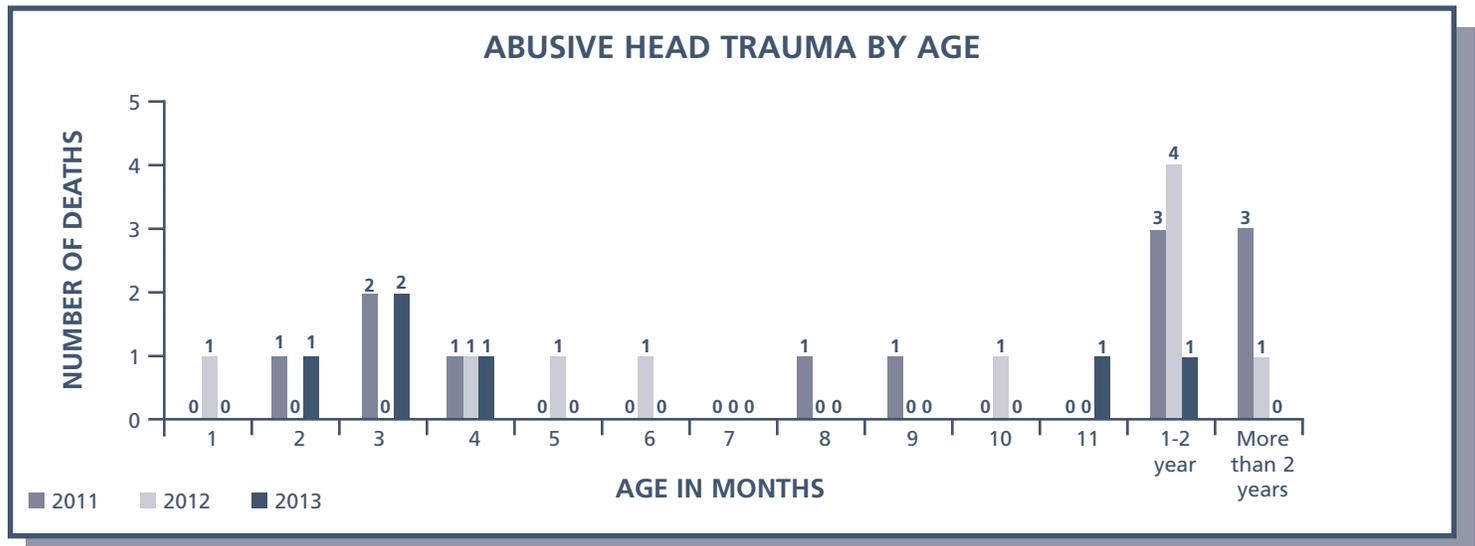
Abusive Head Trauma

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 **14** Missouri children who died from inflicted injury at the hand of a parent or caretaker, in 2013, **six** (43%) were victims of abusive head trauma (or inflicted brain injury), formerly known as Shaken Baby Syndrome.

According to the CDC, pediatric abusive head trauma is defined as an injury to the skull or intracranial contents of an infant or young child, under five years of age, due to inflicted blunt impact and/or violent shaking. The signs and symptoms that a child exhibits after having been subjected to this kind of trauma range from minor (irritability, lethargy, tremors, vomiting) to major, (seizures, coma, stupor, death), which are caused by neurological changes related to destruction of brain cells secondary to trauma, lack of oxygen to the brain cells and swelling of the brain. Extensive retinal hemorrhages in one or both eyes are found in the vast majority of these cases. (National Center for Shaken Baby Syndrome)

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

ABUSIVE HEAD TRAUMA BY AGE



ABUSIVE HEAD TRAUMA FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
FEMALE	6	3	4	WHITE	7	8	5
MALE	6	7	2	BLACK	5	2	1
	12	10	6		12	10	6

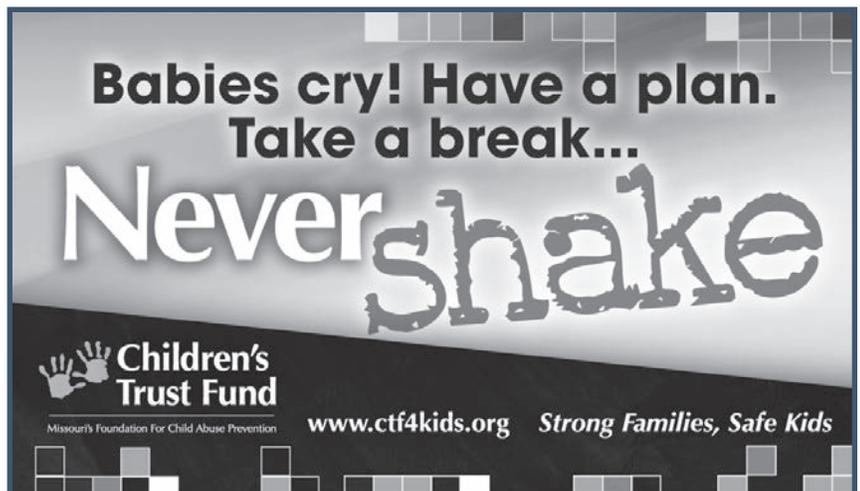
For abusive head injuries, the average age of victims is between three and eight months, although these injuries are occasionally seen in children up to four years old. Infants are particularly vulnerable to abusive head trauma injuries, because of their unique physical and behaviors characteristics. 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 2013, all **six** children who died from abusive head trauma were under two years of age.

Young parents, unstable family conditions, low socioeconomic status and disability or prematurity of the child make an infant particularly vulnerable. The triggering event for 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 **six** children who died of abusive head trauma, crying is listed as the triggering event in **three** deaths (NOTE: The other **three** 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 2013, perpetrators of abusive head trauma fatalities in Missouri included **three** birth fathers, **one** uncle, and **two** birth mothers.



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, 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 2013, CFRP panels found that Grossly Negligent Treatment had contributed to the deaths of **68** Missouri children; of those **17** were designated as Homicide by death certificate – **14** were discussed in Fatal Child Abuse. The remaining **three** homicides are included in the 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	
2	Drowning	2	0	0	0	A father left his baby in the bathtub and went to play a video game. A mother let her non-swimmer child play at a hotel pool unsupervised.
3	Fire/Burn	0	0	1	2	In one death, the father was smoking in bed. In the two deaths, the father saved himself, leaving the children in the house.
3	Firearm	1	0	2	0	A child was hunting by himself when he got shot. One child found his father's handgun in a coat pocket and killed his sister. A child was allowed by his mother to go with a known sex offender who later killed the child.
2	Illness/Natural Cause	0	2	0	0	Mom took the child to the doctor, but did not follow the doctor's instructions. A child was ill for several days and was never taken to the doctor.
1	Other Inflicted Injuries	0	0	0	1	Two teens were playing around. One struck the other one in the chest, and the second teen immediately dropped dead.
3	Poisoning	0	0	1	2	One teen in outpatient rehab, was allowed to go over to a friend's house, where he used drugs and died. One child died due to mom using Meth while pregnant. One child died while using drugs that were obtained from a friend's dad.
18	Suffocation	1	0	6	11	Six children died when they were placed in unsafe sleep arrangements. Eleven babies died while sleeping with their parents. A child died when left with a cognitively impaired sibling who smothered it with a pillow.
1	Undetermined	0	0	0	1	An infant dies while sleeping with mom and three other children, even though mom had been specifically educated regarding the dangers of same surface sleeping.
21	Vehicular	8	0	4	9	Three pedestrians died from lack of proper supervision. Eight children died from vehicle crashes caused by intoxicated drivers. Two died in speed-associated crashes. Four children died from injuries associated with not using safety devices. One child died from a hit and run. Two died from mistakes due to inexperience. One died due to children being allowed to play unsupervised in a vehicle.
Total Child Neglect Deaths = 54		12	2	14	26	

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 a thorough 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 investigations. 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.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 39 child homicides in Missouri in 2013, 25 (64%) 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 (72%) involved firearms.

