PREVENTING CHILD DEATHS IN MISSOURI

THE MISSOURI CHILD FATALITY REVIEW PROGRAM

ANNUAL REPORT FOR 2019

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

Mike Parson, Governor
State of Missouri

Jennifer Tidball, Acting Director
Missouri Department of Social Services

TABLE OF CONTENTS

Overview

- Missouri Child Fatality Review Program 2
- State Technical Assistance Team and Child Fatality Review Program 4
- Autopsies 5
- Process for Child Fatality Reviews 6
- The Practical Application of Child Death Review: Prevention of Child Fatalities 7

2019 Data

- Missouri Child Fatalities 9
- Summary of Findings, Missouri Incident Fatalities 2019 11
- Natural Fatalities (Other than SIDS) 14
- Sleep-Related Infant Deaths 19
  - Sleep-related Infant Suffocation 24
  - Sleep-related Infant Undetermined Cause and Manner 27
  - Sudden Infant Death Syndrome 28
- Unintentional Injury Fatalities 31
  - Suffocation One Year or Older 33
  - Motor Vehicle Fatalities 35
    - Pedestrian Fatalities 39
    - All-Terrain Vehicle Fatalities 39
  - Firearm Fatalities 41
  - Fire/Burn Fatalities 42
  - Drownings 44
  - Poisonings 47
- Homicides 49
  - Non-Abuse Homicides 51
  - Child Abuse Homicides 53
    - Abusive Head Trauma 55
- Fatal Child Abuse and Neglect 56
  - Fatal Child Neglect: Inadequate Care and Grossly Negligent Treatment 59
- Suicides 61
- Undetermined Injury 65
- Undetermined Cause and Manner 66

Prevention Findings: The Final Report 67

Unreviewed Incident Percentages by County 69

Missouri Incident Child Fatalities by Age, Sex, and Race 70

Missouri Incident Child Fatalities by County 71

DEDICATION

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

MISSOURI CHILD FATALITY REVIEW PROGRAM

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 provide the basis for identifying vulnerable children and responding in ways that protect and improve their lives. Decades of research have 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. It is nationally recognized that a system of comprehensive child death review panels has made a major difference.

In 1991, Missouri initiated the first comprehensive statewide child fatality review system in the nation, designed to produce a more accurate picture of each child's death, as well as a database providing ongoing surveillance of all childhood fatalities. While the program has evolved and adapted to meet new challenges, the objectives have remained the same. The program identifies potentially fatal risks to infants and children and responds with multi-level prevention strategies. The ongoing 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), at a minimum, maintain a multidisciplinary panel comprised of a prosecuting attorney, coroner/medical examiner, law enforcement representative, juvenile officer, Children's Division representative, public health representative, and emergency services representative to examine the deaths of all children under the age of 18. If the death meets program criteria, it is referred to as the county's Multidisciplinary Child Fatality Review Program (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 the potential need for services; identify and implement prevention interventions for the family and community, and enhance multidisciplinary communications and coordination.

Of the roughly 1,000 child deaths annually in Missouri, approximately 40 percent merit review. To come under review, at the time of death, the cause 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 specifically required to be reviewed by the CFRP panel. (This is the only age group for which an autopsy is mandatory by state statute.)

Statistical data on all child deaths are collected using the National Center for Fatality Review and Prevention (NCFRP) Child Death Reporting (CDR) System. The system allows for multi-state, local, and state users to further enhance knowledge and identification of trends, spikes, and patterns of risks, leading to improved investigations, provision of community-based services, and implementation of prevention best practices on the local, state, and national level.

CHILD FATALITY REVIEW PROGRAM 2019 STATE PANEL

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

Chairperson
Harold Bengsch
Greene County Commissioner
Springfield

Prosecuting Attorney
Catherine Vannier
Missouri Office of Prosecution Services
Jefferson City

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

Keith Norton, M.D.
Southwest Missouri Forensics
Nixa

Law Enforcement
Sgt. John Conrardy
St. Louis County Police
St. Louis

Chief Bill Carson
Maryland Heights Police
Maryland Heights

Major Sarah Eberhard
Missouri State Highway Patrol
Jefferson City

Public Health Service
Douglas Beal, M.D.
Forensic Pediatrician
Columbia

Terra Frazier, D.O.
Child Abuse Pediatrician
Children's Mercy Hospital & Clinics
Kansas City

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

Terra N. Frazier, DO
Child Abuse Pediatrician
Children's Mercy Hospital
Kansas City Missouri

Children's Division
Sara Smith
Department of Social Services
Jefferson City

Kara Wilcox-Bauer
Department of Social Services
Jefferson City

Juvenile Office
Tammy Walden
Missouri 26th Judicial Circuit
Camdenton

Emergency Medical Services
Virginia Wilson
Missouri University Health System
Columbia

Optional Members
Emily Van Schenkhof
Missouri Children's Trust Fund
Jefferson City

Kelly Schultz
Missouri Office of Child Advocacy
Jefferson City

Sharie Hahn
Department of Social Services, Division of Legal Services
Jefferson City

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's 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 lawfully be conducted unless the public is excluded.**

Each CFRP 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, which could violate other agencies' state statutes. 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 from civil liability to all panel participants to work together on a child fatality.

Mandated Activities for CFRP Panels

- Every county must have a multidisciplinary CFRP panel (114 counties and the 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, juvenile officer, Children's Division representative, public health representative, and emergency services representative. Panels may elect to have additional members on either a permanent or situational basis.
- All deaths, age 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 NCFRP CDR system for data collection.
- Child autopsies must be performed by certified child-death pathologists.
- Knowingly violating reporting requirements is a Class A misdemeanor.
- When a child's death meets the criteria for review as defined by CFRP Protocols and Procedures, 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 are required to be present (four or more member disciplines).

Partnerships

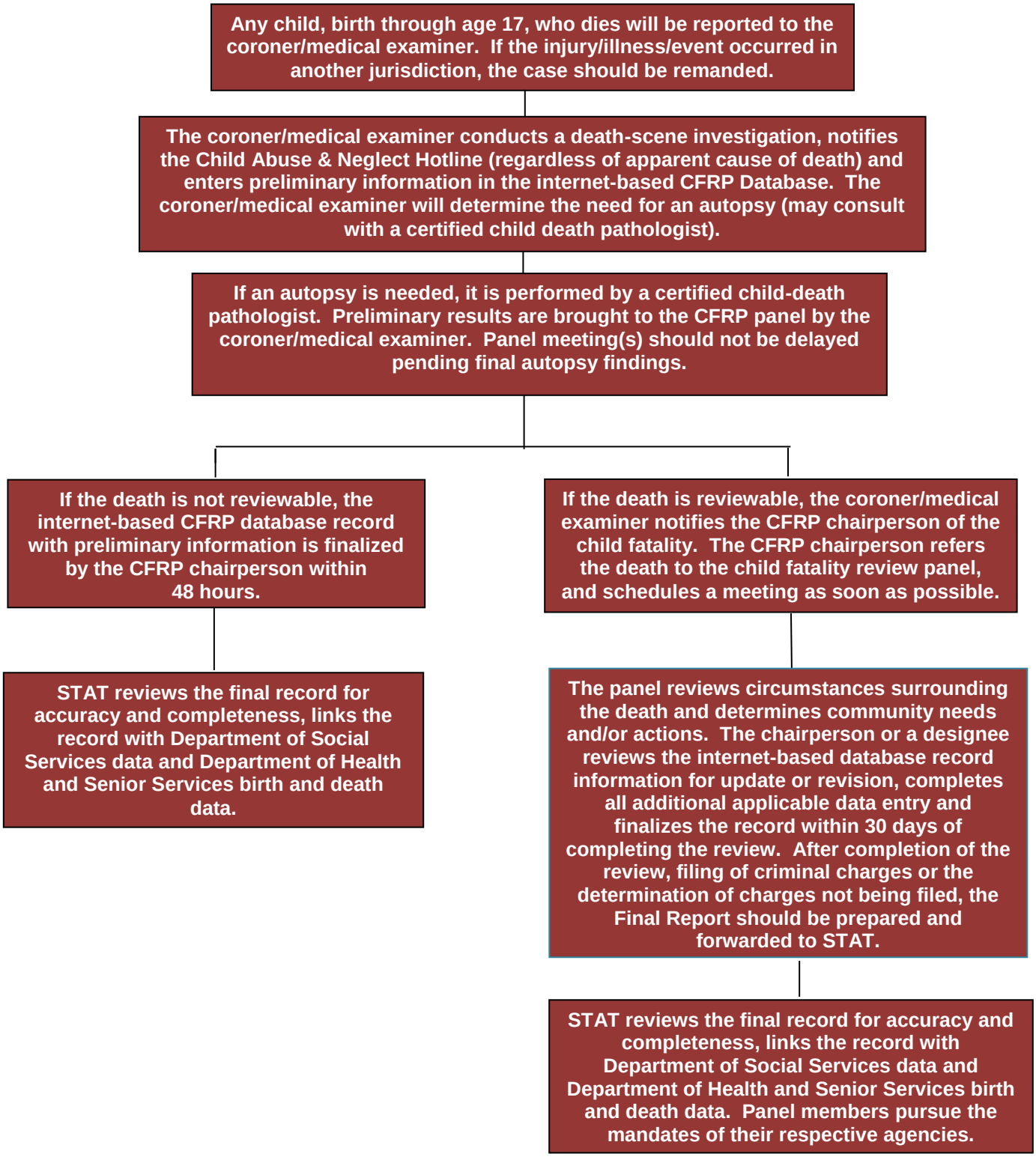
Just as there are multiple disciplines involved in a local child fatality review, the state-level CFRP works with national, state and local agencies, and prevention partnership groups. These groups include the National Center for Fatality Review and Prevention (NCFRP), Missouri Department of Health and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

AUTOPSIES

Missouri State Statute, RSMo. 194.117, requires that an autopsy be performed for all children aged one week to one year, 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, and are performed by professionals with expertise in forensic pediatrics. A listing of network members can be obtained at https://dss.mo.gov/stat/cpn.htm

PROCESS FOR CHILD FATALITY REVIEWS



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

The death of a child is an emotional 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 are evidence-based.

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.

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, Kansas City, and Columbia, as well as statewide prevention organizations, utilize Missouri CFRP de-identified data to gain new insights; i.e., research into sudden unexpected infant deaths 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 also demonstrates what CFRP panel members had suspected: Infant deaths caused by unsafe sleep conditions were preventable. In Missouri and most 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 have also revised their safe sleep recommendations and product safety guidelines to reflect this knowledge gained.

Basic Principles

Professionals in the field of injury prevention widely accept 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 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.

- **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 its implementation. 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; however, 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, provided 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. Prevention initiatives that are integrated into communities as state systems are sustainable and effective in the long term; i.e., child passenger restraint laws for 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.

Missouri Child Fatalities

Missouri Child Fatalities refers to all children under age 18, 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, injuries, 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 CDR system, but such deaths would be deemed non-reviewable, as the installations and other states have their own child fatality 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 CFRP 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 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 in the NCFRP CDR 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 NCFRP CDR System record is reviewed by the county CFRP chairperson or their designee, making any necessary corrections and/or additions, and all pertinent sections of the record are completed as appropriate.

- CFRP data management the data collected on the NCFRP CDR 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 where appropriate.

- All deaths included in the CFRP Annual Report occurred in the calendar year **2019**, although some cases may not have been brought to county panel review until 2020.

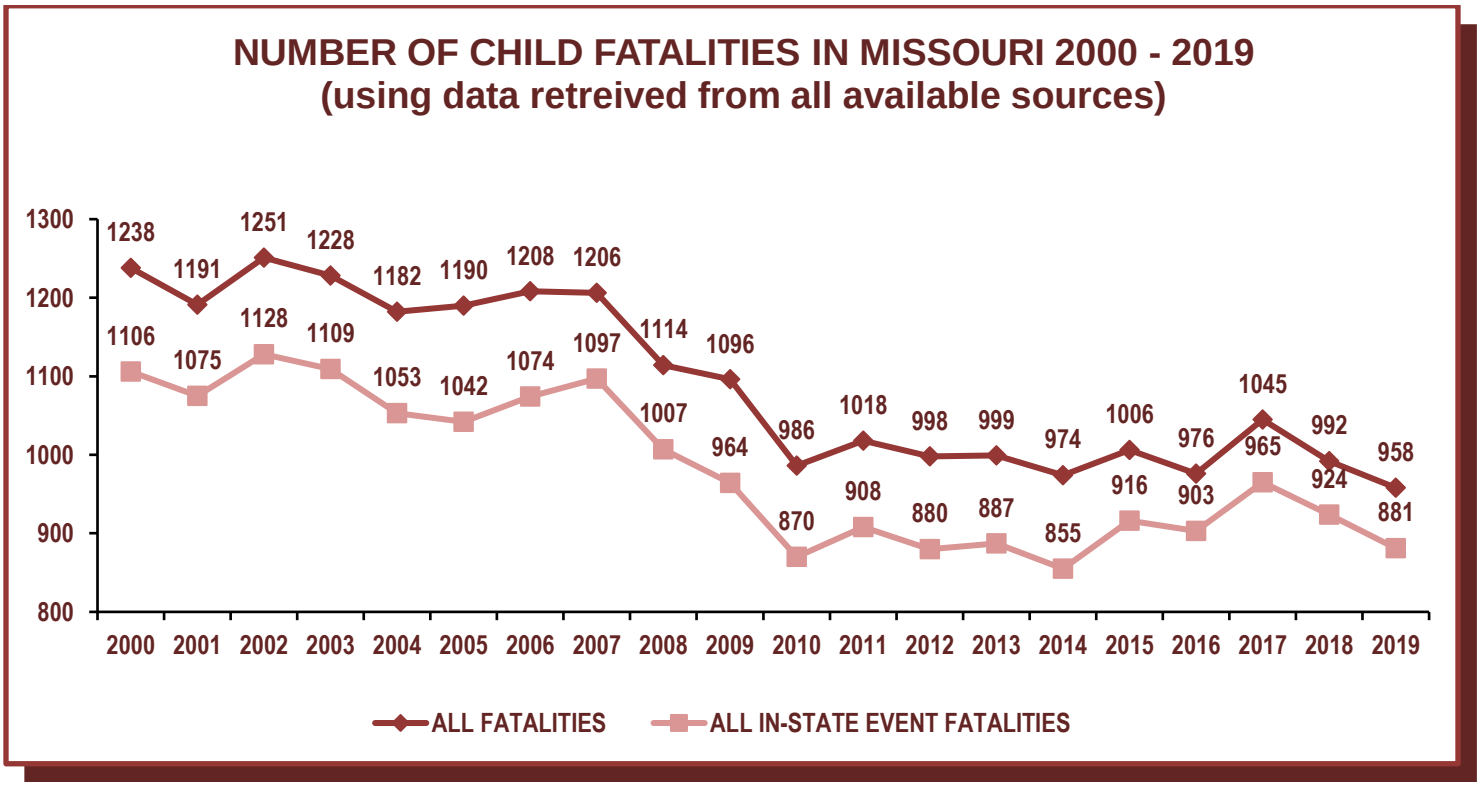
- **Seventy-seven** Missouri child fatalities were due to events that occurred either in other states or on military installations in Missouri. Although documented in the NCFRP CDR system, these deaths are not considered Missouri Incident Fatalities and are not otherwise addressed in this report.

- Of the **415** Missouri Incident Fatalities with indication for review as reported in NCFRP CDR System, **23** either did not receive required CFRP panel review, and/or panel findings were not entered. These fatalities are included in this 2019 CFRP Annual Report, because the data, though incomplete, is useful and accurate within the limitations of the information provided.

- In 2019, the bodies of **two** infants were found in two separate locations, but the cause, manner, incident location, or even year of death have not yet been determined. These cases are still being investigated, but because there is no information yet available, these deaths will not be included in the data for this annual report nor in the total number of deaths for the year.

- The data for this report comes from the NCFRP CDR System information submitted by the county based CFRP panels. In 2019 **100 percent** of the known deaths were entered into the NCFRP system and **94 percent** of the required reviews were completed and entered.

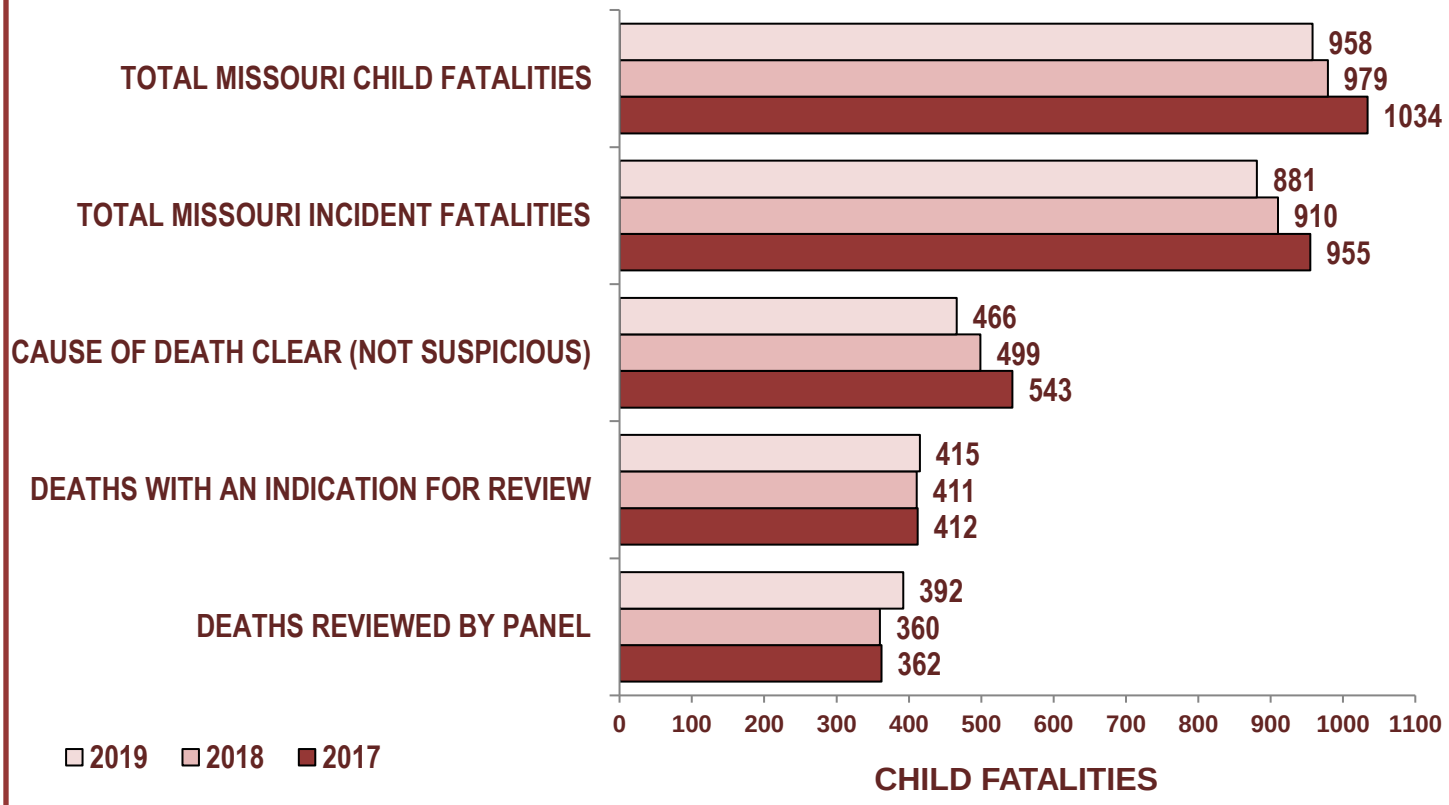
- In the past, our report has not reflected the actual total number of known Missouri Child Fatalities and Missouri Incident Fatalities, because the counties failed to enter the needed information into the online system. This year, because of a rearrangement of State CFRP personnel, we managed to get 100% of the known deaths into the system. For consistency's sake, we are still including a chart showing the number of known child deaths, taken from all available sources, in Missouri from 2000 to 2019.



SUMMARY OF FINDINGS

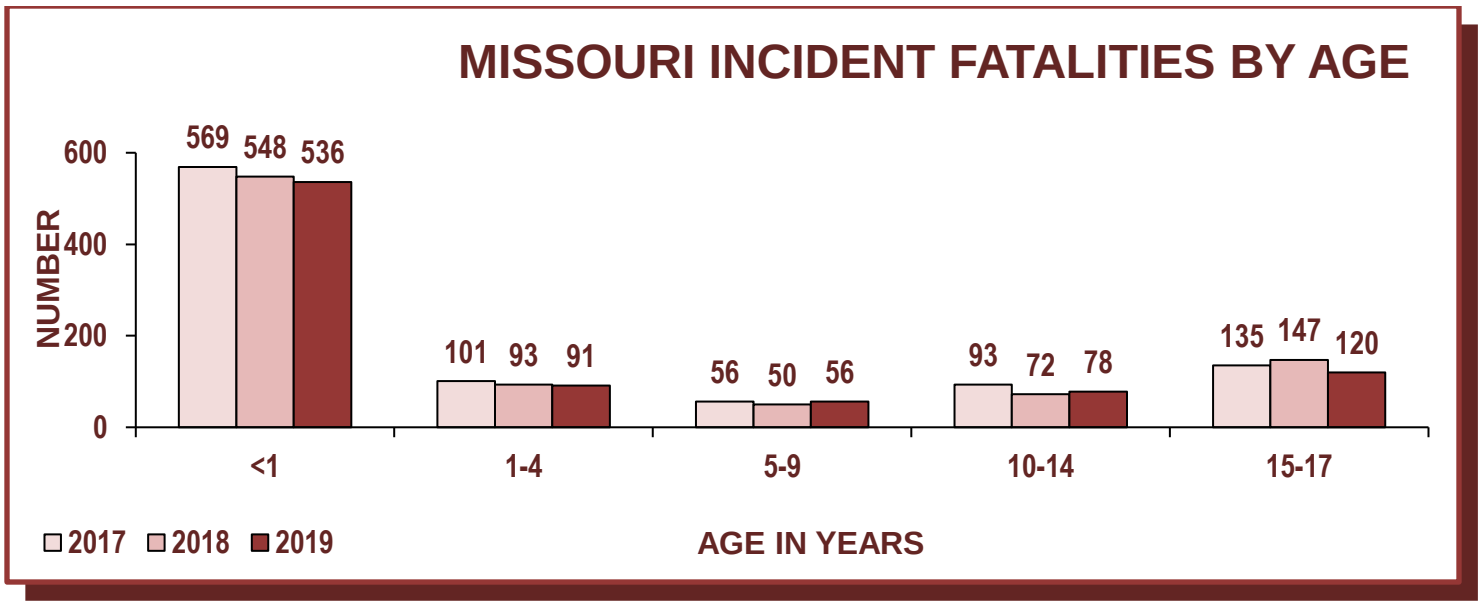
In 2019, CFRP received information on **958** children of which **77** deaths were due to events occurring out-of-state or on military installations. The remaining **881** deaths were determined to be Missouri Incident Fatalities and therefore subject to initial review. The coroner/medical examiners and county CFRP chairpersons determined **466** deaths did not met criteria for detailed panel review. The remaining **415** deaths had indicators for review, of which **392** were reviewed by the county panels.

MISSOURI CHILD FATALITIES VS. MISSOURI INCIDENT FATALITIES



MISSOURI INCIDENT FATALITIES BY SEX AND RACE

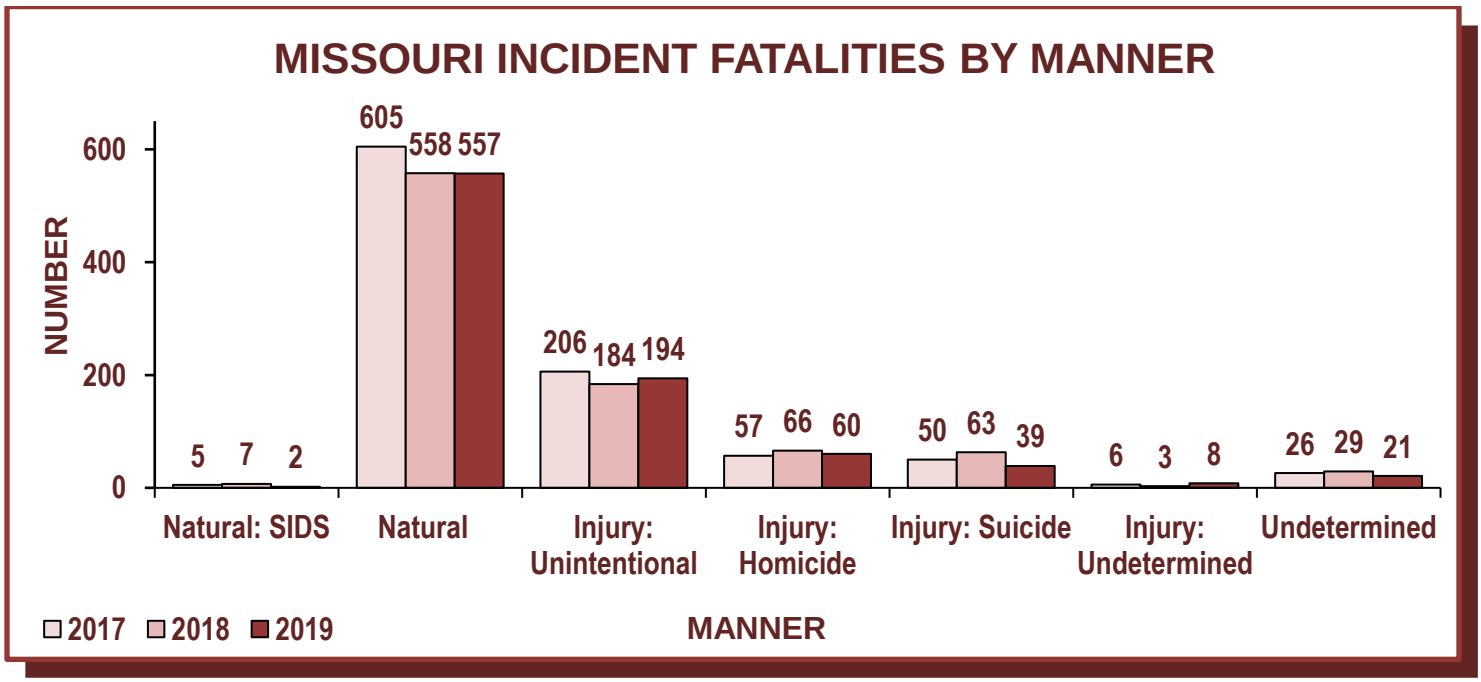
SEX	2017	2018	2019	RACE	2017	2018	2019
Female	401	394	355	White	640	642	570
Male	553	516	526	Black	275	229	266
Unknown	1			American Indian	0	0	0
				Pacific Islander	3	1	2
				Asian	13	9	14
				Multi-Racial	24	29	26
				Other or Unknown	0	0	3
	955	910	881		955	910	881

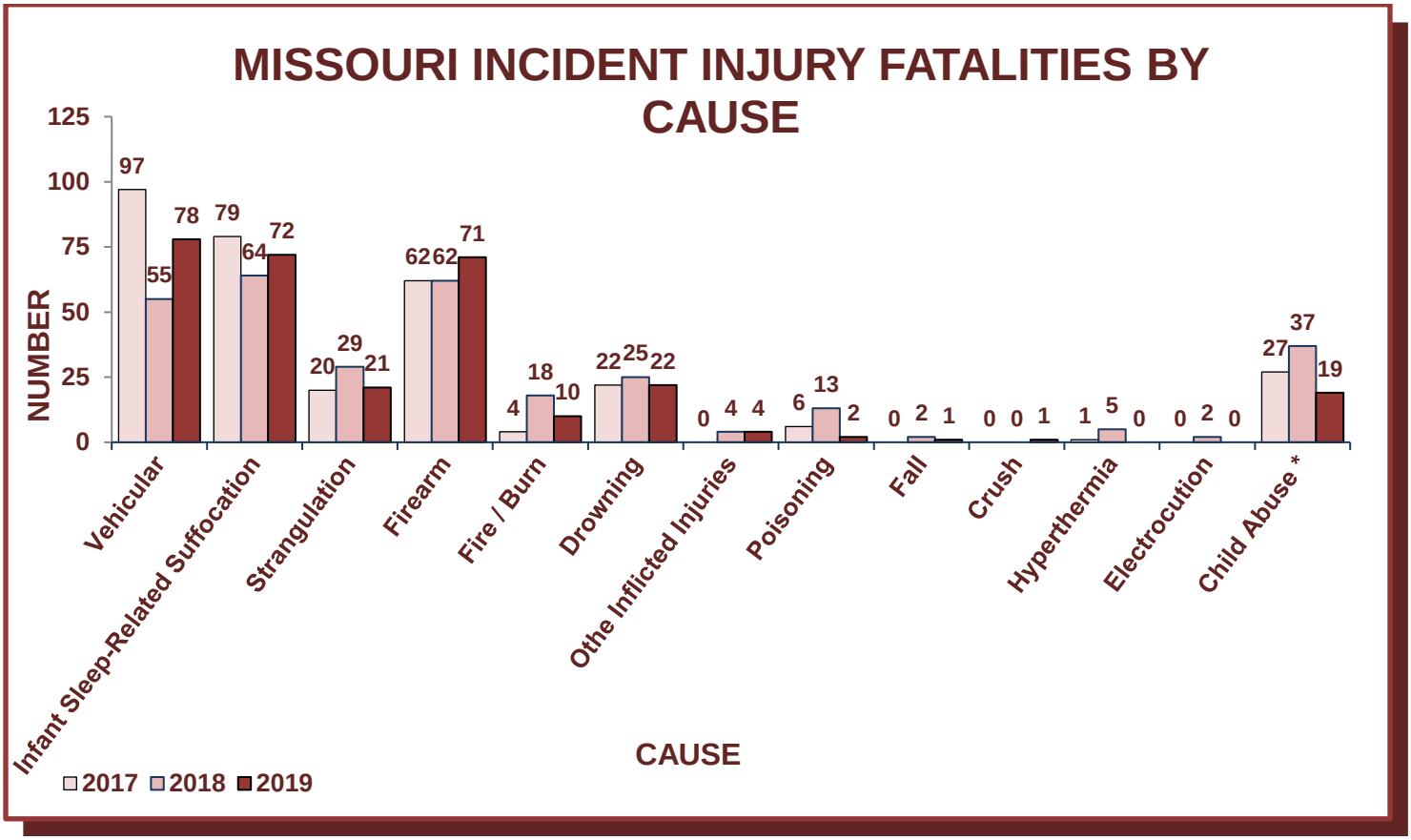


Missouri death certificates identify deaths by *manner of death* and *cause of death*. *Manners of death* are defined as:

- Natural: SIDS
- Natural: Injury
- Unintentional
- Injury: Homicide
- Injury: Suicide
- Injury: Undetermined
- Undetermined.

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. The *cause of death*, on the other hand, is the actual mechanism by which the death occurred; i.e., firearm, vehicular, poisoning, suffocation, etc.





*Child abuse deaths can include deaths from casual categories of suffocation/strangulation, firearm, drowning, abusive head trauma, struck/blunt trauma, dehydration.

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 allows for a better understanding of how the child died. Most CFRP panel findings coincide with the death certificate cause and manner of death, but there may be instances where they do not. This can occur when other factors gathered 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 cause of 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, 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 category. In deaths where the panel found 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

In 2019, natural fatalities, excluding SIDS, were responsible for the deaths of 557 Missouri children, which was 63 percent of all Missouri Incident Fatalities.

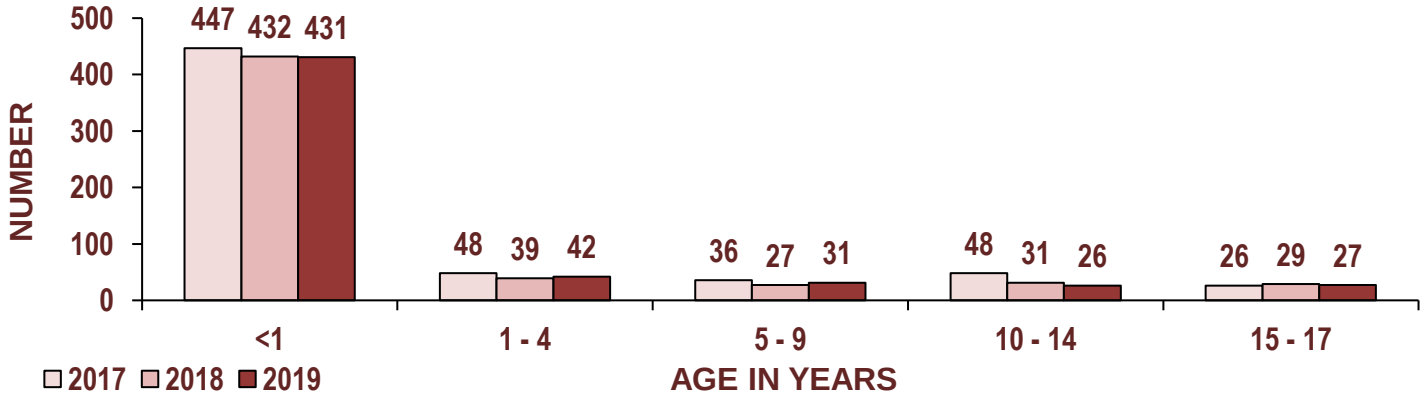
- Prematurity is the cause of 40 percent of all illness/natural deaths.
- Fifty-nine percent of the babies who died from premature birth were white, 35 percent were black, and 6 percent were another race.
- The median gestational age of premature births was 23 weeks and the median weight was 567 grams or 1 lb. 4 oz.
- Fifty-eight percent of the premature children died within one day of birth.
- The age of the mothers of premature babies range from 14 to 47 years.
- Fifty-two percent of the children who died of prematurity were covered by Medicaid.

Most child deaths are from natural causes. Natural deaths include illnesses, prematurity, congenital anomalies, cardiac conditions, cancer, infection, and other medical conditions. A 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 *manner of death*, it will be specifically addressed in a separate section. The following data show trends in natural deaths by sex and race, age, and cause.