Representative Cases:

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

A sixteen-year old and two older accomplices robbed a marijuana dealer. The dealer found them, shot the victim and the others using an AR-15.

A seventeen-year old was involved in a drug deal. The buyer, refusing to pay, took off with the teen grabbing the side of the truck. The teen fell and the truck ran over him.

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

A sixteen-year old was walking home from the store with his younger sibling, when they got caught in the crossfire of a gang shooting.

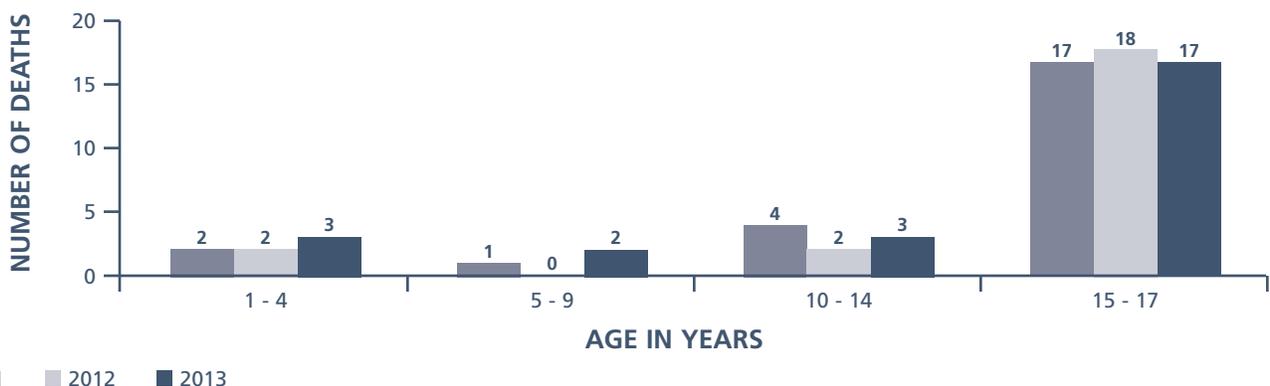
A fourteen-year old was accidentally shot by his brother, when they and some older teens were playing with a gun. The teens panicked and tried burying the body in a pile of dirt. Eventually, the story came out and the child was found.

- **Most kidnapers are known to their victims.**

A twelve-year-old girl was lured away from a park by the father of one of her friends. She was later found dead from strangulation. She had been sexually assaulted.

A thirteen-year-old girl was reported missing by her grandmother. It was later found that her step-uncle had taken her away from the home in the middle of the night and murdered her.

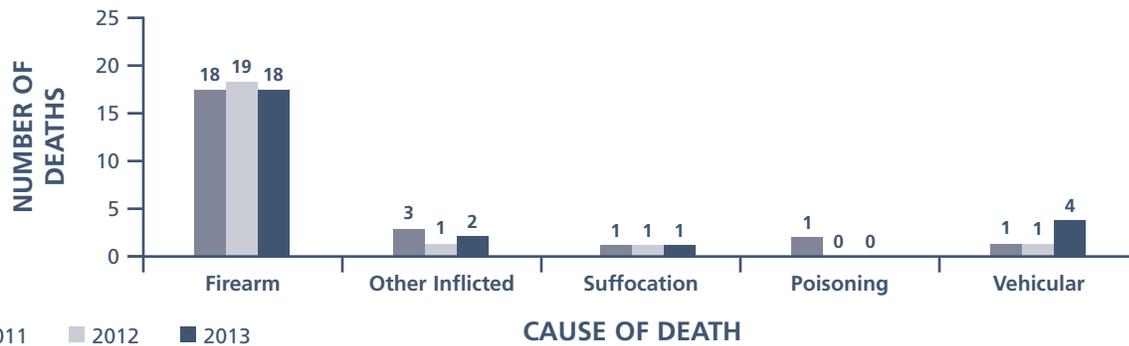
OTHER HOMICIDES DEATHS BY AGE



OTHER HOMICIDES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	7	7	7	White	8	3	7
Male	17	15	18	Black	15	19	17
				Multi-Racial	1	0	1
	24	22	25		24	22	25

OTHER HOMICIDES BY CAUSE



Thirteen of the deaths were related to youth violence. Additionally, **eleven** 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 the 2013 Missouri Youth Risk Survey, 22% of high school participants indicated that they had carried a weapon one or more times during the past month, and nine percent had gotten in a physical fight where they sustained injuries that required medical attention during the same timeframe. 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. The following protective factors are listed in American Journal of Preventative Medicine, “*Direct Protective and Buffering Protective Factors in the Development of Youth Violence*” published in 2012:

Individual/Family Protective Factors

- Above-average intelligence
- Positive attitudes toward family and school
- Low impulsivity and an easy temperament
- Close relationship to at least one parent
- Intensive parental supervision
- Parental disapproval of aggressive behavior
- Low physical punishment
- Intensive involvement in family activities
- Above-average social economic status of the family
- Family models of constructive coping
- Positive parental attitudes toward the child’s education

Peer/Social Protective Factors

- Good school achievement
- Bonding to school
- Strong work motivation
- Reaching higher education
- Support and supervision by teachers
- Clear classroom rules
- Positive school climate
- Non-deviant good friends
- Peer groups who disapprove of aggression
- Involvement in religious groups
- Commitment to school
- Involvement in social activities

Violence Prevention Recommendations:

For parents:

- Provide supervision, support and constructive activities 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 2013, 29 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 fifteen-year-old boy was found in the garage with a self-inflicted gunshot wound to the head. The gun belonged to the family. The child had threatened suicide in the past. He had been put in counseling and all guns were removed from the home. The guns had been recently brought back into the residence.

A twelve-year-old boy was found hanging. He was staying with his godparents, because of his behavior. The child had a history of threatening suicide when he was punished, but was never taken for treatment for this behavior.

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

A sixteen-year-old boy had left a message on Facebook complaining about his father, then hung himself with a necktie. The teen had a past history of drug and alcohol abuse. Also, the father was abusive to both the boy and his mother.