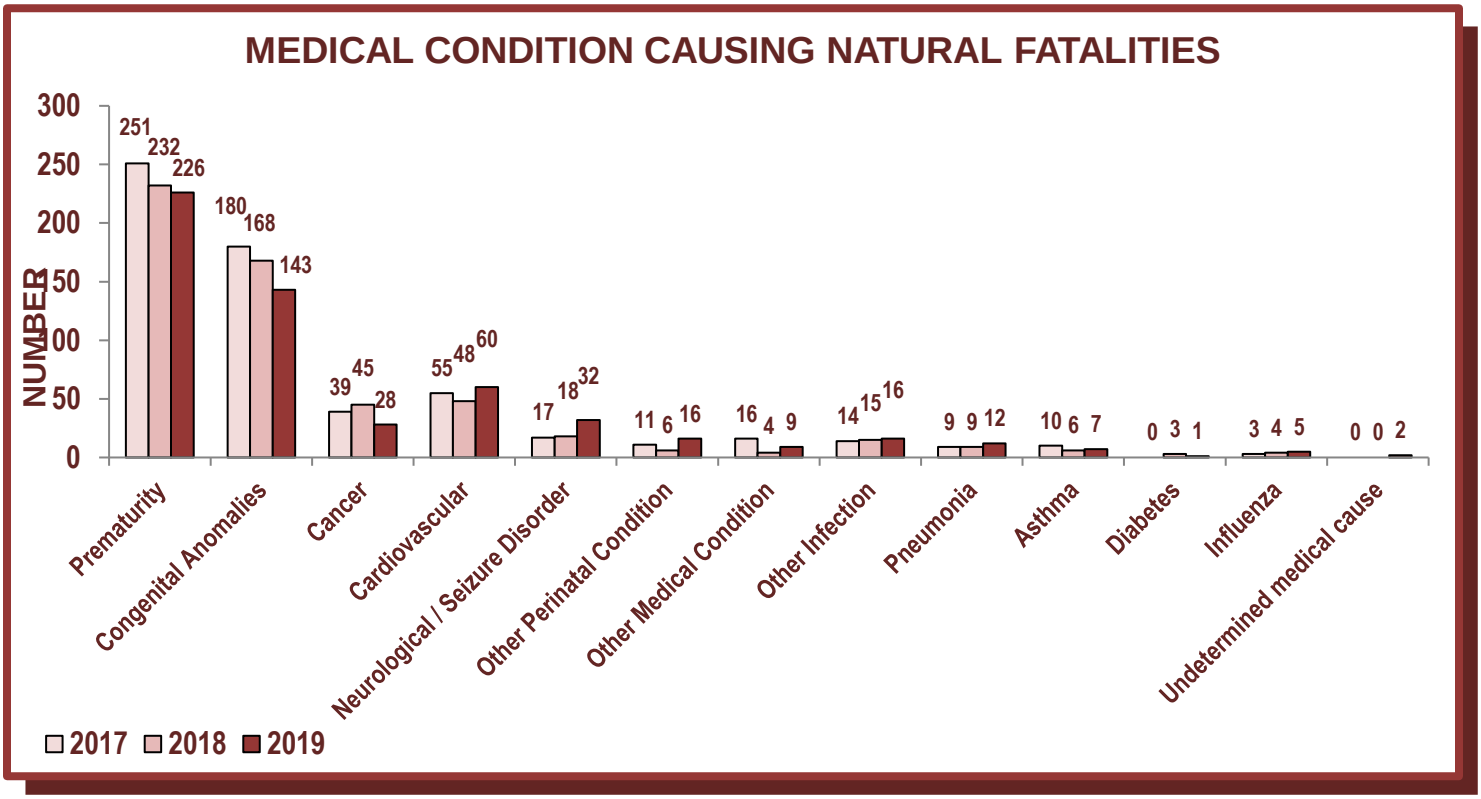
NATURAL FATALITIES BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	279	260	242	White	415	399	380
Male	325	298	315	Black	158	128	150
Unknown	1			American Indian	0	0	0
				Asian	12	7	9
				Pacific Islander	2	0	2
				Multi-Racial	18	24	14
				Unknown	0	0	2
	605	558	557		605	558	557

NATURAL FATALITIES BY AGE

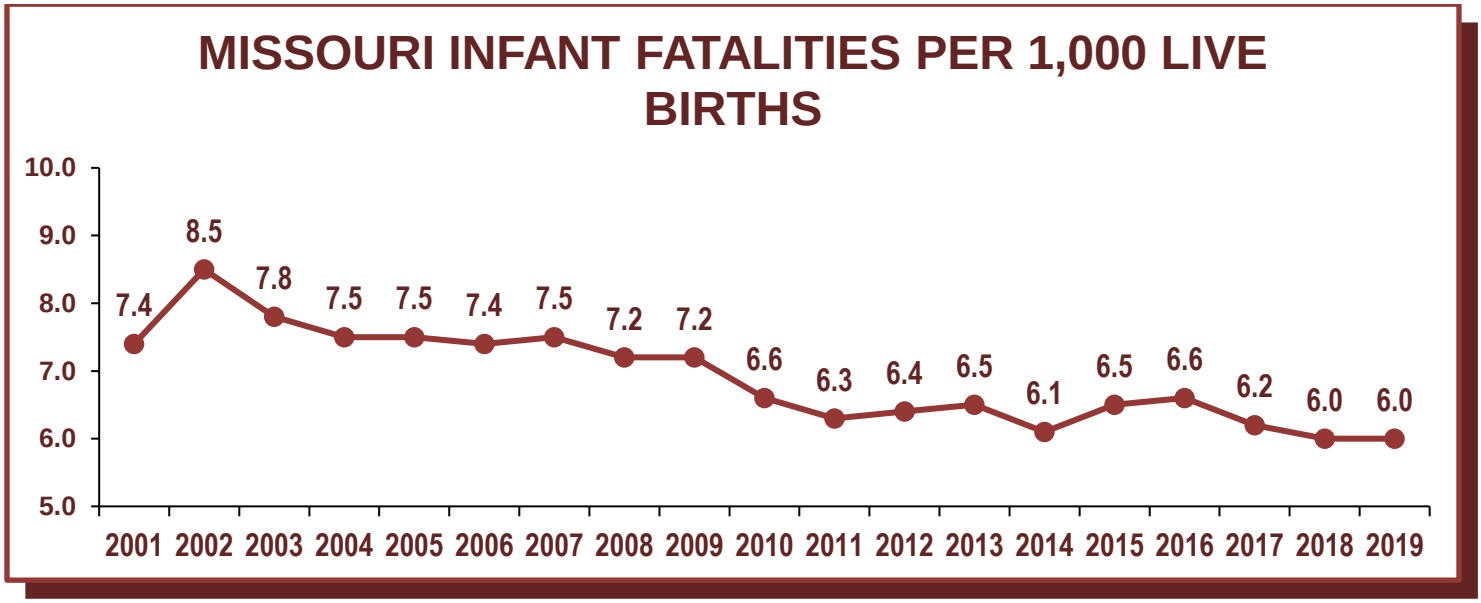


Children die from a variety of medical conditions, but premature birth is the leading natural cause. In 2019, of the **557** natural deaths, **226** were from premature birth.



The 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

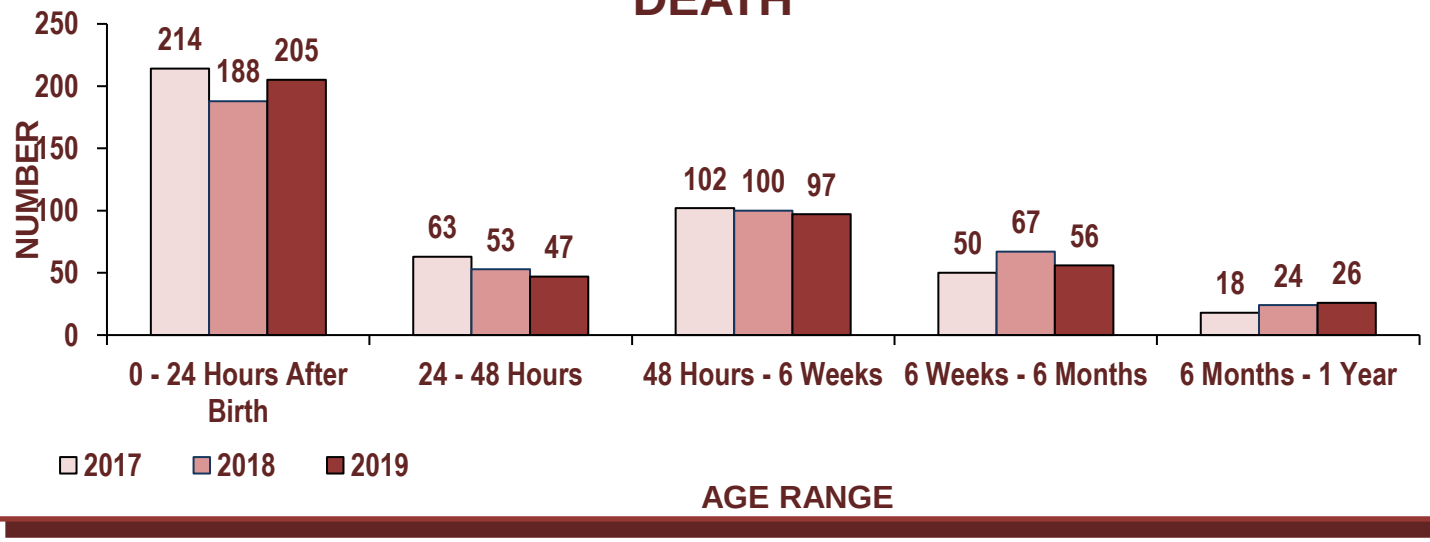


Nationally, the overall infant mortality rate is 5.7 deaths per 1,000 live births.

Missouri's overall infant mortality rate is slightly higher, at 6.0 deaths per 1,000 live births.

Infants less than one year of age comprise the majority of natural cause deaths at **431**. Of the **252** deaths that occurred within the first 48 hours, **205** occurred within 24 hours after birth.

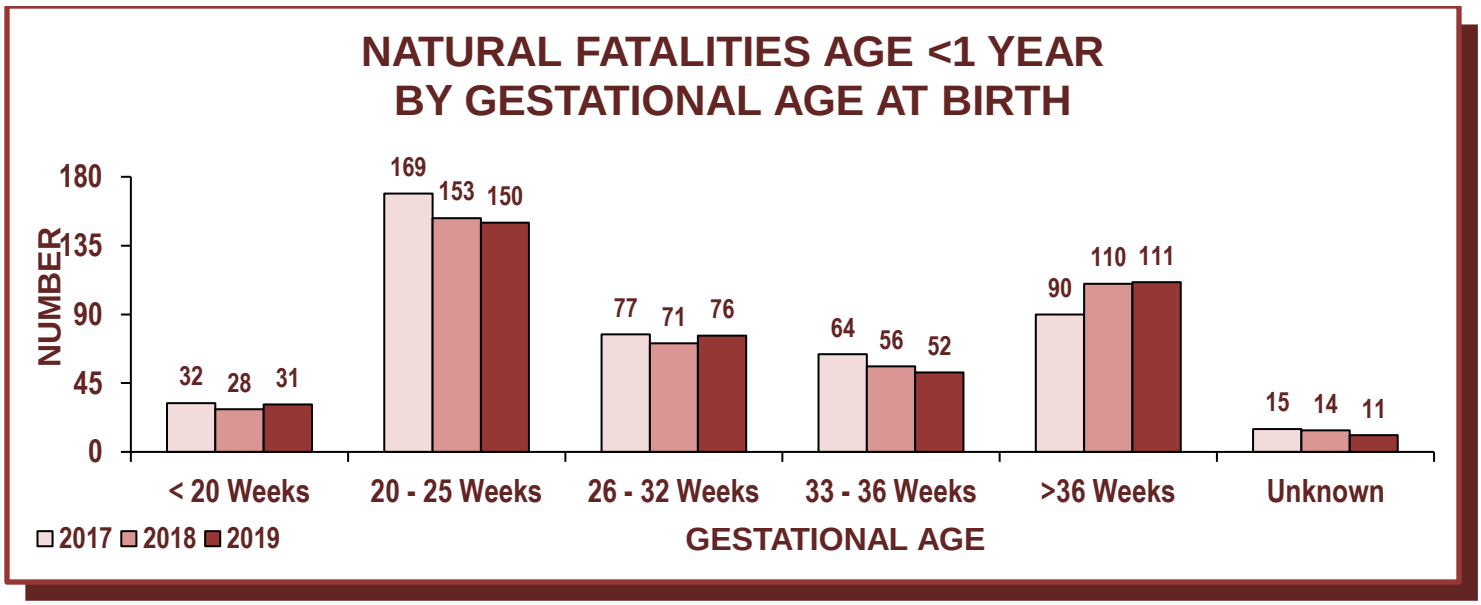
NATURAL FATALITIES AGE <1 YEAR BY AGE AT DEATH



NATURAL FATALITIES <1 YEAR BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	212	205	186	White	306	301	287
Male	234	227	245	Black	118	104	121
Unknown	1			American Indian	0	0	0
				Pacific Islander	0	0	2
				Asian	10	7	8
				Multi-Racial	13	20	12
				Unknown	0	0	1
	447	432	431		447	432	431

Prematurity is the leading cause of death in the first month of life, and those who 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). Babies born late-preterm, have a death rate three times higher than babies born at full term.[1] Reducing the number of children born prematurely, even by just a few weeks, could save many infant lives. The CDC reports the 2019 national preterm rate is 10.23 percent of all births. Missouri's 2019 rate is slightly higher – at 10.70 percent of all births.



There are three categories of premature births: very preterm, moderately preterm, and late preterm.

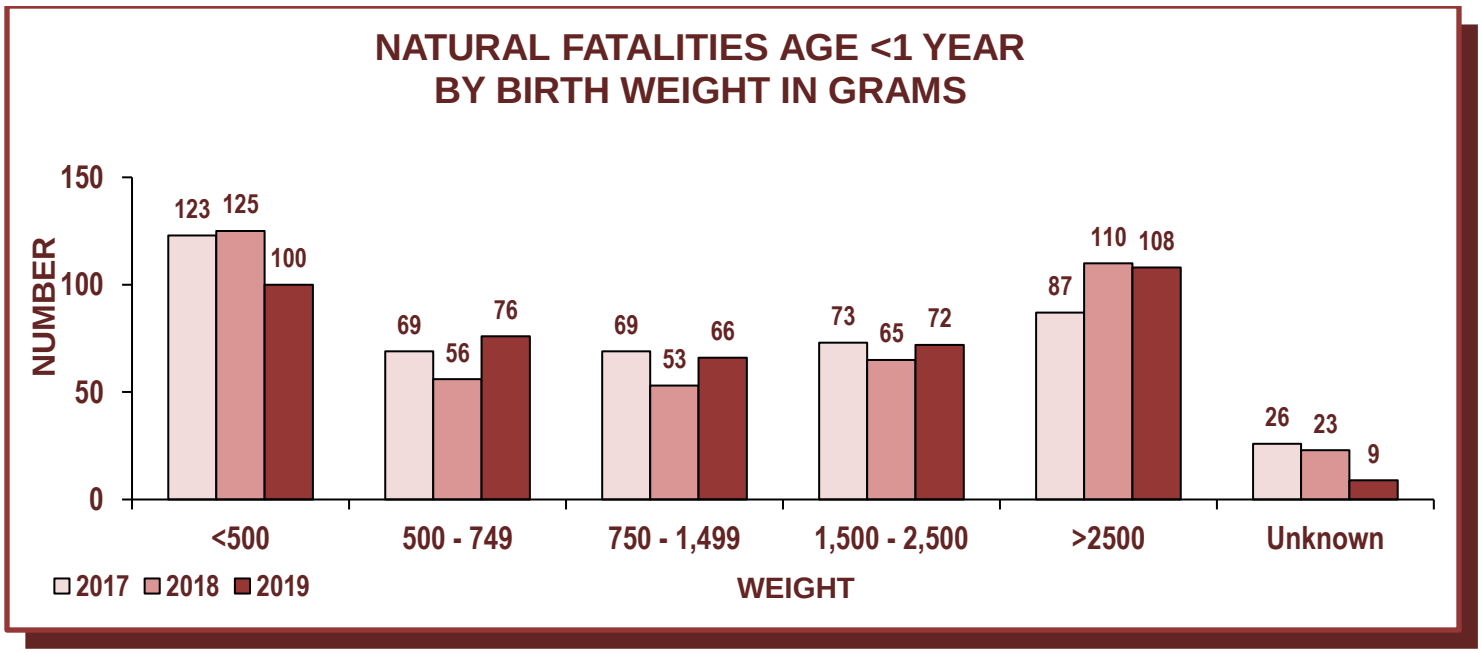
- **Very preterm** births occur at **25 weeks gestation or less**.
- **Moderately preterm** births occur between **26 and 32 weeks gestation**.
- **Late preterm births** occur between **33 and 36 weeks gestation**.

Of the **309** deaths of infants born preterm, **181** were born very preterm. *Very preterm* babies are usually born with severe health issues and are more unlikely to survive, **122** *very 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 four days.[2] Prematurity was the direct cause of **174** *very preterm* infant deaths, the remainder died from congenital defects or cardiovascular issues.

Seventy-six of the preterm infants were born *moderately preterm.* **Twenty-eight** of these infants died within the first 24 hours. **Fifteen** infants died between 2 and 7 days old, **Thirty-three** lived longer than a week with **nine** of these infants living three months or longer. **Forty-one** of the *moderately preterm* infants died from causes directly related to prematurity, **24** died from congenital anomalies, and the remainder died from various cardiovascular anomalies, and other perinatal conditions.

Of the **52** deaths of infants born in the *late preterm* range, **21** died within the first 24 hours, **7** lived between 2 and 7 days, **24** lived more than a week with **7** of these living for three months or longer. Only **three** *late preterm* deaths were directly related to prematurity, **26** were from congenital anomalies, and the remainder died from cardiovascular anomalies, seizure disorders, influenza or other infections.

Infants can be classified as premature for two different reasons: they 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 an LBW baby such as intrauterine growth restriction; mother’s age, or multiple birth. In 2019, **314** infants were reported to be born preterm, while **318** LBW children were reported during that same period.



Babies born from multiple-birth pregnancies are more likely to be born small. **Sixteen** of the infants 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 243 grams (8.6 ounces) and was born at 23 weeks gestation.[2]

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. **Twenty-six** mothers had medical complications such as diabetes or preeclampsia, **four** mothers used alcohol during pregnancy, **15** admitted to smoking during pregnancy, and **29** abused illegal or prescription drugs.

Nineteen of the children who died from natural causes within the first year of life were known to have had no prenatal care. **Twelve** of these children were known to have been born before the 37th week of gestation and **16** were low birth weight.

Advances in medicine are improving the odds for extremely preterm or low birth weight infants. **Five** of the preterm infants listed above lived for more than a year. **Two** of them succumbed to complications of prematurity, **two** to pneumonia, and **one** to a neurological/seizure disorder. There were also **four** low birth weight children lived who more than a year. **Two** of them were premature and are included in the preterm count. **One** died from prenatal asphyxia and **one** died from congenital anomalies. These deaths are not included in this section.

SLEEP-RELATED INFANT FATALITIES

There were 100 infant deaths marked as sleep-related by the panels in 2019.

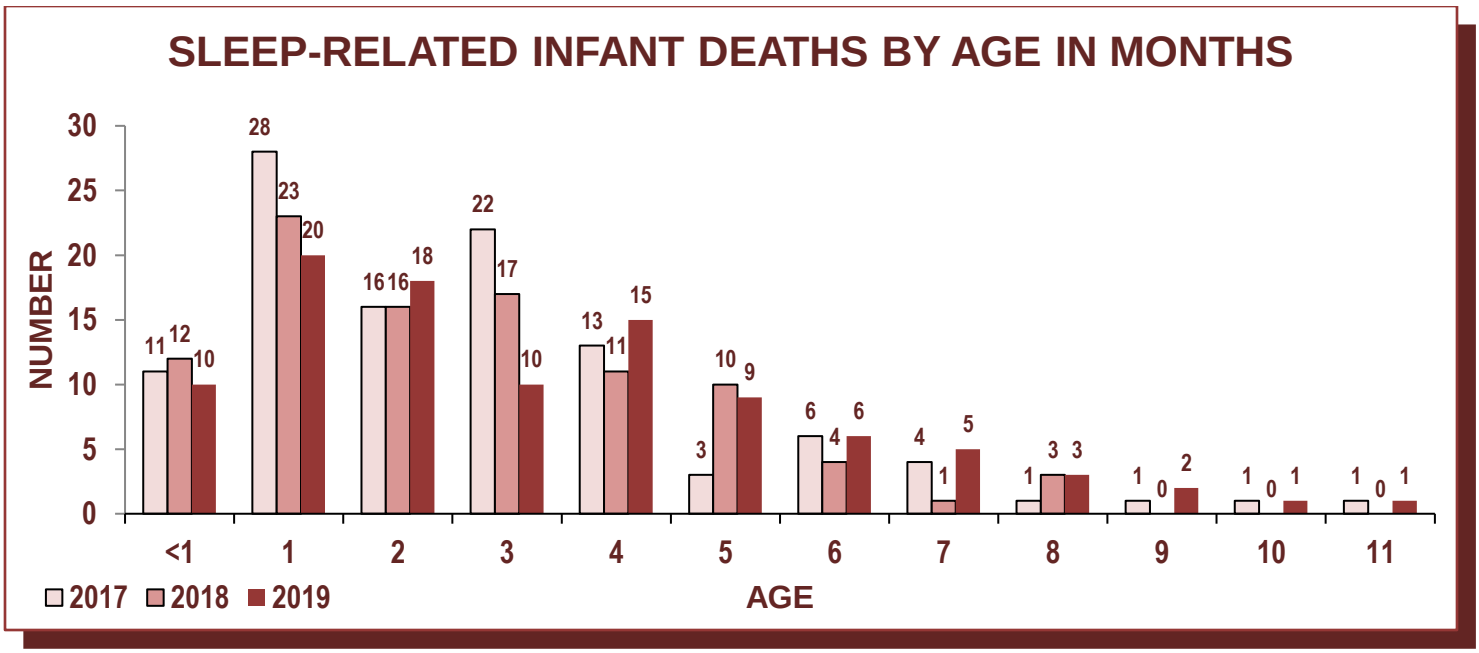
- Eighty-seven percent of all infants who died from sleep-related issues were covered by Medicaid.
- Fifty-five percent of the infants were sharing a sleep surface with one or more adults, children or animals.
- The ages of the mothers ranged from 14-39 years with the average age being 26 years old.
- Fifty-eight percent of the infants who died from sleep-related issues were white, 33 percent were black, one percent were Asian, and eight percent were multi-racial.

As we examined the data in 2019, we determined unsafe sleep fatalities documented in previous annual reports included only SIDS, suffocation, and undetermined cases in this section but excluded some children who died of natural causes found in unsafe sleep situations or homicide. In these cases, we cannot definitively rule out the unsafe sleeping arrangements as contributing to the death. Secondly, the deaths of some children who died of unsafe sleep have been ruled homicides due to other factors, such as a parent's drug or alcohol use. Since these deaths came at the hands of the parent or caretaker of the child, they have always been reported in the child abuse section. Due to the potential of the unsafe sleeping arrangement contributing to the death we have determined those deaths should be included in the overall unsafe sleep numbers while remaining in their appropriate section of the report; Illness/Natural or Child Abuse.

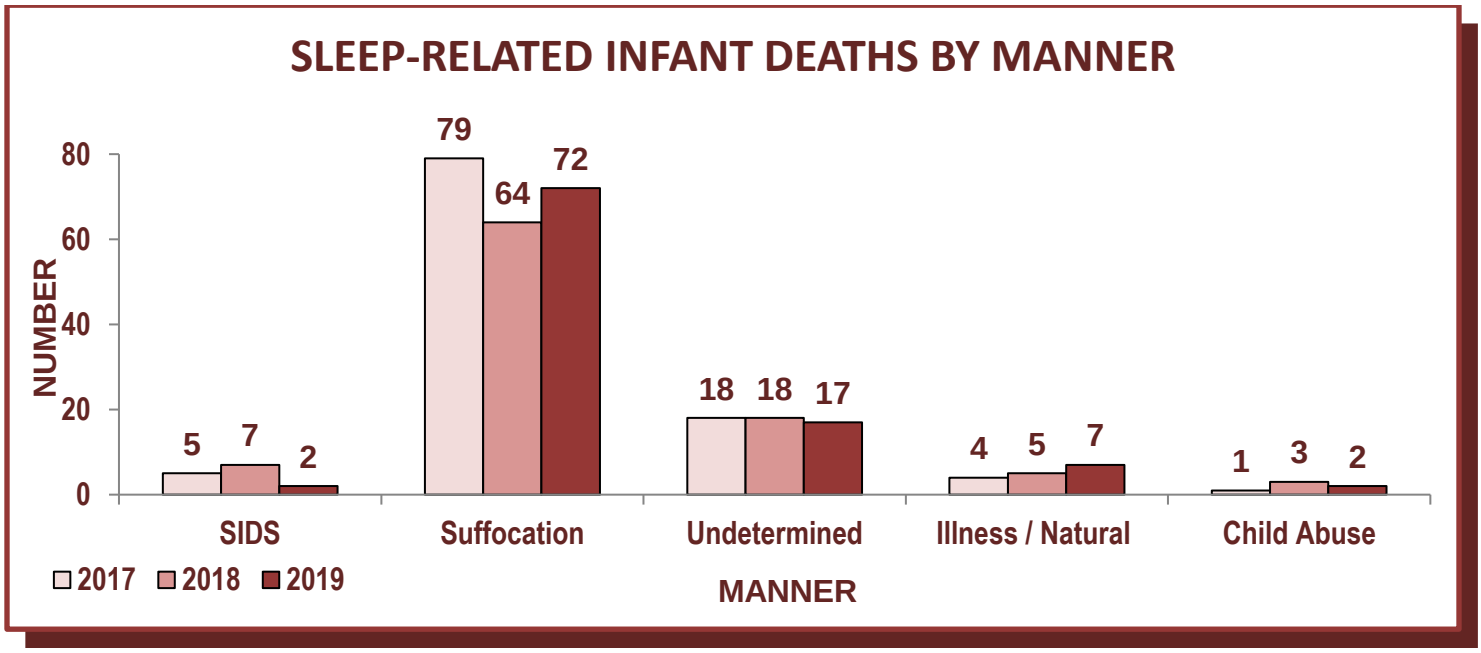
In 2019, **88 percent** of all infants who died from non-medical causes were related to the infant's sleep environment. Another way to look at it, is that we are losing one infant every two and a half days to easily preventable deaths.

MISSOURI SLEEP-RELATED FATALITIES BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	45	45	37	White	62	64	58
Male	62	52	63	Black	44	30	33
				Asian	0	1	1
				Multi-Racial	1	2	8
	107	97	100		107	97	100



Seventy-two percent of the infant sleep-related deaths were determined to have been suffocation deaths by the child forensic pathologists and county panels.

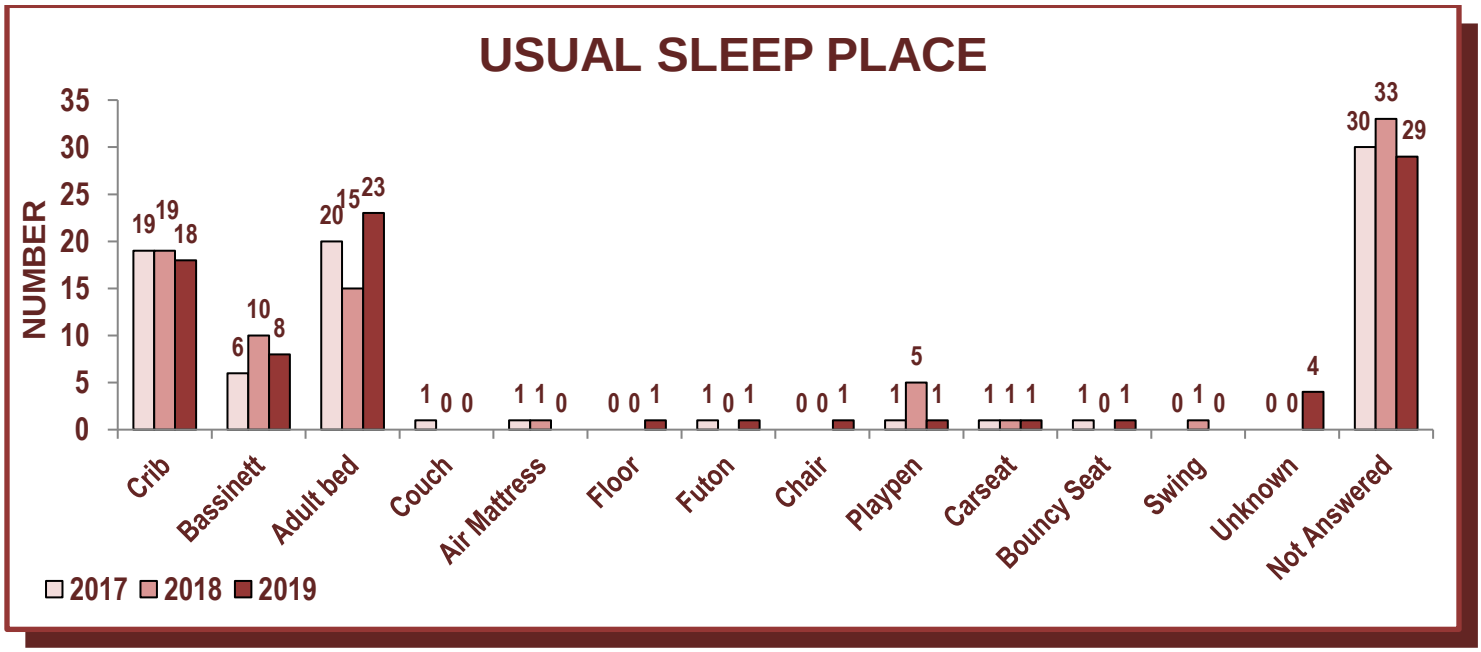


Fifty-one (51 percent) of all sleep-related infant deaths were known to have occurred while the infant was sleeping in an adult bed. In **45** of these deaths, the infant was sharing a sleep surface with an adult or other child. In the other **six** deaths, the child became tangled in or face down into pillows or thick comforters.

But this isn't the whole picture, in a total of **55** deaths, the infant was sleeping with an adult, a child, or an animal, but not exclusively in an adult bed. **Six** infants were sleeping with someone else on a sofa, **three** on a chair and **one** was in their crib with an animal.

Based on the number of infants found in an adult bed, it is hard to know if the safe sleep message is connecting with parents. Only 43 percent of those parents said an adult bed was where the infant usually slept. It is unknown at this time whether poor data collection or parent reluctance to admit they knowingly placed the child in an unsafe sleep environment impact that statistic.

New parents may face many challenges to practice safe sleep and why safe sleep message promotion is important. Family members may share personal experiences that endorse sharing a bed with a baby. Some advocate groups endorse unsafe sleep practices, contrary the American Academy of Pediatrics' recommendations. Advertising images may reinforce unsafe sleep practices, such as a baby in a crib with quilts and bumper pads, sleeping with parents in bed, or sleeping on their stomach. Parents may also be sleep-deprived or struggle to adjust to life with a new baby.

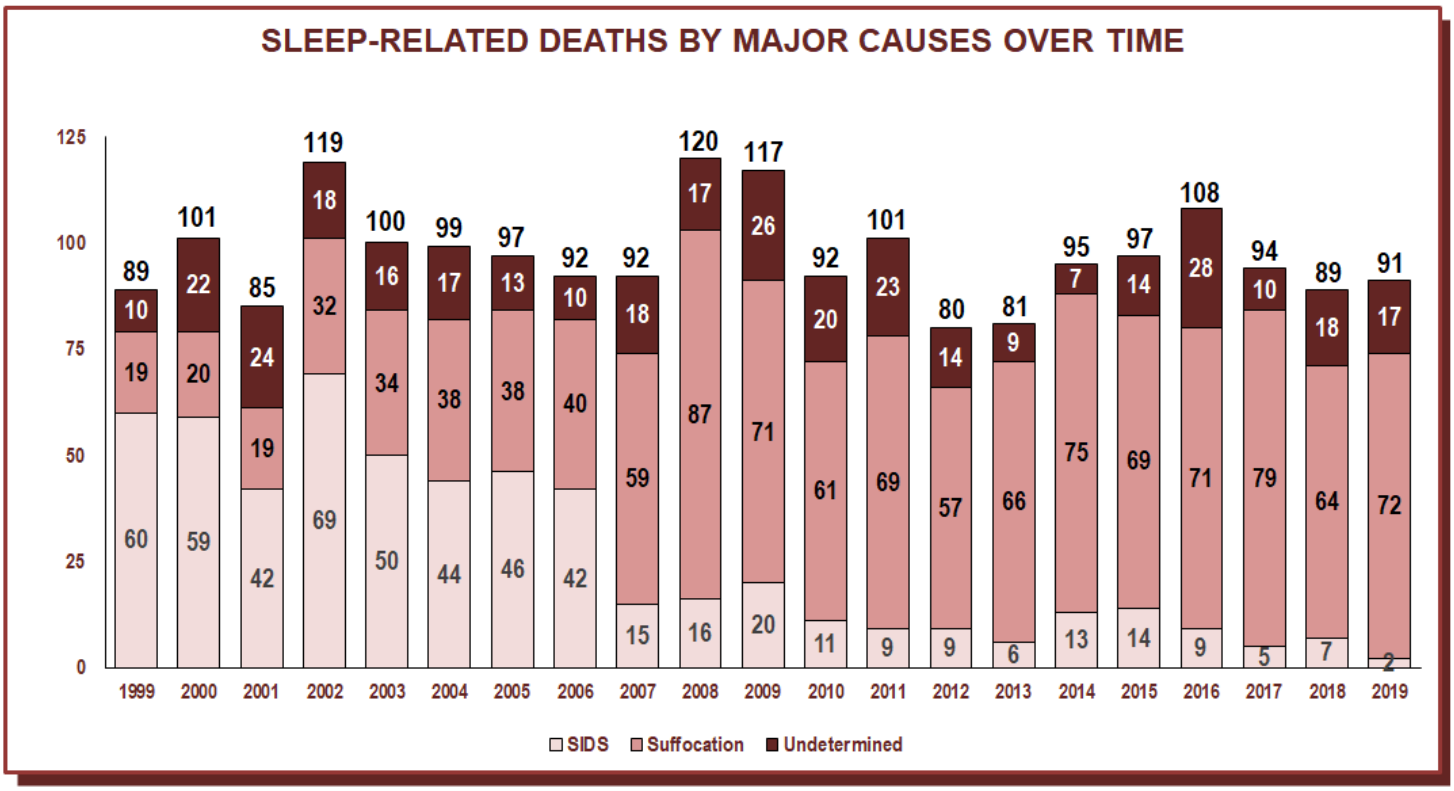


Even when parents consistently put their child in a safe sleep environment, other caregivers may not. A 2018 University of Virginia Health System study found often a non-parent caregiver placed the babies who died in their sleep in unsafe sleep positions. In Missouri in 2019, **thirteen** of the **100** infants who

died from unsafe sleep were not in the care of a parent; **four** were grandparents, **five** were unlicensed babysitters, **three** were other relatives, and **one** was a sibling.

Historical Perspective

In 1993 there were 117 deaths attributed to SIDS in the State of Missouri. In that same year, four infants died from suffocation and five infant deaths were called undetermined. Due to a better understanding of the differences between SIDS and suffocation there has been a major change in the numbers by category, but there has only a 28 percent decline in the total number of deaths.



What can we do?