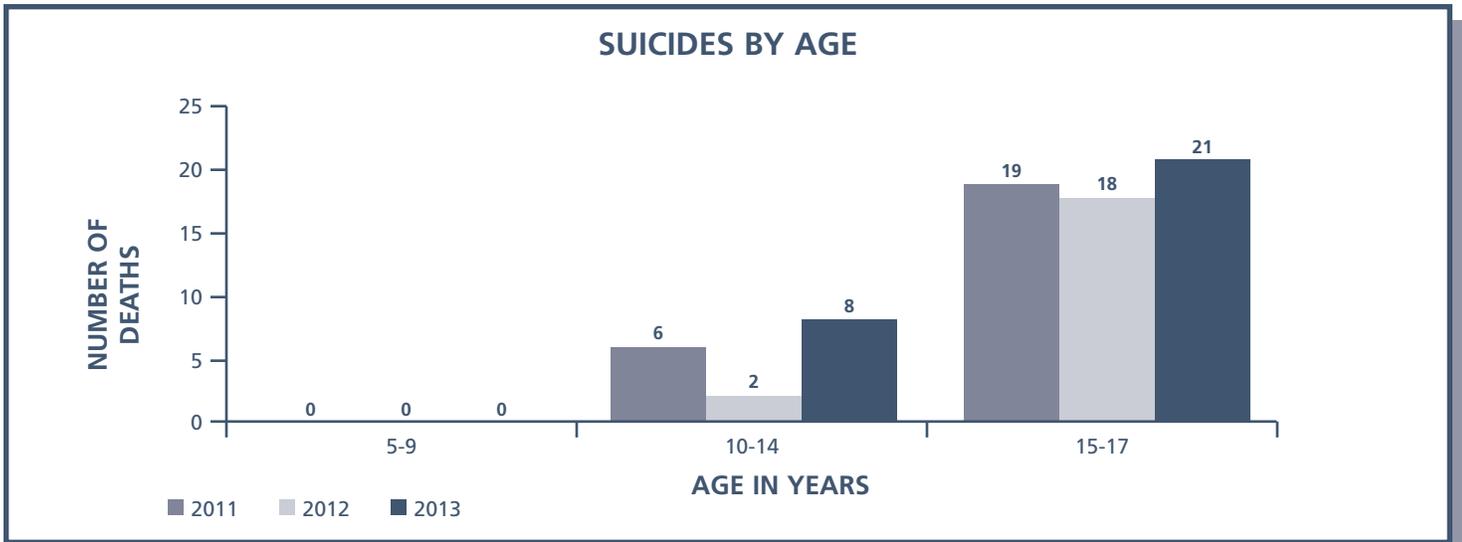
- **Bullying and other social pressures can drive a child to suicide.**

A 15-year-old teen, who had been bullied at school, hung himself with an electrical cord from his bedroom ceiling. He was under the care of a psychiatrist for bipolar disorder and depression, and had a history of prior attempts of suicide.

According to the United Nations’ World Health Organization, every 40 seconds a person dies by suicide somewhere in the world, and many more attempt suicide. This works out to a worldwide suicide rate in 2012, of 11.4 per 100,000 in population. During that same timeframe the United States’ suicide rate was 12.1.

According to Missouri Department of Mental Health, for over a decade, the suicide rate in Missouri has been higher than the national rate. In 2012, Missouri’s suicide rate was 14.7 per 100,000 and the provisional rate for 2013 is 15.8 per 100,000. While that number is for the entire population, in 2013, there has been a significant increase in suicides in children, 17 and under. In 2013, **29** children died of self-inflicted injuries; **21** were ages 15-17; and the remaining **eight** were children ages 12-14.

The Missouri Student Survey in 2013, found that 14.2% of all Missouri high school students and 18.6% of female high school students reported they seriously considered suicide in 2013. It also states that 14.3% of all students actually made a suicide plan. Many more students attempt suicide than those that succeed. In 2013, 6.9% of the students surveyed stated they had attempted suicide. Overall in

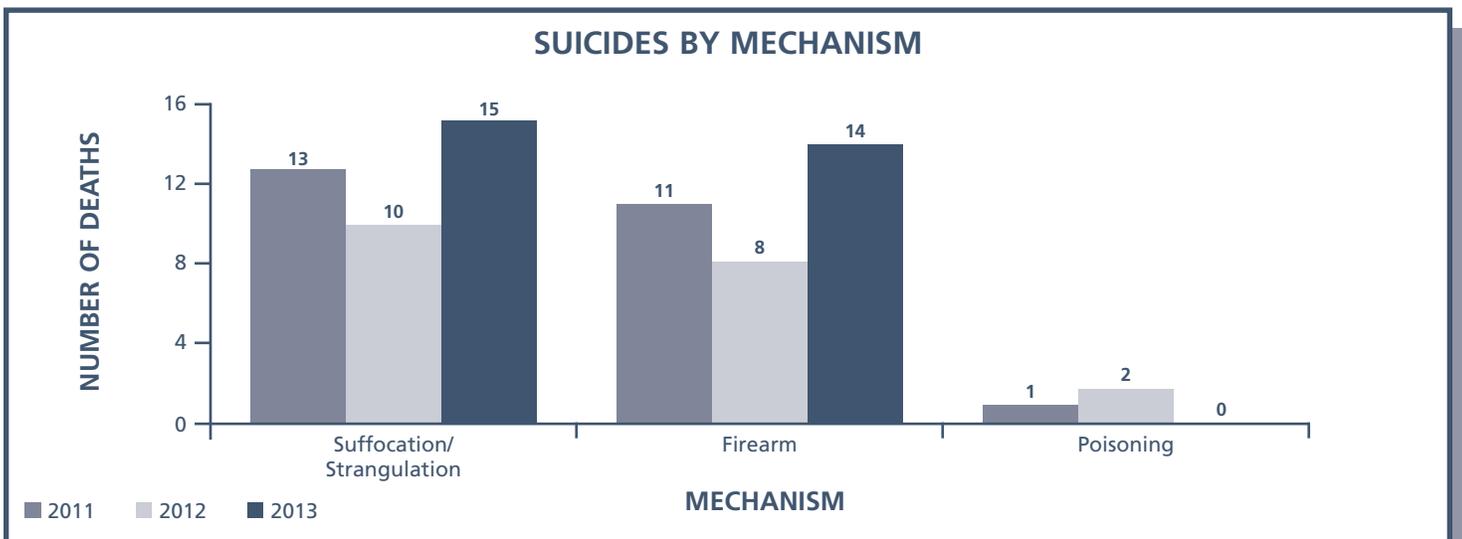


the United States, there is an average of one suicide for every 25 attempts. The suicide attempt rate for females ages 15-24 is more than double the rate for all Missourians, but more males succeed than females. Overall, males took their lives at nearly three times the rate of females, representing 72% of all suicides in Missouri.

SUICIDES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	6	4	8	White	23	17	24
Male	19	16	21	Black	1	3	5
				Asian	1	0	0
	25	20	29		25	20	29

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 **29** Missouri children who committed suicide in 2013, **13** (45%) had displayed one or more warning signs.



While suicide is rarely spontaneous, many times it is brought about due to a personal crisis. **Nineteen** of the children who committed suicide in 2013, had a recent history of one or more personal crises.