The safest place for an infant to sleep is alone, on his or her back, in a crib, and in the same room where the parents sleep. There should be nothing in the crib except for the infant and a fitted sheet. The crib should not contain any toys or soft bedding such as blankets, bumper pads or pillows. Unfortunately, many parents have either not received this information, been instructed differently by family members, or are unable to provide a safe crib for their infant. The Department of Social Services, the Department of Health and Senior Services and the Children's Trust Fund have created and published a flyer to help families and care providers learn what a safe sleep environment looks like. **https://ctf4kids.org/wp-content/uploads/2020/04/194048-SS-RC-FINAL-11-19.pdf**

The ***Safe Cribs for Missouri*** program provides portable cribs and safe sleep education to low-income families who have no other resources for obtaining a crib. The program is administered by the Department of Health and Senior Services and implemented through participating local public health agencies. Safe sleep education follows the most recent American Academy of Pediatrics recommendations for a safe infant sleeping environment. Funding for the ***Safe Cribs for Missouri*** program is provided by the Maternal Child Health Services Block Grant (Title V) and the Missouri

Children's Trust Fund. For additional information about the ***Safe Cribs for Missouri*** program, visit https://health.mo.gov/living/families/babies/safecribs/index.php or call 573-751-6266 or 800-877-6246.

Additionally, the **First Birthday Project** supplied safe sleep training and pack-n-plays or boxinettes to qualified women who had just given birth in 12 Southeast Missouri counties. If the women enrolled and attended WIC appointments, they were given a pack-n-play to replace the boxinette, when the child reached four months of age. This project was implemented to reduce the infant mortality rate for that area, as the average infant mortality rate for the Southeast Missouri area stands at 9.4%, while the state rate is 6.0%.

SLEEP-RELATED INFANT SUFFOCATION

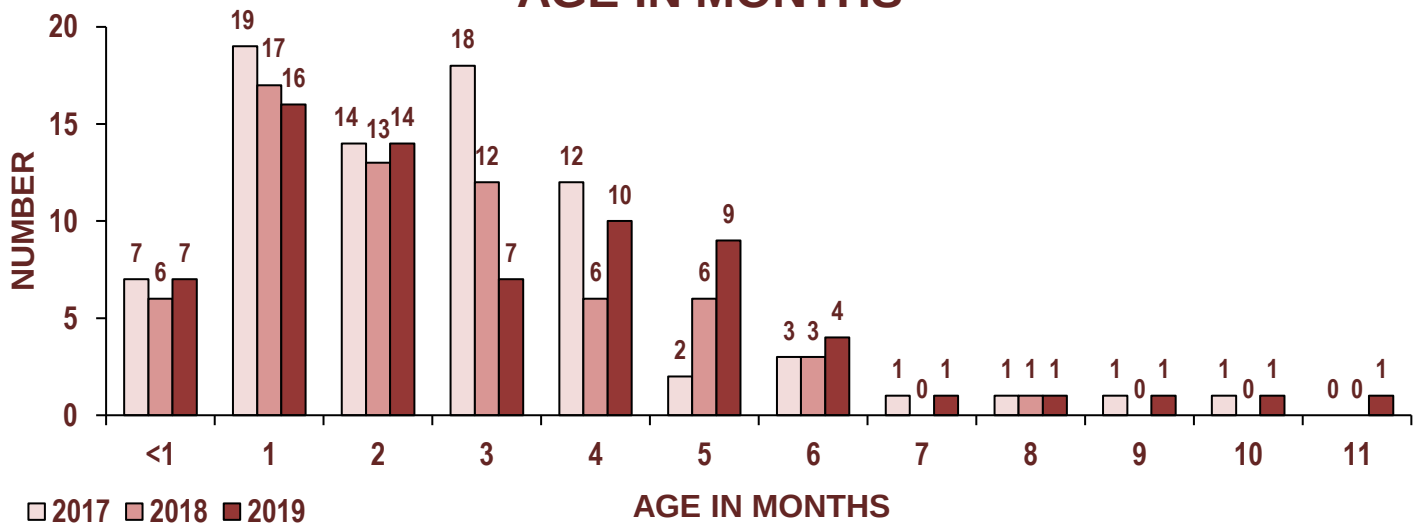
In 2019, 72 Infants died from sleep-related suffocations.

Deaths by unintentional suffocation are much more prevalent among children under one year of age than from any other age range. In 2019, there were **77** total unintentional suffocation deaths, **73** of these were infants under one year of age, **72** of which were sleep-related.

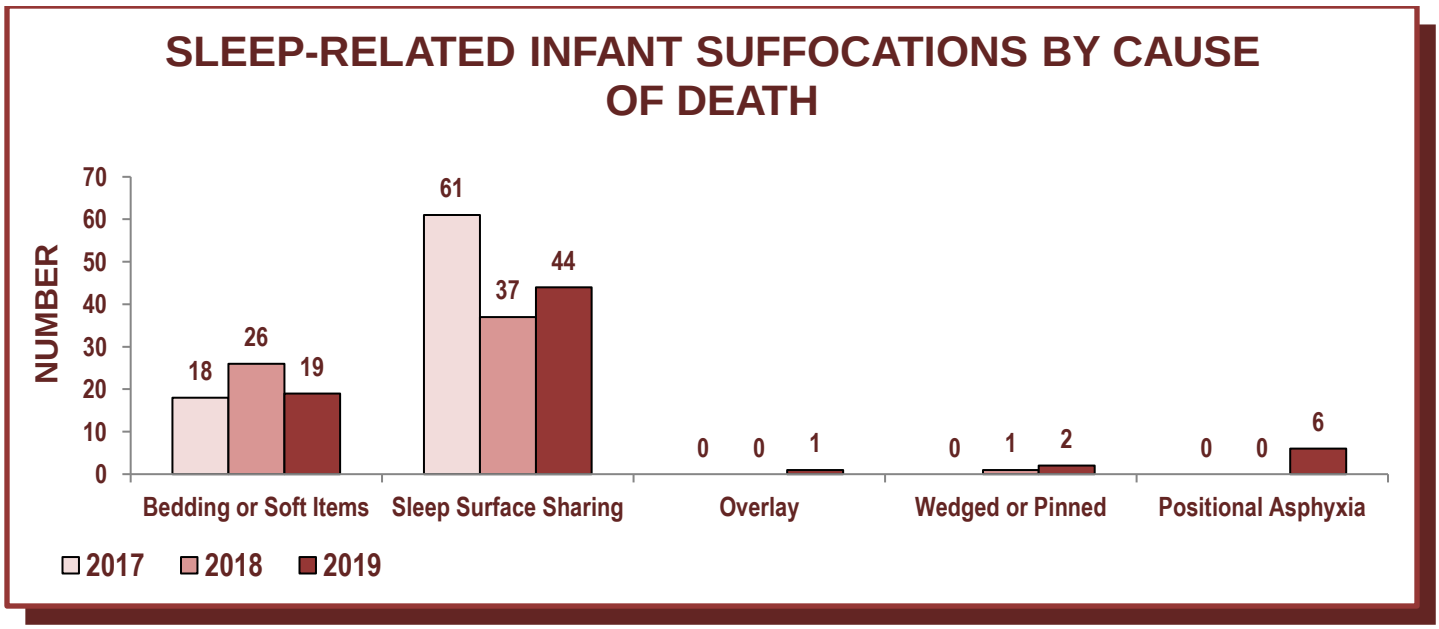
SLEEP-RELATED INFANT SUFFOCATION BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	33	29	25	White	46	43	45
Male	46	35	47	Black	30	20	20
				Asian	0	0	1
				Multi-Racial	3	1	6
	79	64	72		79	64	72

SLEEP-RELATED INFANT SUFFOCATIONS BY AGE IN MONTHS



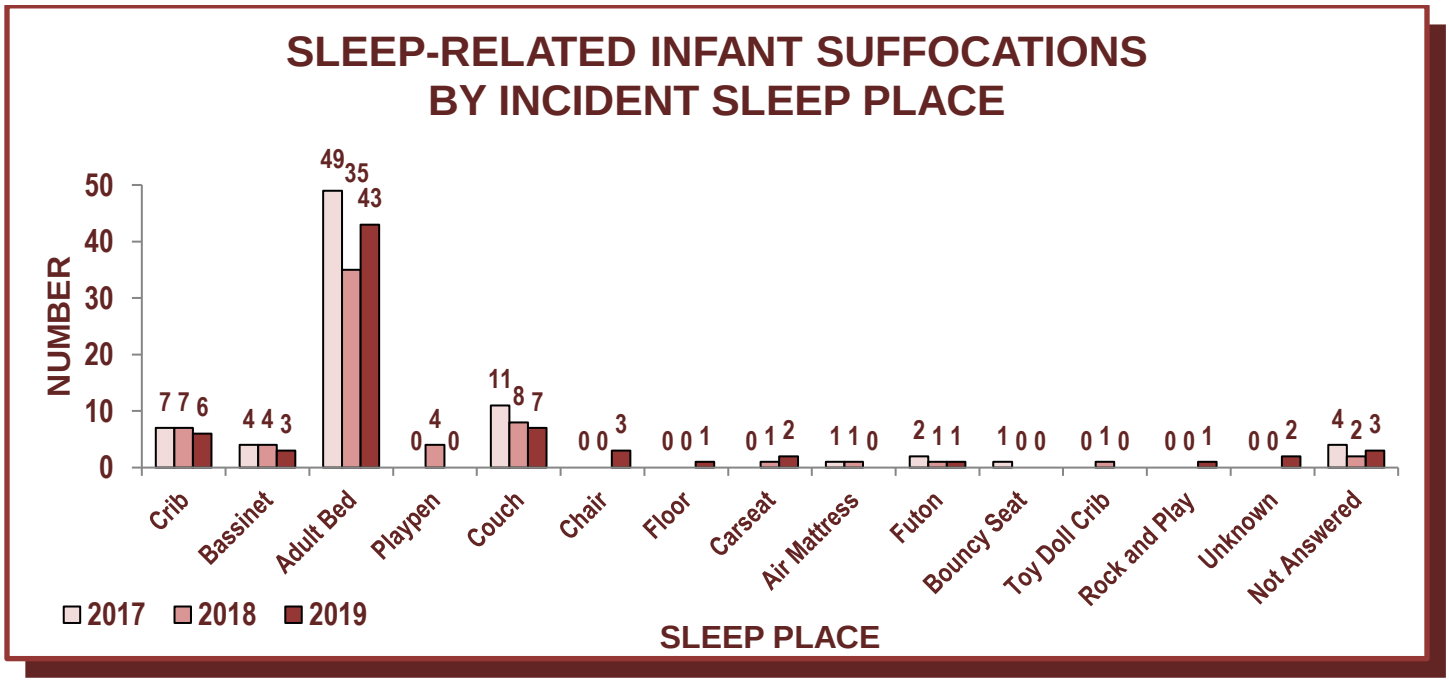
Like SIDS deaths, sleep-related infant suffocations occur within the first six months of life, but unlike SIDS these deaths begin to peak at one month of age.



Accidental suffocation and strangulation in bed 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.

Nineteen infants died due to soft bedding; **six** were in their cribs with stuffed animals, soft bedding and/or bumper pads; **one** was placed to sleep in bassinets with pillows or soft bedding; **five** were placed on adult beds with either pillows or comforters; **one** fell off a sofa into furry beanbag chair; **two** were in car seats, one with a blanket and one without; **one** on a sofa with a boppy pillow and **one** was face down into a rock and play.

In **six** infant suffocations there was not enough information from the panel as to the child's position at time of death. These deaths were listed as positional asphyxia on the death certificates, so that is the category we are leaving them in.



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 rollover 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) someone who was on the same sleep surface admitting they were overlying the infant when they awoke; or 2) the observations of another person. **One** of the infants who died in 2019 died of overlay.

To reduce the risk of unintentional suffocation deaths of infants, it is recommended that the infant sleep in the parents' room, but on a separate sleep surface (crib, bassinette, or pack 'n play) close to the parents' bed. This arrangement not only decreases the risk of SIDS by as much as 50 percent and is safer than bed sharing or solitary sleeping (when the infant is in a separate room), but is also more likely to prevent suffocation, strangulation, or entrapment, which may occur when the infant is sleeping in an adult bed. Furthermore, room sharing without bed sharing 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 **72** infants under one year of age that died of unintentional suffocation, **47** were sharing a sleep surface with one of more individuals; **37** of them were sleeping in an adult bed; **six** were sleeping on sofas; **three** were sleeping in chairs; and, **one** is listed as an unknown sleep place.

Risk Factors

Certain environmental stressors have also been shown to be highly significant risk factors:

- Prone or side sleeping
- Soft sleep surfaces
- Loose bedding
- Sharing a sleep surface
- 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.

SLEEP-RELATED UNDETERMINED

In 2019, there were 17 sleep-related infant deaths whose cause and manner of death could not be determined.

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 one year of age that cannot be explained as a thorough investigation was not conducted and cause of death could not be determined."

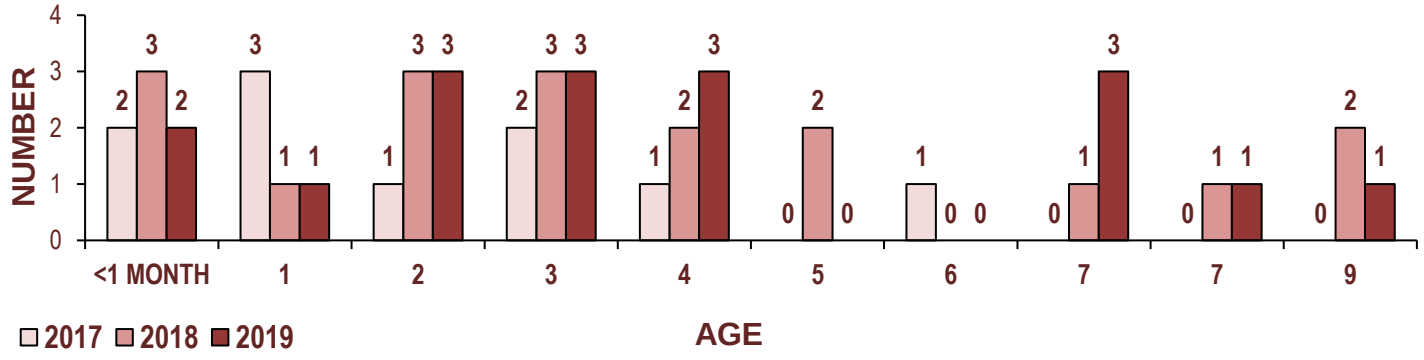
The Differences between Undetermined and SIDS Fatalities are:

- Sudden Unexpected Infant/Child Death (SUID/SUCD) covers deaths which were caused by many factors of which Undetermined and SIDS are just two. Others factors 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 deaths, the manner is classified as Natural.
- Like SIDS, in an Undetermined death 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.

SLEEP-RELATED FATALITIES OF UNDETERMINED CAUSE AND MANNER BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	7	9	8	White	7	8	9
Male	3	9	9	Black	2	8	8
				Multi-Racial	1	2	0
	10	18	17		10	18	17

MISSOURI SLEEP-RELATED DEATHS OF UNDETERMINED CAUSE AND MANNER BY AGE IN MONTHS



SUDDEN INFANT DEATH SYNDROME

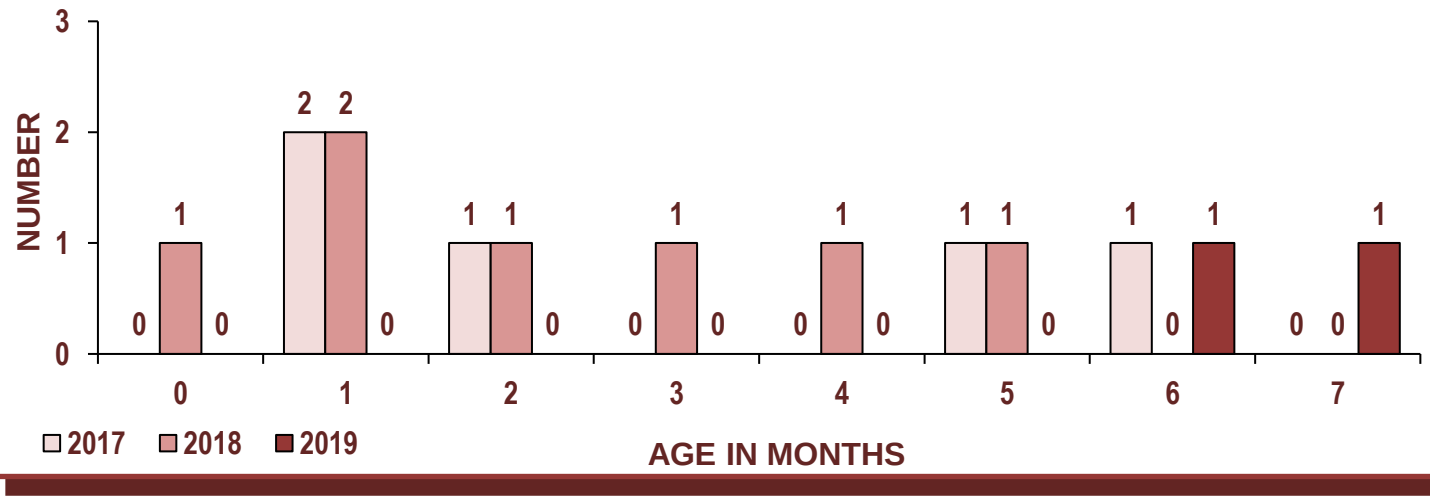
In 2019, two Missouri infant fatalities were classified as Sudden Infant Death Syndrome (SIDS).