RECENT HISTORY OF PERSONAL CRISES			
Argument with Parent/Caregivers	4	Bullying as a Victim	1
Argument with Boyfriend/Girlfriend	3	History of Running Away	1
Other School Problems	3	School Failure	1
Drug or Alcohol Use	2	Moved/New School	1
Problems with the Law	2	Suicide by Friend or Relative	1
Parents Divorce/Separation	1	Physical Abuse/Assault	1
Break up with Boyfriend/Girlfriend	1	Rape/Sexual Abuse	1
Argument with Other Friend	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 large, 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

Ask-Listen-Refer – Missouri Suicide Prevention Training Program
. <http://www.moasklistenrefer.org/main>

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/sites/default/files/qscharter-MSPP%20NewsTopicsincludeDepressionScreeningBullyingTrainingfor Educa.pdf](http://www.dese.mo.gov/sites/default/files/qscharter-MSPP%20NewsTopicsincludeDepressionScreeningBullyingTrainingforEduca.pdf)

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>

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

“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

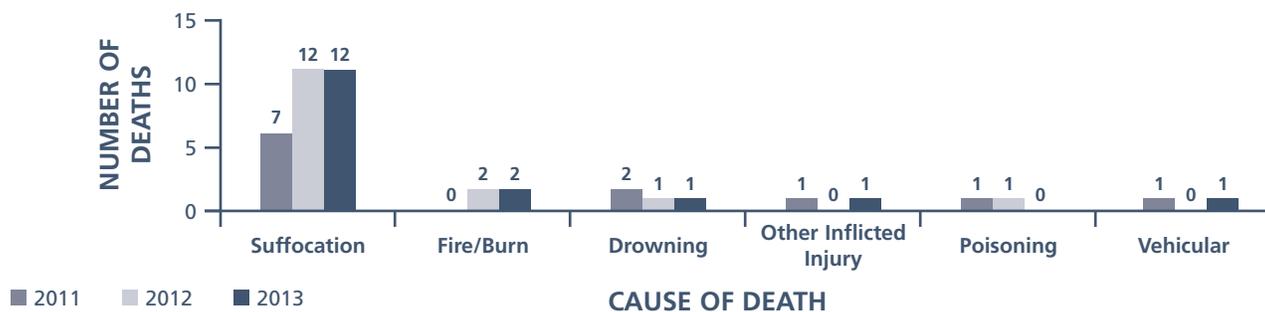
UNDETERMINED INJURY

In 2013, 17 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 2013, there were **17** injury deaths of undetermined manner.

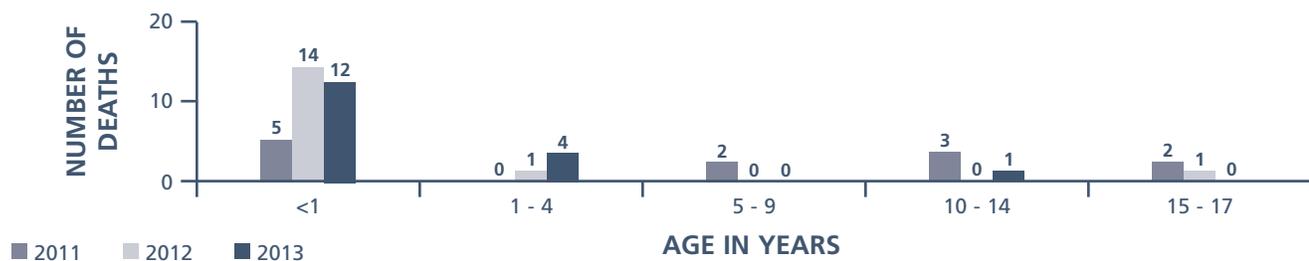
UNDETERMINED INJURY FATALITIES BY CAUSE



UNDETERMINED INJURY FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	4	8	3	White	9	6	15
Male	8	8	14	Black	1	9	1
				Multi-Racial	2	1	1
	12	16	17		12	16	17

UNDETERMINED INJURY FATALITIES BY AGE



UNDETERMINED CAUSE AND MANNER

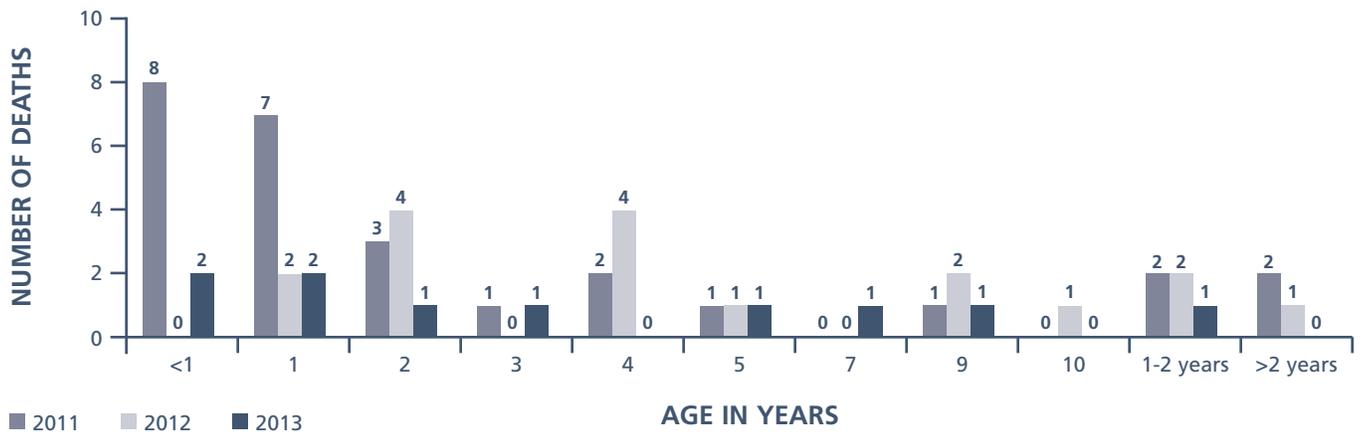
In 2013, there were 10 Undetermined Cause and Manner fatalities among Missouri children.

In 2013, the cause and manner of death in 10 children could not be determined. One of these children was over one year of age, but the rest were infants. The CDC calls this category “Ill Defined and Unknown Cause of Mortality,” and, in the case of infants, defines it as “The sudden death of an infant less than 1 year of age that cannot be explained as a thorough investigation was not conducted and cause of death could not be determined.”

According to the CDC, the differences between undetermined and SIDS deaths are as follows:

- Sudden Unexpected Infant / Child Deaths (SUID/SUCD) cover deaths which were caused by many factors, SIDS and Undetermined are just two of them, others include poisoning or overdose, cardiac channelopathies, inborn errors of metabolism, infections and accidental suffocations.
- Both the manner and cause of the death listed under Undetermined are unknown – in SIDS the manner is classified as Natural.
- Like SIDS, in an Undetermined death where there was nothing found at autopsy to indicate exactly why the child died. Unlike SIDS, in Undetermined deaths there were increased risk factors present, such as a recent illness, unsafe sleep surfaces or same surface sleep sharing; i.e. beds, couch, and chair, which can be neither proven nor disproven to have caused the death. Or, there was a lack of a thorough investigation having been conducted.

UNDETERMINED CAUSE AND MANNER FATALITIES BY AGE



UNDETERMINED CAUSE AND MANNER FATALITIES BY SEX AND RACE

SEX	2011	2012	2013	RACE	2011	2012	2013
Female	10	8	5	White	14	6	6
Male	17	9	5	Black	10	10	3
				Other	3	1	1
	27	17	10		27	17	10

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 the opportunity for researchers 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 the 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 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 the panels 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. For the past three years, 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 fifteen-year-old child was skateboarding down a hill on an asphalt road. He was not wearing a helmet, but was wearing a camera attached to his head. At the bottom of the hill, he lost his balance, fell off the skateboard hitting his head on the asphalt and subsequently died from his injuries. The panel initiated a media campaign on the importance of wearing helmets.
- A twelve-year-old child retrieved one of her grandmother’s pain patches from the trash and put it on her abdomen. There was enough of the drug left in the patch to cause a fatal overdose. The local CFRP recommends educational activities in doctors’ offices and the local media on the proper disposal of medications.
- A one-week-old child becoming ill, was taken to the hospital and died the next day. The child had seemed healthy at birth, but the autopsy found that the child died of complications of herpes simplex virus. The panel had articles placed in the local newspaper to remind parents of the importance of all prenatal screenings.

Legislation, Law or Ordinance:

- A one-year-old child died in a house fire. The home was a rental and was heated with space heaters. The county panel recommends smoke detectors with non-removable lithium batteries be distributed and installed by the local fire departments; school programs be implemented where children are taught fire safety and the importance of planning home fire escape; and rental unit inspections by local authorities.
- A seventeen-year-old boy was walking along a trail with a girl, when he was shot in the back from behind. The perpetrator is still unknown. The panel recommended that a task force on community violence be formed to determine the history, trends and current status of violent crimes in the city, as well as study various community strategies to decrease violent crime.

Community Safety Project:

- Two nine-year-old boys were swimming at a hotel swimming pool, supervised only by their young teenaged brother. Neither could swim, but they both went into the deep end. Hotel employees and guests tried to revive the children, but they both died. The panel recommended better enforcement of hotel pool regulations by the health department.
- A seventeen-year-old teen was traveling in a car with her parent. The teen was lying reclined in the front seat with a blanket and seatbelt on. The car was in a rear-end collision, and the teen slipped out of the seatbelt and was pinned under the dash. The panel placed an article in the local paper and recommended giving programs in schools about the proper use of seatbelts.
- A seventeen-year-old boy had made terroristic threats directed toward the school, via a text message to a friend. The police were notified and had come to the child's home to arrest him. The police allowed him to get dressed and when he went to get a pair of shoes, he picked up an unsecured weapon from the laundry room and shot himself. The panel recommends that a community safety program be created with emphasis of the responsibilities of safe gun storage by gun owners. They also recommend that the school teach students that all threats to schools and/or students will be taken very seriously.
- A seventeen-year-old teen died of a self-inflicted gunshot wound. The panel recommends community education regarding proper secured storage of firearms, as the gun was stolen out of an unlocked car. The child hid the gun, so he would have access to it.
- Three children, ages eleven, nine and eight, were riding with their intoxicated father. He lost control of the vehicle on the highway, sliding sideways crossed into oncoming traffic, and overturned several times, ending up in a ditch. Everyone in the vehicle died. The panel recommends continued education on the dangers of driving while intoxicated.
- A vehicle hit the end of a bridge, running off the bridge into the river. The seventeen-year-old driver and her fifteen-year-old brother died. The panel recommended that the bridges in the county be inspected for proper railing and maintenance.
- A seventeen-year-old driver lost control of his vehicle on a curve, which left the road and hit several trees before coming to rest. This section of road has a high instance of crashes. The panel recommended a guardrail be installed in this location to reduce the severity of crashes as it would

prevent motor vehicles from leaving the roadway. Law enforcement presented the recommendation to the attention of the city council.

Educational Activities In Schools:

- A sixteen-year-old boy's mother contacted the school to report him sick with the stomach flu. While at home alone, he shot himself. His parents were unaware of any suicidal thoughts and were at work at the time. The panel recommends suicide prevention programs be ongoing in the schools. This young man had often shared his feelings with friends, but no one ever said anything to school officials, parents or any other individuals.
- A nine-year-old boy was driving a 4-wheeled ATV alone, with no protective gear. He was doing "doughnuts" when the ATV, which weighed over 800 pounds, overturned and pinned the child under it. The panel arranged to have local troopers do an ATV safety presentation at local schools, to include operating an ATV and essential personal safety protective equipment.
- A six-month-old infant was in the care of his sixteen-year-old aunt. The mother came home and found the baby wedged between the mattress of an adult bed and the wall. Panel members checked with area hospitals and schools to verify that safe sleep practices are still being covered in education for new mothers and high school students in parenting classes.
- A six-week-old child was being cared for by his grandmother, who fell asleep on the sofa. She awoke to mother screaming, and discovered that the baby had become trapped between her body and the back of the sofa. The panel arranged for posters to be placed in area high schools and grade schools educating readers on the dangers of sleeping surface sharing. The idea is to target siblings of at risk infants, as well as very young high school-aged parents.

Changes In Agency Practices:

- A fourteen-year-old autistic child was playing outside unsupervised. The child wandered off and was found the next morning drowned in a pond about a half a mile away from the home. The county made several recommendations for preventing similar deaths to include: educating parents through Children's Division and the Department of Mental Health services on the supervision of children with special needs; use of local media to increase public awareness about timely reporting of unsupervised children; and law enforcement working with landlords in order to allow modifications to structures to keep children safe.
- A four-year-old girl and her mother were visiting friends. The mother and another female were letting the kids play in the front yard. Unknown to them, a male was preparing to do some target practice in the back yard. The child ran around to the back yard to play on the swing set. The shooter could not see the child, because he was braced against a building and the scope's blind spot. The child's mother also did not see the shooter. The child was hit in the head. The panel asked the local newspaper to print an article outlining gun safety, to include target practice and sighting new weapons or new scopes. The panel also inquired if such information is included in the current hunter safety course required by Missouri law.
- The father awoke to find his five-month-old infant unresponsive in an adult bed. There was a Pack 'n Play in the home, but it was full of items. The panel recommends continuing to educate parents

on safe sleep practices through the Department of Health and medical offices, as well as encourage parents and caregivers not to expose infants to second hand smoke.

Education – Parent Education:

- An infant, left with the uncle’s girlfriend, started crying. She picked him up and shook him. The infant subsequently died of blunt force trauma to the head. The county plans, through schools and local media, to provide education to caregivers on the developmental stages of newborns and what to do when a baby cries.
- A two-year-old child was found at the bottom of an above ground pool at a relative’s home. Neither parent was supervising the child, but the child was with other relatives. The other relatives left the pool, leaving the toddler behind. The panel recommended a series of articles in the local paper addressing safety issues while swimming.
- A fifteen-year-old girl was fatally shot when her mentally-challenged brother was playing with a loaded shotgun he found hidden in the residence. The panel recommended long-term education on proper disposing of unwanted guns, as well as the inadvisability of having guns around a person with cognitive or psychiatric disorders.
- A two-month-old child was swaddled and put to sleep on the bottom level of a bunk bed between two pillows. The child died of suffocation. The county panel recommended that hospitals continue to stress the importance of safe sleep for infants before they leave the hospital.