The term SIDS describes the sudden, unexpected deaths of infants under one year of age, typically during their sleep, which remain unexplained **after** thorough examination of the death scene, case investigation, complete autopsy, and review of medical and social histories. 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, 90 percent of infant fatalities classified as SIDS occur within the first six months of life, peaking 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	2017	2018	2019	RACE	2017	2018	2019
Female	0	4	1	White	4	7	1
Male	5	3	1	Black	1	0	1
	5	7	2		5	7	2

SIDS FATALITIES BY AGE



Current Research Findings and Theories

According to the mayo clinic, although the cause is unknown, it appears that SIDS might be associated with defects in the portion of an infant's brain that controls breathing and arousal from sleep.

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 tests that can determine which children are at greatest risk.

Continued research, thorough investigations, along with child fatality review, allow for better identification of the intricate causes behind SIDS. Standardized and thorough data collection on sudden infant deaths, provided and entered into the CDR system by local CFRP panels, enhance identification of risk factors, facilitation of risk reduction efforts, and implementation of prevention best practices, which will have a greater impact in saving infant lives.

Note: Some manufacturers have made claims that their baby products will prevent or reduce the risk of SIDS. The FDA has never cleared or approved any devices to prevent or reduce the risk of SIDS. No scientific evidence has demonstrated that SIDS can be prevented using a positioner or other device; in fact, positioners have been found to increase the chance of infant suffocation.

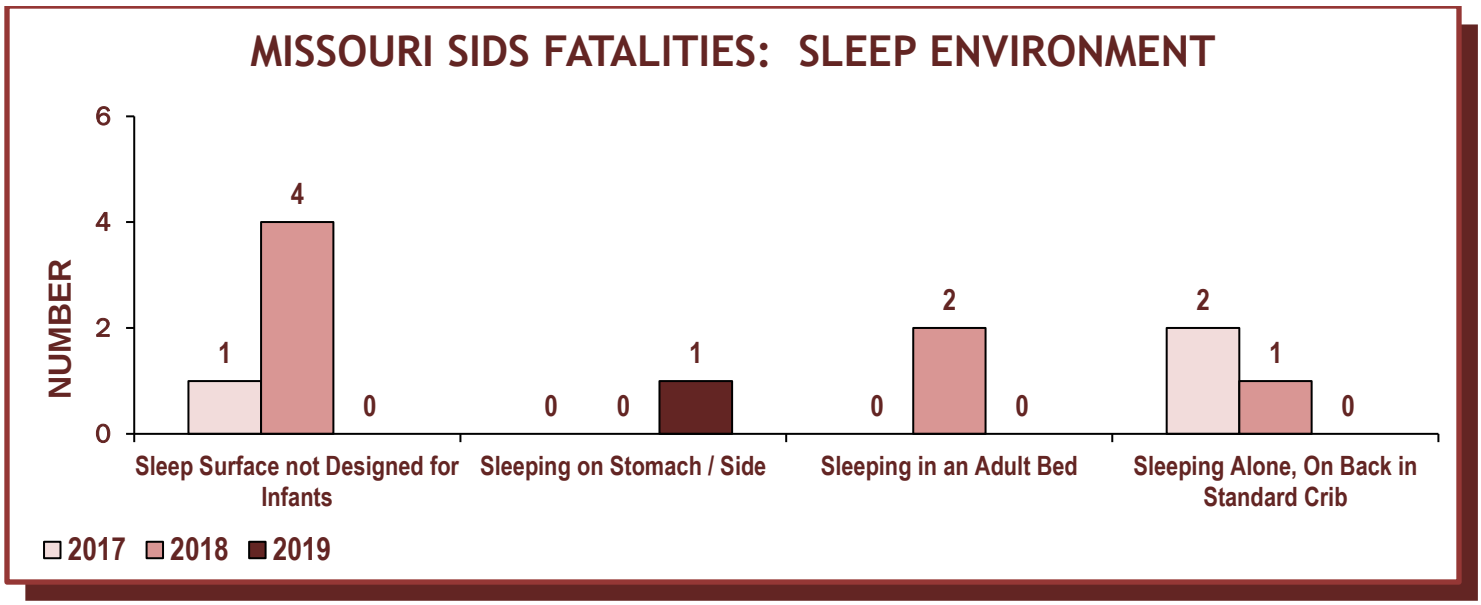
Other Risk Factors

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
- Fewer than 18 months between births
- Mother younger than 18
- Prenatal smoking
- Multiple births
- Late or no prenatal care
- Alcohol and substance use

Many deaths attributed to SIDS occur when children 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 most 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.

Of the **two** sudden unexpected infant deaths reviewed by county CFRP panels and diagnosed as SIDS, sleep position was not reported in **one** death and **one** infant was found on their stomach; and **neither** were reported placed to sleep on their backs. **Neithe**r of the infants whose deaths were classified as SIDS, were known to be sleeping alone on their backs, in a crib. The safest place for an infant to sleep is in a standard crib with a fitted sheet, on his or her back, without soft bedding or toys of any kind.

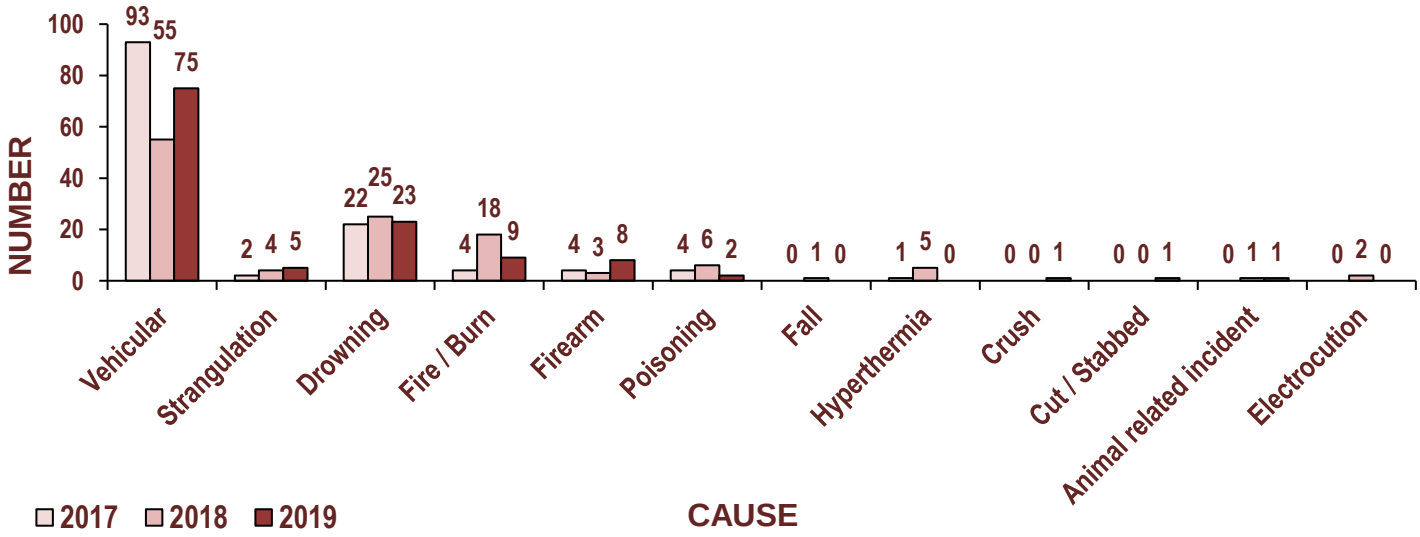

MISSOURI SIDS FATALITIES: SLEEP ENVIRONMENT
NUMBER
6
4
2
0
1
4
0
0
0
1
0
2
0
2
1
0
Sleep Surface not Designed for Infants
Sleeping on Stomach / Side
Sleeping in an Adult Bed
Sleeping Alone, On Back in Standard Crib
2017
2018
2019

UNINTENTIONAL INJURY FATALITIES

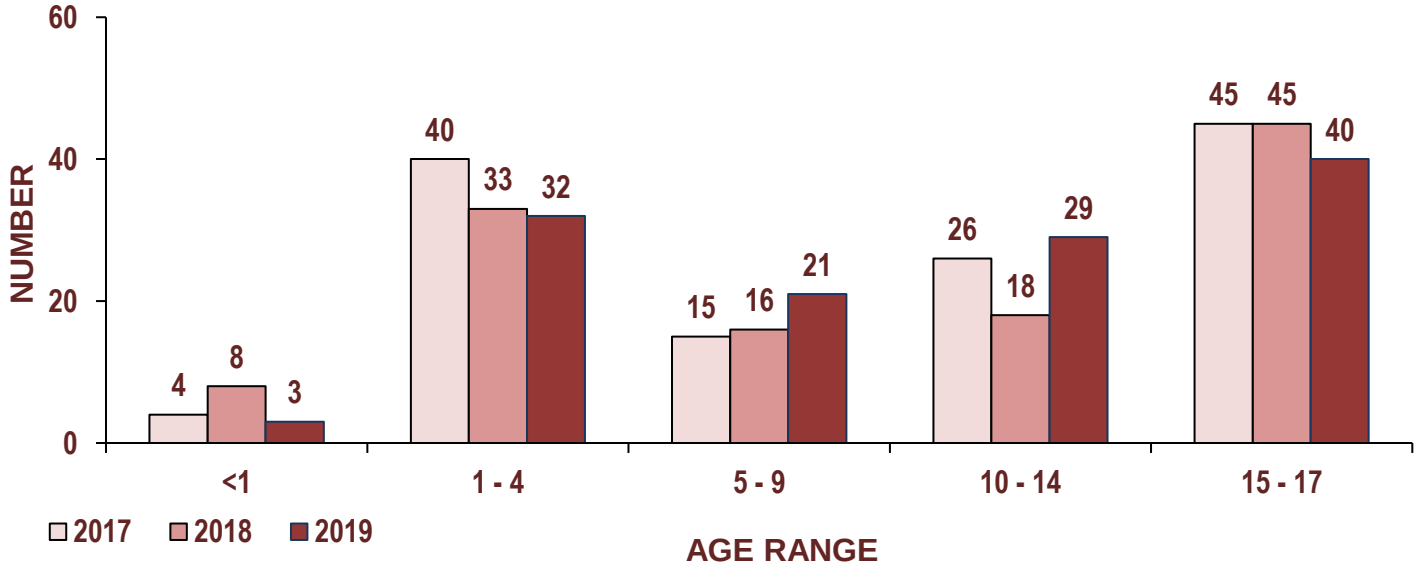
In 2019, there were 125 unintentional injury fatalities that do not fall under infant sleep-related deaths.

There were a total **194** unintentional injuries in Missouri in 2019. **Sixty-nine** of those deaths were addressed in the prior sleep-related section. Of the remaining **125**, the leading causes of death are vehicular at **75,** and drowning at **23**.

UNINTENTIONAL INJURY FATALITIES BY CAUSE



UNINTENTIONAL INJURY FATALITIES BY AGE



UNINTENTIONAL INJURY FATALITIES BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	45	44	45	White	94	87	85
Male	85	76	80	Black	32	26	31
				Asian	0	2	3
				Multi-Racial	4	5	5
				Other or Unknown	0	0	1
	130	120	125		130	120	125

Unintentional Versus Accidental

The CFRP 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. 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.

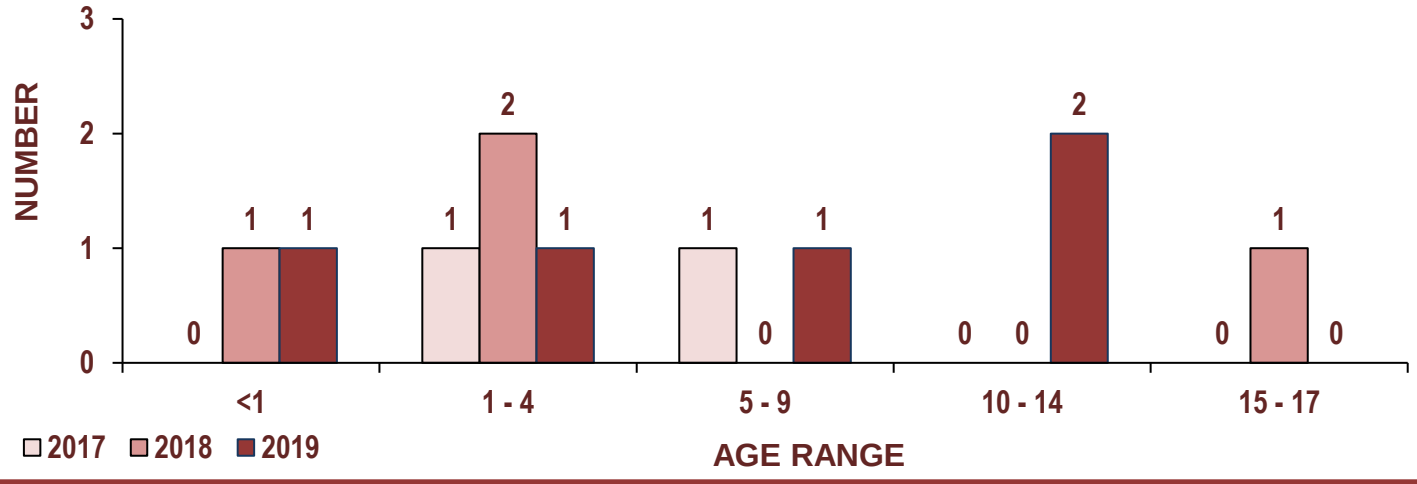
Leaving small children (less than six years of age) unsupervised around water or moving vehicles or allowing them to ride in the back of pickup trucks or on ATV's, allowing them to get their hands on firearms, letting them play unsupervised around dangerously stacked items, allowing them to get their hands on lighters, and placing babies in unsafe sleeping environments are all ill-advised; yet, these actions resulted in the deaths of **128** children in 2019. Some people believe that vehicular crash deaths (a more appropriate term) cannot be prevented, but it is well known that appropriate road signage/maintenance, following laws, avoiding distractions, driver education, and correctly using seatbelts and child safety seats save lives.

ASPHYXIATION

There were 5 non infant-sleep-related asphyxiations in 2019.

There was a total of **74** unintentional suffocation deaths in 2019. **Sixty-nine** asphyxiation deaths were discussed in the prior sleep-related infant death section. Unintentional suffocation deaths in older children are often related to circumstances associated with choking, aspiration and/or strangulation.

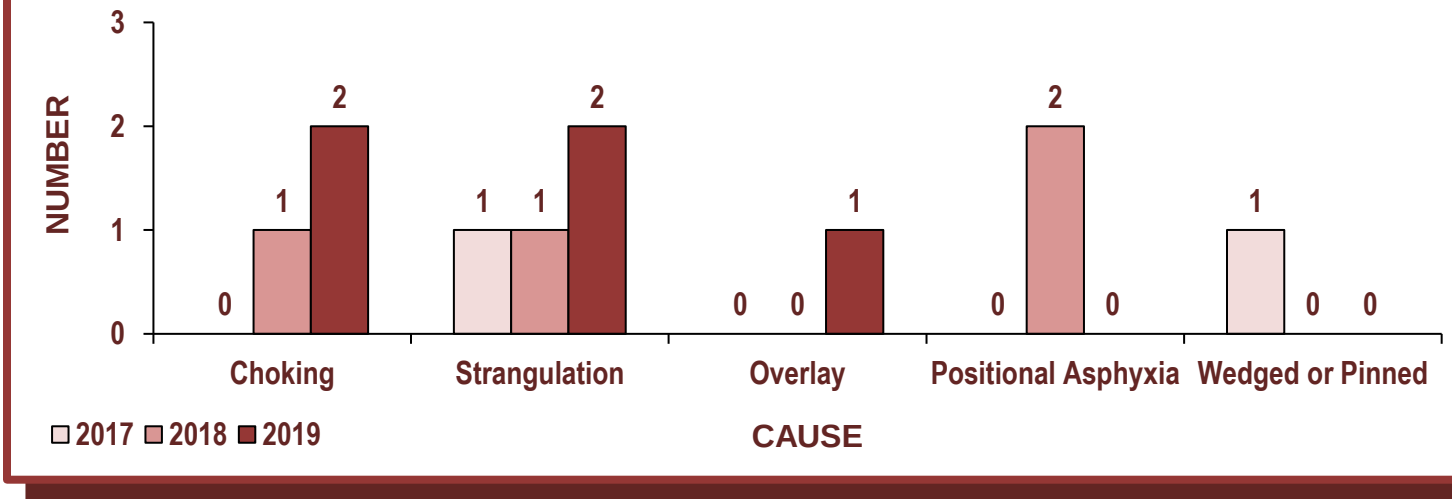
UNINTENTIONAL SUFFOCATIONS BY AGE



ASPHYXIATION BY SEX AND RACE

	2017	2018	2019	RACE	2017	2018	2019
Female	1	0	0	White	2	4	4
Male	1	4	5	Black	0	0	1
	2	4	5		2	4	5

ASPHYXIATION BY CAUSE



The pattern of deaths by unintentional suffocation differs by age. Toddler deaths are often related to choking; entanglement or wedging. In 2019 there was **one** infant who died from overlay and **one** infant who choked on formula from a propped bottle.

One young child with autism choked on a ball. According to a U.S. study, young people with autism are about three times more likely than the general population to experience deadly injuries like choking or drowning.

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 strangulation hazards, the Consumer Product Safety Commission (CPSC) issued mandatory standards for various items such as cribs and window blinds, as well as voluntary guidelines for children's clothing to prevent strangling; i.e., from drawstrings of outerwear garments, such as jackets and hoodies.