Partnerships

Just as there are multiple disciplines involved in a local child fatality review, the state-level CFRP works with national, state and local agencies, and prevention partnership groups such as the National Center for the Review and Prevention of Child Death (NCRPCD), Missouri Children’s Trust Fund (CTF), Missouri Department of Health and Senior Services (DHSS), Missouri Department of Mental Health (DMH), Missouri Prevention Partners (MPP) and Missouri Injury and Violence Prevention Advisory Committee (MIVPAC) to address identified risks of child injuries and fatalities statewide, by coordinating efforts to provide prevention education and distribute prevention resources.

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

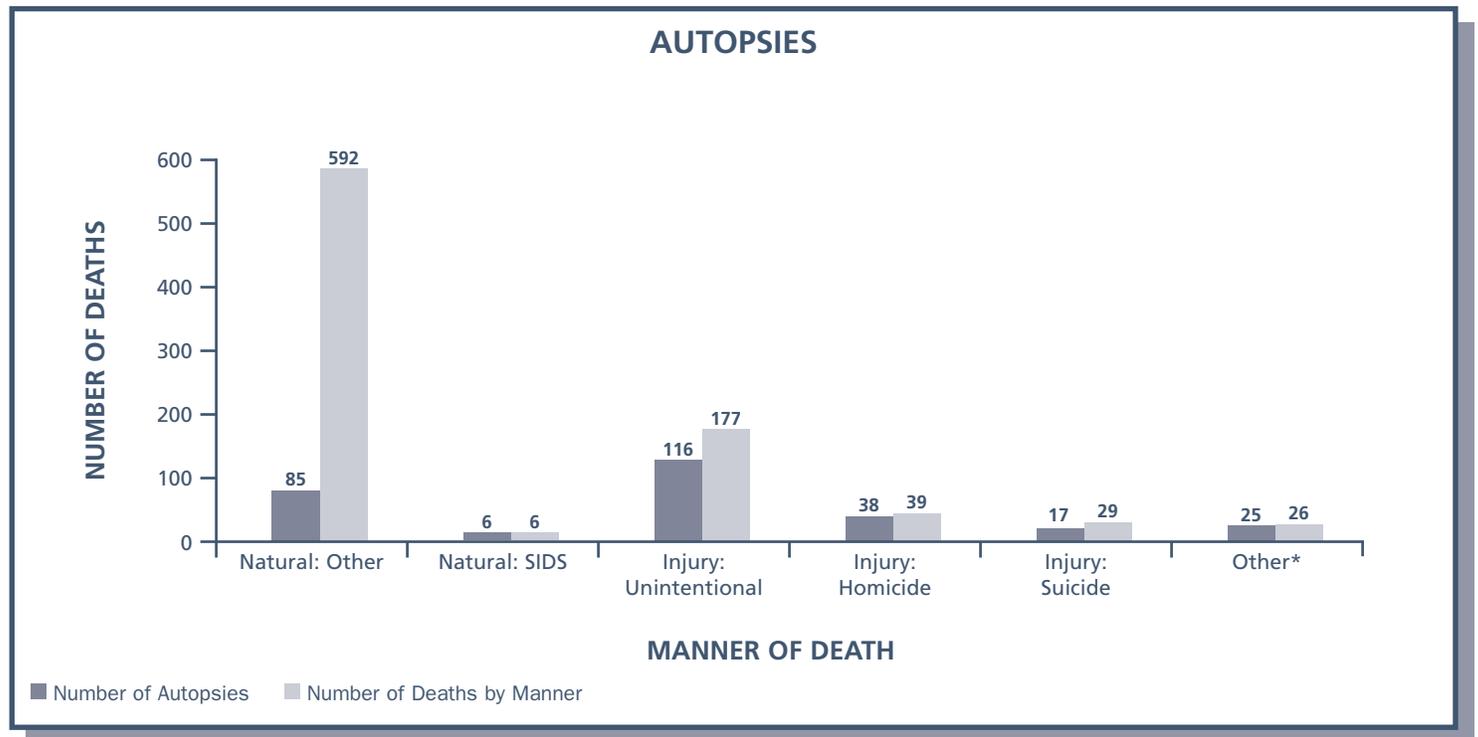


APPENDICES

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 provides 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.

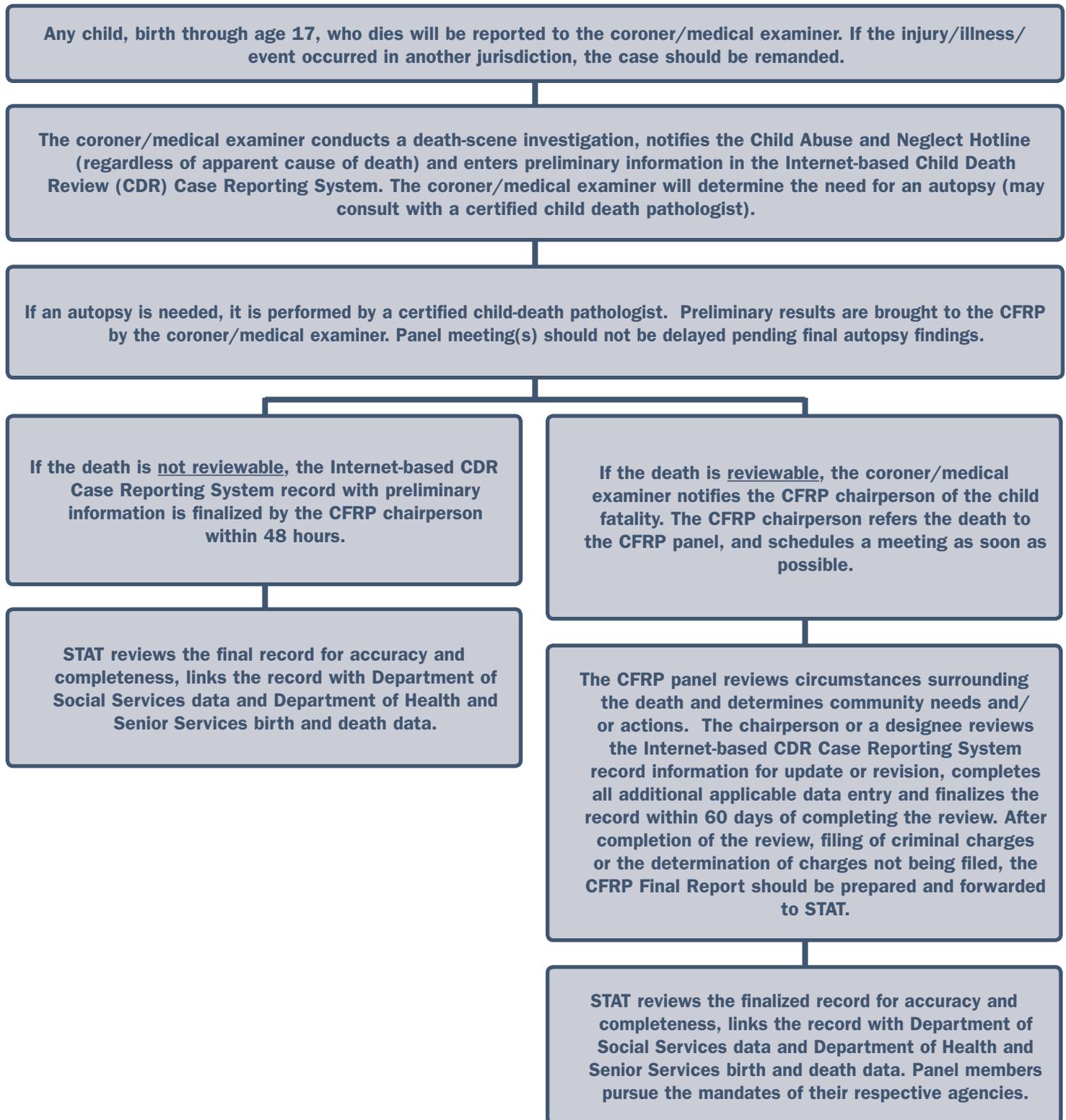
CFRP panels must use uniform protocols and the NCRPCD Internet-based Case Reporting System for data collection.