Older children are typically injured from strangulation by hanging during play or through self-induced hypoxia. Intentional asphyxia in children and teens is usually seen in one of two forms. The "choking game" where a child, either by themselves or with another person, cuts of their oxygen to produce euphoric state; or autoerotic asphyxiation (AEA) were the child chokes them self during sexual stimulation in order to heighten the sexual pleasure. It is believed that the number of teens dying from AEA is seriously underreported due to the family's reluctance to let others know that their child was participating in such behavior. **Two** teens died from what is reported to be unintentional strangulation. It is unknown if these children were participating in the choking game, AEA or if there was some other intent.

These are not suicidal behaviors, the intent in both of these activities is to release the pressure just before the loss of consciousness, it is the failure to do so which can result in death. Parents need to be aware of the dangers and to look for warning signs; but most of all, they must be willing to talk to their child about the dangers of the behavior without shaming or belittling them. Which may lead to the child hiding the behavior and putting themselves at greater risk.

MOTOR VEHICLE FATALITIES

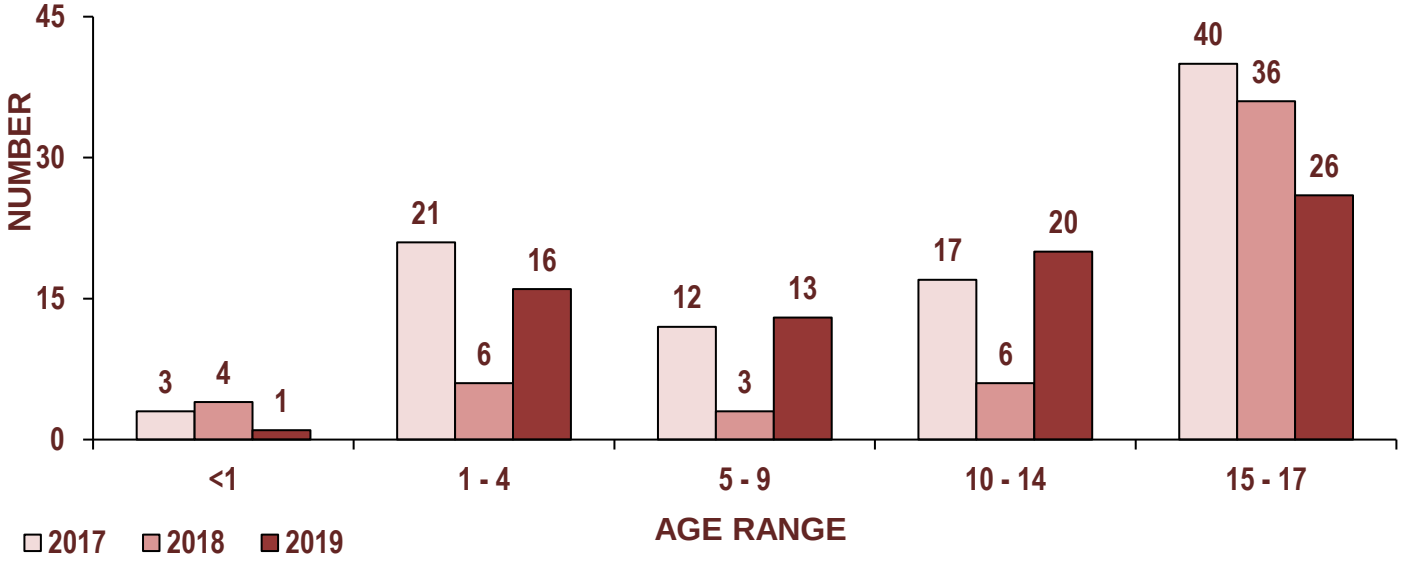
There were 76 unintentional vehicle fatalities in 2019.

- Forty-nine percent of the children who died from vehicle crashes were teenagers.
- Forty-three percent of teens who died from vehicle crashes were drivers, 49 percent were passengers and eight percent were pedestrians.
- Sixty-two percent of teens who died from vehicle crashes were male, 38 percent female. Eighty-nine percent were white, and 11 percent were Black.
- Fifty percent of teen drivers and passengers were known to be unrestrained at the time of the crash. NOTE: Seven of the teen vehicular accidents were not reviewed by the county panels and in eight cases this question was either not answered or marked as unknown.

MOTOR VEHICLE FATALITIES BY SEX AND RACE

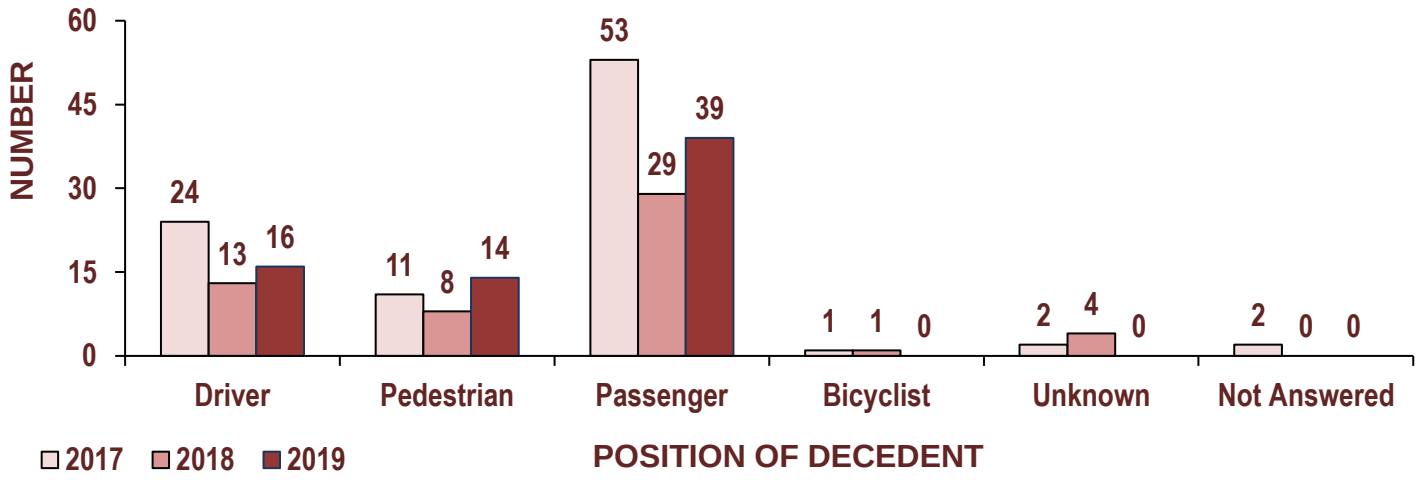
SEX	2017	2018	2019	RACE	2017	2018	2019
Female	32	23	42	White	68	41	55
Male	61	32	34	Black	22	10	15
				Asian	0	0	1
				Multi-Racial	3	3	4
				Unknown	0	0	1
	93	55	76		93	55	76

MOTOR VEHICLE FATALITIES BY AGE



For the past five years, unintentional vehicle crashes have been the second leading cause of injury deaths for children. Motor vehicle fatalities include drivers and passengers, pedestrians who are struck, bicyclists, and occupants in any other form of transportation, including airplanes, trains, and all-terrain vehicles. **Sixty-nine** (91%) of the **76**unintentional motor vehicle deaths were reviewed by local CFRP panels.

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



CAUSE OF INCIDENT*			
SPEEDING	16	POOR SIGHT LINE	4
RECKLESSNESS	18	ANIMAL IN THE ROAD	1
DRUG OR ALCOHOL USE	12	POOR WEATHER	4
UNSAFE SPEED FOR CONDITIONS	7	CAR CHANGING LANES	5
DRIVER INEXPERIENCE	11	POOR VISIBILITY	7
DRIVER DISTRACTION	3	NOT ANSWERED	19
VEHICLE ROLLOVER	7		

TYPE OF VEHICLE	
CAR	23
TRUCK	12
VAN	8
ATV	7
SUV	13
MOTORCYCLE	2
TRACTOR	1
HORSE-DRAWN BUGGY	1
TRAIN	1
UNKNOWN	1

LOCATION OF CRASH*	
HIGHWAY	29
RURAL ROAD	14
CITY STREET	13
RESIDENTIAL STREET	2
OFF ROAD	5
RAILROAD TRACKS	1
DRIVEWAY	3
INTERSECTION	2
UNKNOWN	2
NOT ANSWERED	2

RESTRAINTS - LAP BELT	
NOT NEEDED	22
NEEDED, BUT NONE PRESENT	3
PRESENT, USED CORRECTLY	10
PRESENT, USED INCORRECTLY	8
PRESENT, NOT USED	15
UNKNOWN	11

RESTRAINTS – CARSEAT	
NOT NEEDED	65
NEEDED, BUT NONE PRESENT	3
PRESENT, USED CORRECTLY	0
PRESENT, USED INCORRECTLY	1
PRESENT, NOT USED	0
UNKNOWN	0

RESTRAINTS – BOOSTER SEAT	
NOT NEEDED	62
NEEDED, BUT NONE PRESENT	4
PRESENT, USED CORRECTLY	3

HELMET	
NOT NEEDED	59
NEEDED, BUT NONE PRESENT	3
PRESENT, USED CORRECTLY	1
UNKNOWN	1
NOT ANSWERED	4

ROAD CONDITION*	
NORMAL	50
LOOSE GRAVEL	6
MUDDY	2
ICE – SNOW	2
WET	1
NOT ANSWERED	8

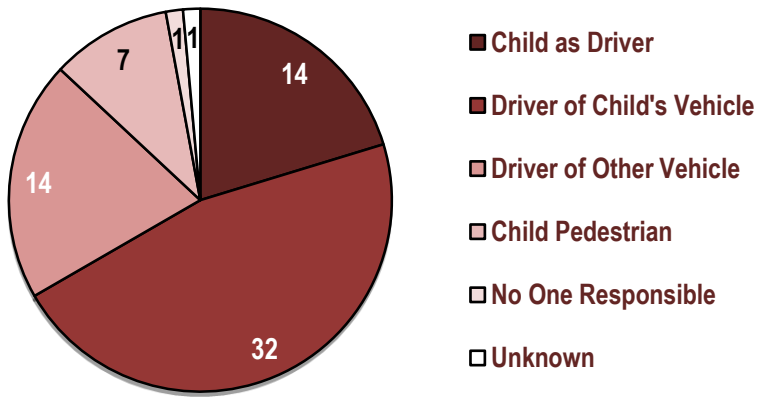
ALCOHOL AND / OR OTHER DRUG USE			
DECEDENT AS DRIVER IMPAIRED	3	CHILD'S DRIVER IMPAIRED	11
OTHER DRIVER IMPAIRED	0	NOT APPLICABLE / UNKNOWN	56

* A single crash may be the result of multiple causes and/or environmental conditions.
**With multiple incomplete panel reviews it is hard to determine if the cases that are listed as not being impaired were actually not impaired, or if this question was simply not answered by the county.

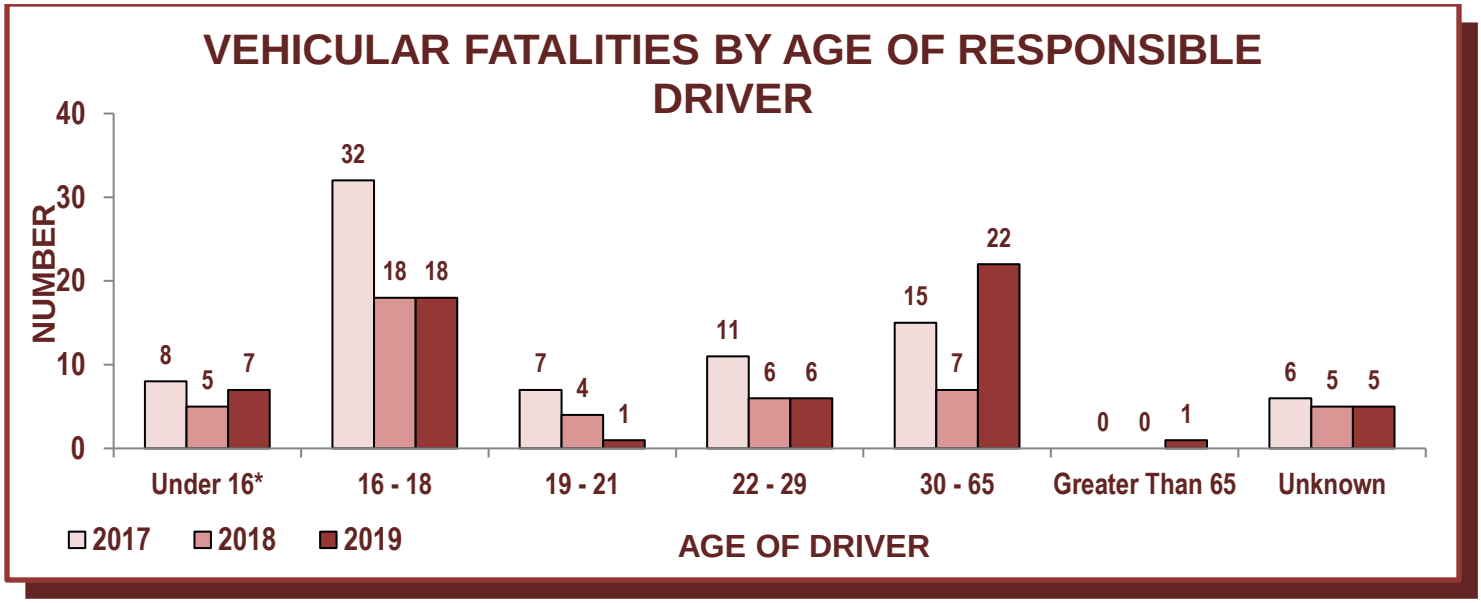
Most vehicle crashes occur due to the actions of one or more persons, be it recklessness, impaired driving, inattention, or simply inexperience.

Of the **69** reported motor vehicle fatalities, the driver of the child's vehicle was responsible for **32** of the crashes; **14** were caused by the teen/child as driver (note this includes the operators of ATVs); and **14** were caused by the driver of another vehicle. **Seven** deaths were pedestrians who, through their own actions, caused the accident that took their lives. In **one** case no one was at fault and in the last **one** the answer is unknown.

RESPONSIBLE FOR VEHICULAR CRASH



As compared to other drivers, a higher proportion of teenagers are responsible for their fatal crashes because of their own driving errors.[3] Of the **60** motor vehicle fatalities in which a driver was determined to be responsible for the accident, **26** were age 21 or younger, of which **18** were between 16 and 18 years old and **seven** were below 16 years of age.



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

Driver and Passenger Fatalities

Of the **69** reported motor vehicle child fatalities in 2019, **54** involved drivers and passengers. 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, as **23** of the **39** child passenger fatalities were known to be riding unrestrained. **Eight** of the **38** child passenger fatalities were under age five and **six** of those were known to be unrestrained. The most common reasons restrained children die in crashes are misuse of child safety seats and premature graduation to seatbelts. **Seven** child passenger fatalities were incorrectly secured in a seat belt, and **one** was in an improperly secured child seat.

Of the **55** children who died while either driving or riding in a motor vehicle, **34** (62 percent) were known to be unrestrained at the time of the crash.

Of the **69** reported unintentional motor vehicle fatalities, **14** involved either a victim or a driver who was impaired. **Eleven** children died during **seven** crashes because the driver of their vehicles were impaired. **Three** children died because they themselves were driving impaired. .

In Missouri, the highest fatality rates are found among teenage drivers. Teenagers are involved in twice as many fatal crashes as other drivers due to inexperience and immaturity, along with greater risk exposure.

Missouri has a Graduated Driver's License law for new drivers, as it takes time to master the skills needed to safely operate a motor vehicle. The law requires all first-time drivers ages 15 through 18 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 being 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.

There were **ten** child fatalities in vehicle crashes that involved inclement weather and/or driving at unsafe speeds for road conditions. Educating teens on defensive driving can save lives. This includes education on how to drive in inclement weather or adverse road conditions; i.e., how to react to the vehicle skidding, sliding or hydroplaning; when to reduce speed, brake and/or let off the gas pedal when traveling on ice or snow covered bridges or roadways; or never driving through flooded roadways, etc.

Distracted driving is any activity that takes a person's attention away from the task of driving, be it eating, changing a radio station or texting. As texting requires visual, manual and cognitive attention from the driver, it is by far the most alarming distraction. Currently, Missouri law bans all drivers, 21 and younger, from text messaging, and commercial drivers from texting or using handheld cell phones, while driving. While no drivers were known to be using their cell phones while they drove, **three** were listed as being distracted.

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 their child would never participate in such foolish behaviors, but 46 percent of the high school participants in the 2019 Missouri Youth Risk Behavior Survey indicated that they had either text or emailed while driving within the past 30 days of taking the survey. Even more worrisome, 64 percent of teens had ridden with someone who was using a cell phone while driving. Sixteen percent of the participants admitted to riding with a driver who has been drinking, and 4.2% of them said that they had driven while drinking within the same timeframe.

Seatbelts can reduce the risk of fatal motor vehicle injury by as much as 45 percent.[4] In 2019, there were **26** teenagers, age 15-17, that died in motor vehicle crashes; **12** were passengers, 12 were drivers and **2** were pedestrians. Of the **24** teen driver and passenger deaths, **11** were known to be unrestrained at the time of the crash.

Pedestrian Fatalities

Fourteen motor vehicle fatalities involved child pedestrians. Of these children, **six** were between the ages of one and four; **two** were between the ages of five and nine; **four** were between the ages of 10 and 14 and **two** were between 15 and 17.

- Young children are particularly vulnerable, because they are exposed to traffic threats that exceed their cognitive, developmental, behavioral, physical and sensory abilities. Also, parents often overestimate their children's pedestrian skills. Children are impulsive and have difficulty judging speed, spatial relations and distance

- Practical, skill-based pedestrian safety training efforts have demonstrated improvements in children's traffic behavior. Environmental modifications are also 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. .