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 core panel disciplines is required to be present (4 or more members).

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 2011-2013

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Adair	3	0	1	3	0	0	2	0	0
Andrew	1	1	1	1	0	1	1	0	1
Atchison	0	0	0	0	0	0	0	0	0
Audrain	0	3	6	0	1	1	0	2	1
Barry	5	6	5	3	1	4	1	5	2
Barton	1	1	3	1	1	1	0	1	1
Bates	2	1	1	2	0	1	2	0	0
Benton	2	3	2	1	3	0	2	3	0
Bollinger	2	1	2	0	1	1	0	1	0
Boone	26	27	27	6	8	7	3	5	4
Buchanan	19	13	10	7	6	6	6	5	3
Butler	5	9	4	4	7	2	3	6	2
Caldwell	1	0	2	1	0	1	1	0	1
Callaway	6	5	5	3	4	4	3	1	2
Camden	2	3	2	1	2	2	1	2	1
Cape Girardeau	8	8	11	2	4	7	1	3	4
Carroll	2	1	0	2	1	0	2	0	0
Carter	1	2	3	1	0	0	0	0	0
Cass	5	10	15	4	7	11	3	6	10
Cedar	1	0	1	1	0	1	0	0	0
Chariton	0	1	2	0	1	1	0	1	0
Christian	3	7	8	2	5	4	1	3	4
Clark	1	2	0	1	1	0	1	1	0
Clay	24	19	22	11	13	10	5	7	6
Clinton	6	5	0	4	3	0	2	3	0
Cole	9	12	6	2	1	3	1	2	2
Cooper	1	2	3	1	2	2	1	1	2
Crawford	3	4	3	1	0	2	1	3	1
Dade	0	1	1	0	0	1	0	0	1
Dallas	2	1	3	2	1	2	2	1	2
Davies	2	0	2	1	0	1	1	0	1
DeKalb	0	0	1	0	0	1	0	0	0
Dent	2	2	2	2	1	2	2	1	1
Douglas	3	1	1	3	1	1	3	1	1
Dunklin	2	7	2	1	3	2	1	2	1
Franklin	13	17	11	11	12	7	9	9	6
Gasconade	1	1	2	1	1	2	1	1	2
Gentry	1	0	0	0	0	0	0	0	0
Greene	41	46	55	11	14	20	9	11	12
Grundy	2	1	2	1	1	0	0	0	0
Harrison	1	4	0	1	4	0	1	3	0
Henry	3	4	1	2	1	1	2	0	1

APPENDIX 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2011-2013

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Hickory	3	3	1	3	2	1	1	2	1
Holt	0	0	1	0	0	1	0	0	0
Howard	1	1	0	1	0	0	0	0	0
Howell	4	11	6	3	9	2	2	7	3
Iron	1	3	0	1	2	0	1	2	0
Jackson	112	132	126	54	63	44	29	34	27
Jasper	19	11	16	16	5	8	16	3	6
Jefferson	17	24	12	14	11	9	11	8	7
Johnson	6	3	3	5	0	0	2	1	1
Knox	1	2	2	0	1	2	1	1	1
Laclede	5	2	11	4	1	7	1	0	5
Lafayette	2	1	2	1	0	1	0	1	1
Lawrence	5	4	6	4	1	3	2	0	2
Lewis	1	0	0	1	0	0	1	0	0
Lincoln	6	3	6	4	3	4	3	3	3
Linn	1	1	0	1	0	0	1	0	0
Livingston	1	0	0	1	0	0	1	0	0
McDonald	5	0	5	3	2	1	3	2	2
Macon	3	1	1	3	1	1	2	1	1
Madison	3	0	2	0	0	0	1	0	0
Maries	0	1	2	0	1	1	0	1	1
Marion	8	3	3	3	1	0	2	1	0
Mercer	2	5	0	2	0	0	2	0	0
Miller	6	4	4	6	2	4	5	3	3
Mississippi	1	6	1	1	5	1	1	2	1
Moniteau	2	1	0	2	0	0	2	0	0
Monroe	1	1	0	1	0	0	1	0	0
Montgomery	1	1	2	1	1	2	1	0	2
Morgan	2	5	2	2	4	1	1	4	1
New Madrid	7	2	2	7	1	2	5	1	1
Newton	7	14	14	2	5	5	2	5	5
Nodaway	2	0	0	0	0	0	0	0	0
Oregon	2	2	2	1	0	2	0	0	2
Osage	2	4	0	2	2	0	2	1	0
Ozark	1	0	0	1	0	0	0	0	0
Pemiscot	3	5	8	3	4	4	0	4	4
Perry	0	0	1	0	0	1	0	0	0
Pettis	2	5	5	1	0	1	1	1	2
Phelps	7	9	4	7	6	3	5	4	3
Pike	2	1	4	1	1	3	1	1	3
Platte	14	12	9	8	5	3	6	3	2
Polk	8	3	1	6	2	1	6	2	0

APPENDIX 4. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2011-2013

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Pulaski	7	1	9	5	0	7	5	0	6
Putnam	0	1	0	0	1	0	0	1	0
Ralls	1	2	2	1	0	2	0	0	2
Randolph	3	3	3	3	2	2	2	1	3
Ray	2	3	3	2	3	2	2	3	2
Reynolds	2	2	3	2	2	3	1	2	3
Ripley	0	2	1	0	1	0	0	1	0
St. Charles	32	19	12	16	5	9	11	3	4
St. Clair	0	0	0	0	0	0	0	0	0
St. Francois	6	10	10	6	10	5	3	5	2
St. Louis County	172	138	134	43	41	30	32	29	25
Ste. Genevieve	1	1	2	0	1	2	1	0	2
Saline	2	1	2	1	1	1	1	1	1
Schuyler	1	1	2	0	0	2	0	0	2
Scotland	1	0	0	1	0	0	1	0	0
Scott	6	8	7	5	3	2	2	0	1
Shannon	1	0	0	1	0	0	1	0	0
Shelby	0	0	2	0	0	1	0	0	1
Stoddard	4	3	0	2	2	0	1	2	0
Stone	0	7	0	0	2	0	0	4	0
Sullivan	0	1	0	0	0	0	0	0	0
Taney	5	4	2	4	0	2	1	0	2
Texas	6	6	4	1	0	3	1	0	2
Vernon	2	0	6	2	0	2	0	0	2
Warren	1	4	4	1	3	4	1	0	4
Washington	1	5	5	1	5	5	1	3	5
Wayne	2	1	1	1	1	0	1	0	0
Webster	2	9	11	1	4	5	1	2	4
Worth	0	0	0	0	0	0	0	0	0
Wright	3	1	3	3	1	3	2	1	2
St. Louis City	117	116	150	43	34	27	32	25	22
STATE TOTAL	868	866	870	422	374	349	298	271	262

APPENDIX 5. MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY AGE, SEX AND RACE 2011-2013

Age	All Deaths			Reviewed Deaths			Injury Deaths		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
0	539	547	542	170	156	131	88	90	87
1	39	32	35	30	20	21	21	18	11
2	24	27	21	18	18	18	13	14	12
3	24	15	14	16	9	7	12	8	5
4	10	16	17	7	9	10	6	7	7
5	10	8	11	4	5	7	3	2	4
6	7	11	12	5	7	5	3	4	5
7	9	12	10	9	8	6	5	6	3
8	10	14	9	7	7	8	8	6	6
9	9	10	18	4	6	8	3	3	7
10	11	11	6	9	8	5	4	5	2
11	16	8	9	13	5	7	13	3	4
12	11	14	22	7	7	10	6	7	8
13	18	16	12	14	7	6	12	4	6
14	14	16	17	9	13	14	7	10	11
15	27	25	31	26	15	24	23	15	21
16	45	36	37	42	33	27	40	30	27
17	45	48	47	32	41	35	31	39	36
TOTAL	868	866	870	422	374	349	298	271	262

Sex	All Deaths			Reviewed Deaths			Injury Deaths		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Female	351	365	364	170	144	136	107	105	94
Male	517	501	506	252	230	213	191	166	168
TOTAL	868	866	870	422	374	349	298	271	262

Race	All Deaths			Reviewed Deaths			Injury Deaths		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
White	584	610	600	294	253	242	214	189	182
Black	249	227	232	116	111	91	75	69	69
Hawaiian	0	0	1	0	0	1	0	0	1
Pacific Islander	1	2	0	0	1	0	0	1	0
Asian	12	6	12	5	1	2	4	2	1
Multi-Racial	22	21	25	7	8	13	5	10	9
TOTAL	*868	*866	870	*422	*374	349	*298	*273	262

*Numbers for 2011 and 2012 changed to reflect the information available through the new CDR online system.

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 (SUID):

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. SUID is 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:

The Case Reporting System is a national Internet-based statistical database that is managed by NCRPCD 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 by the NCRPCD Case Reporting System Record or Death Certificate as the county in which the child was officially pronounced as deceased. Only deaths in Missouri are included in the CFRP database.

CFRP County of Incident:

The county reported by the NCRPCD Case Reporting System Record under Section D – Incident

Information, in which the fatal illness, injury or event occurred. If the county of incident is a Missouri county, the death is by definition a Missouri incident death. If the county of the incident is outside the state of Missouri 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

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

Region 1

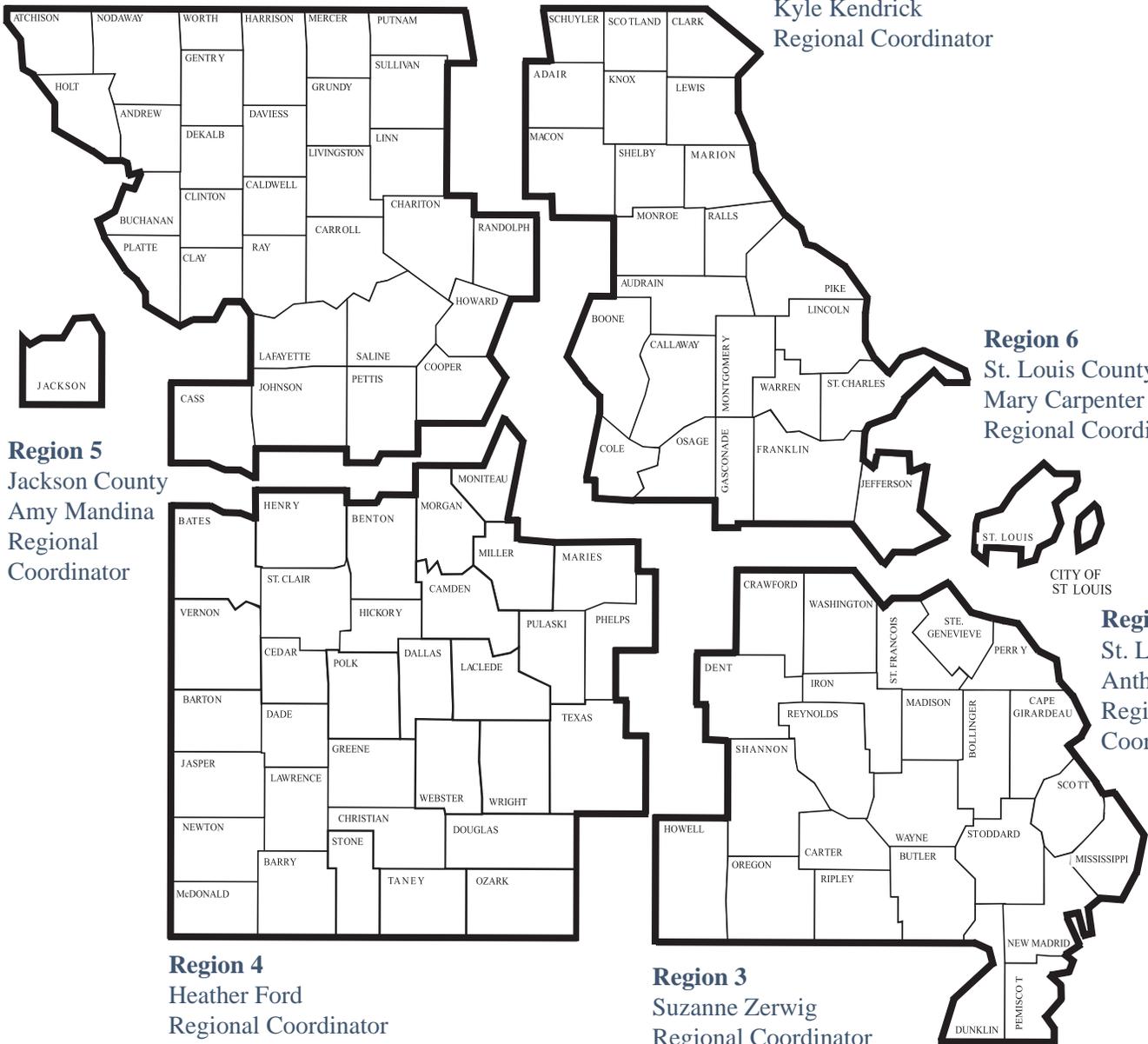
Joey Thompson
Regional Coordinator

Region 2

Kyle Kendrick
Regional Coordinator

Region 6

St. Louis County
Mary Carpenter
Regional Coordinator



Region 5
Jackson County
Amy Mandina
Regional Coordinator

Region 4
Heather Ford
Regional Coordinator

Region 3
Suzanne Zerwig
Regional Coordinator

Region 7
St. Louis City
Anthony Harper
Regional Coordinator