All-Terrain Vehicle Fatalities

Six of the **69** reported motor vehicle fatalities involved all-terrain vehicles (ATVs). ATVs are 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. Most injuries associated with ATVs occur when the driver loses control, the vehicle rolls over, or there is a crash with a fixed object. The driver or passenger is either pinned beneath the ATV or thrown off. Head injuries account for most of the deaths. **None** of the **six** ATV-related child fatalities were known to have been wearing helmets, **four** of them died from head trauma, and **two** died from compression.

Many safety organizations recognize that children do not have the cognitive and physical abilities to drive or ride these vehicles safely. Missouri law requires that all children under the age of 18 wear helmets when riding on an ATV and states that no one under 16 is allowed to operate an ATV unless on a parent's land or accompanied by a parent. Also, passengers may not be carried with the exception being for agricultural purposes and ATVs designed to carry more than one person.

Trends in Vehicular Fatalities

MISSOURI MOTOR VEHICLE FATALITIES 2008 - 2018

Year	Child Fatalities	Total Fatalities	Percentage of Total Fatalities
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%
2014	83	766	10.84%
2015	70	853	8.21%
2016	81	931	8.70%
2017	93	1037	8.98%
2018	55	956	5.70%
2019	76	876	8.70%

Since 2008, the annual number of overall vehicular fatalities in Missouri has dropped 9 percent. In comparison, Even though the number of deaths increased in 2019 from the a 10 year low in 2018, the overall number of child fatalities from vehicle crashes has dropped by 23 percent in the last 11 years.

There are many safety and prevention factors that have played a part in this reduction, to include, but not limited to, 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, Missouri's graduated driving law and active law enforcement efforts.

Keeping Children Safe In and Around Motor Vehicles

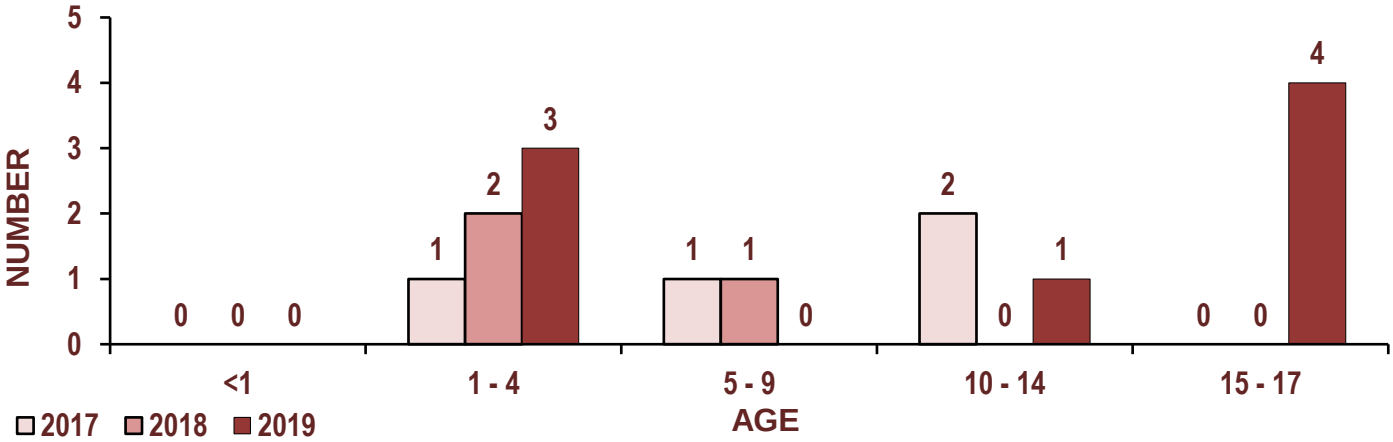
Attention concerning child safety and motor vehicles has focused largely on protecting children as they ride in and on vehicles of all kinds, primarily motor vehicles on public roads. The Missouri CFRP reviews and collects data on motor vehicle fatalities among children as passengers, drivers, pedestrians 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, whether it be heatstroke from being left in vehicles, back- or run-overs or vehicles being accidentally put into gear.

Education campaigns aimed at parents and caregivers should communicate ensuring adequate supervision when children are playing in areas near parked motor vehicles; never leaving children alone in a motor vehicle, even when they are asleep or restrained; keeping motor vehicles locked in a garage or driveway; and keeping keys out of children's reach

FIREARM FATALITIES

In 2019, eight Missouri children died of unintentional firearm injuries.[1]

UNINTENTIONAL FIREARM FATALITIES BY AGE



FIREARM FATALITIES BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	1	0	0	White	3	3	4
Male	3	3	8	Black	1	0	4
	4	3	8		4	3	8

Three of the **eight** unintentional firearm deaths were toddlers who found handguns that were owned by their parents, and shot themselves. The other **five** were teens. **Two** of the teens died from handguns, **two** from hunting rifles and **one** unknown. **One** teen owned the gun which killed him, **one** was owned by another relative and in the other **three** cases the county failed to answer the question.

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, safety off and accessible to children.
- Unintentional firearm deaths 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 believe that the firearm(s) in the home are safe from their children. Even many younger children know where the gun is kept.
- Few children, age eight or younger, can reliably distinguish between real and toy guns, or fully understand the consequences of their actions.
- Many children who found and handled a gun, or pulled the trigger, reported having some previous type of firearm safety instruction.
- Toy guns must conform to marking requirements under the U.S. Department of Commerce regulation.

FIRE/BURN FATALITIES

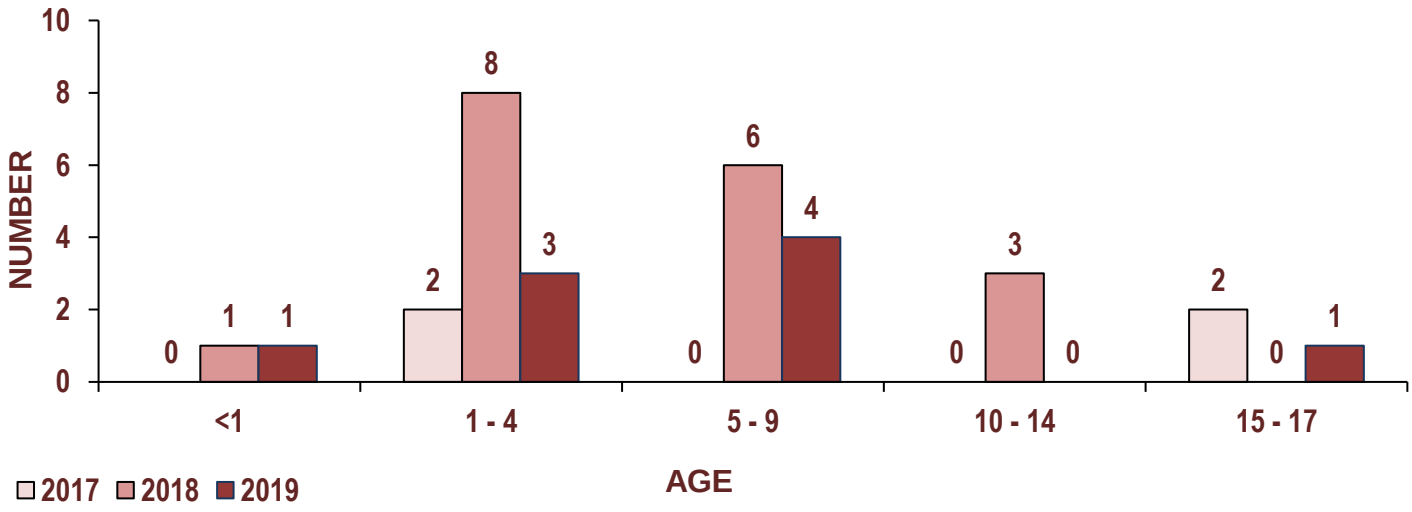
In 2019, there were nine unintentional fire/burn deaths from six fires.

Two out of three times, when a child is injured or dies from a residential fire, a smoke detector is either not working or not present.[5] Having a working smoke detector is very important in reducing the chance of dying in a fire by nearly half.

Fire/Burn Fatalities among Children

In 2019, there were **nine** child fire/burn deaths. Male children are generally at greater risk of death than females. **Five** of the nine fire/burn fatalities were male. **Four** of the fire/burn fatalities, were age four or younger. 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



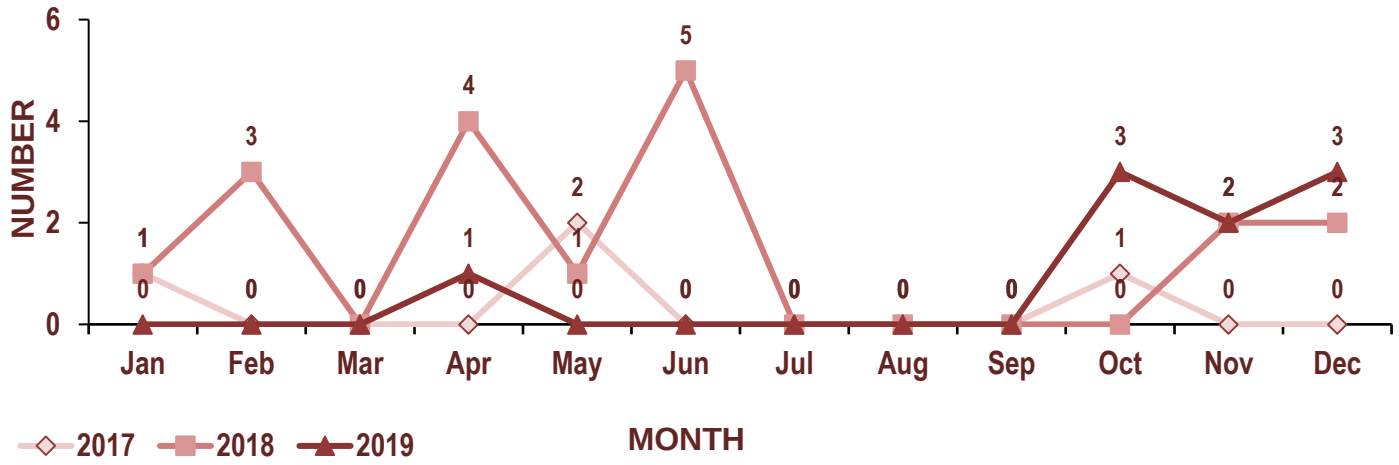
FIRE / BURN FATALITIES BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	1	5	4	White	3	14	3
Male	3	13	5	Black	1	4	6
	4	18	9		4	18	9

Children from low-income families are at greater risk for fire-related death and injury, due to factors such as a lack of working smoke detectors, substandard housing, use of alternative heating sources, and economic constraints on providing adequate adult supervision. Children living in rural areas have a dramatically higher risk of dying in a residential fire, primarily due to the types of winter heating used. Death rates in rural communities are more than twice the rates in large cities, and more than three times higher than rates in large towns and small cities. Though in 2019, only **two** of the **ten** fire deaths were in rural areas.

Of the fatal fires reviewed, **seven** were indicated to have smoke detectors and **none** were known to have been working. 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.

FIRE/BURN FATALITIES BY MONTH OF DEATH



SMOKE ALARM PRESENT	
Yes	7
Unknown	2

SMOKE ALARM IN WORKING ORDER	
Unknown	9

WAS STRUCTURE A RENTAL PROPERTY	
Yes	6
Unknown	3

FIRE STARTED BY PERSON	
Yes	3
No	2
Unknown	4

AGE OF PERSON STARTING FIRE	
4 years old	2 deaths (1 incident)
5 years old	1
NA	6

SOURCE OF FIRE	
Cigarette Lighter	3
Electrical Outlet	1
Unknown	5

TYPE OF BUILDING	
Single Home	3
Apartment	6

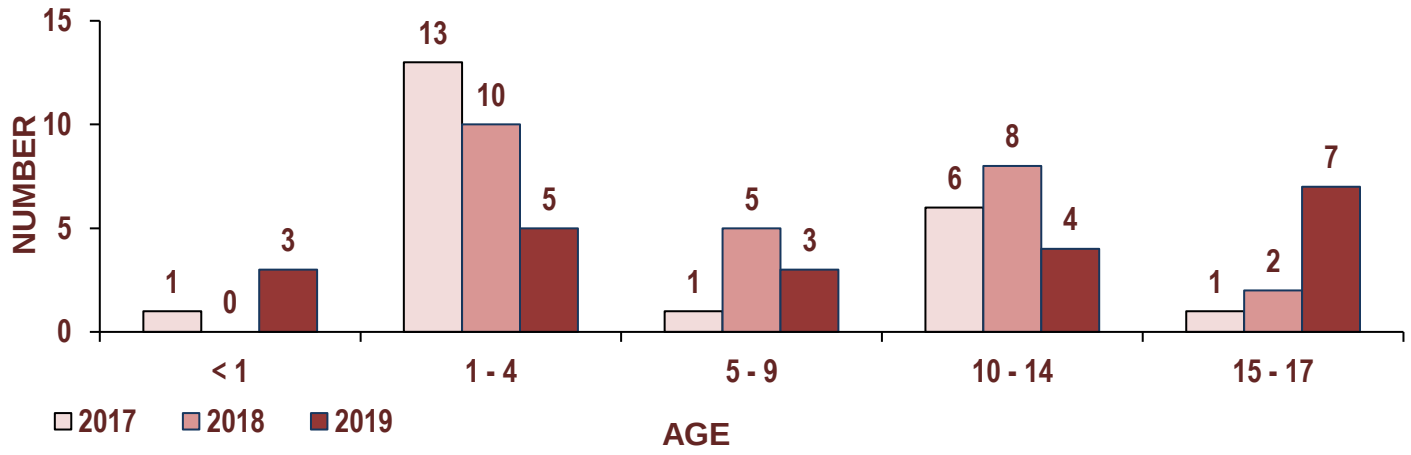
MULTIPLE FIRE DEATHS	
Yes	5
No	4

DROWNINGS

In 2019, 22 children drowned in Missouri.

According to the CDC, drowning kills more children 1-4 than anything else except birth defects. Of the **22** children who drowned, **eight** were age four and under, **seven** were ages five to 14, and **seven** were 15-17.

DROWNING DEATHS BY AGE

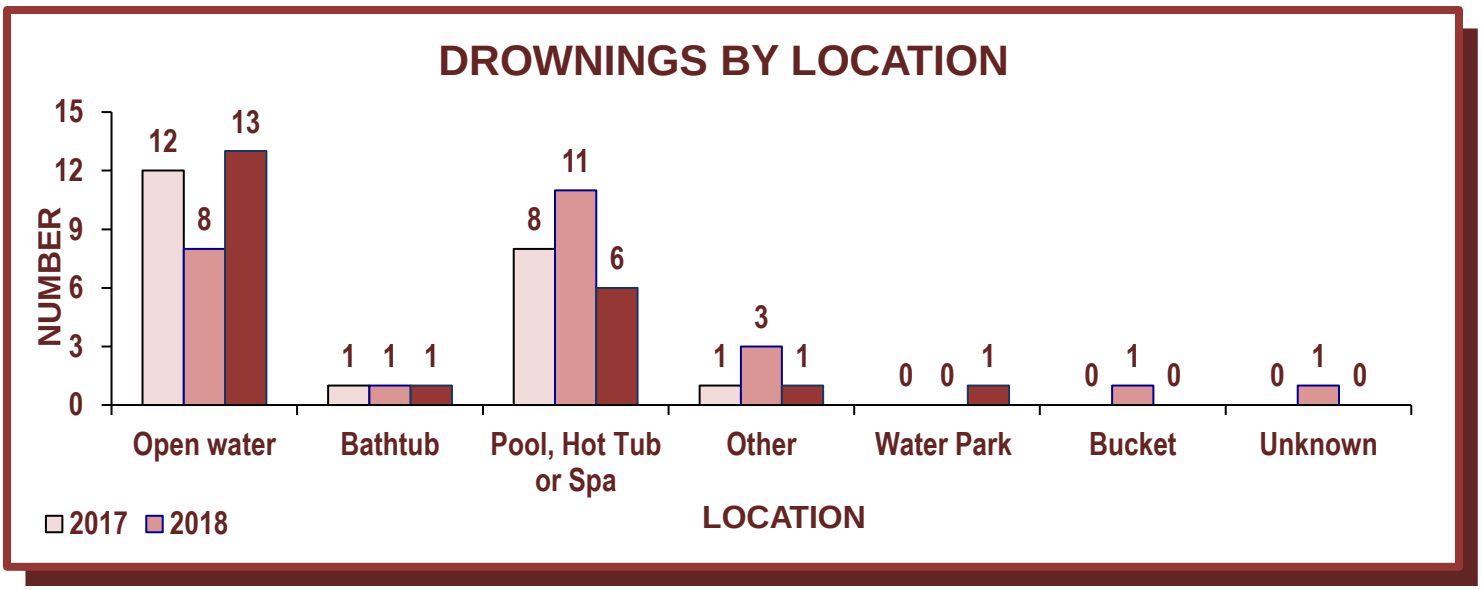


DROWNINGS BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	7	8	7	White	17	10	16
Male	15	17	15	Black	4	12	5
				Asian	0	1	2
				Multi-Racial	1	2	0
	22	25	22		22	25	22

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, 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 headfirst in a toilet or bucket.

Older children are more likely to drown in open water locations such as creeks, lakes and rivers. Of the **22** children who drowned, **six** occurred in swimming pools, hot tubs or spas, **13** occurred in open water locations such as lakes, rivers and ponds, **one** occurred in a bathtub, **one** at a water park, and **one** teen was swept away while swimming in a drainage ditch,



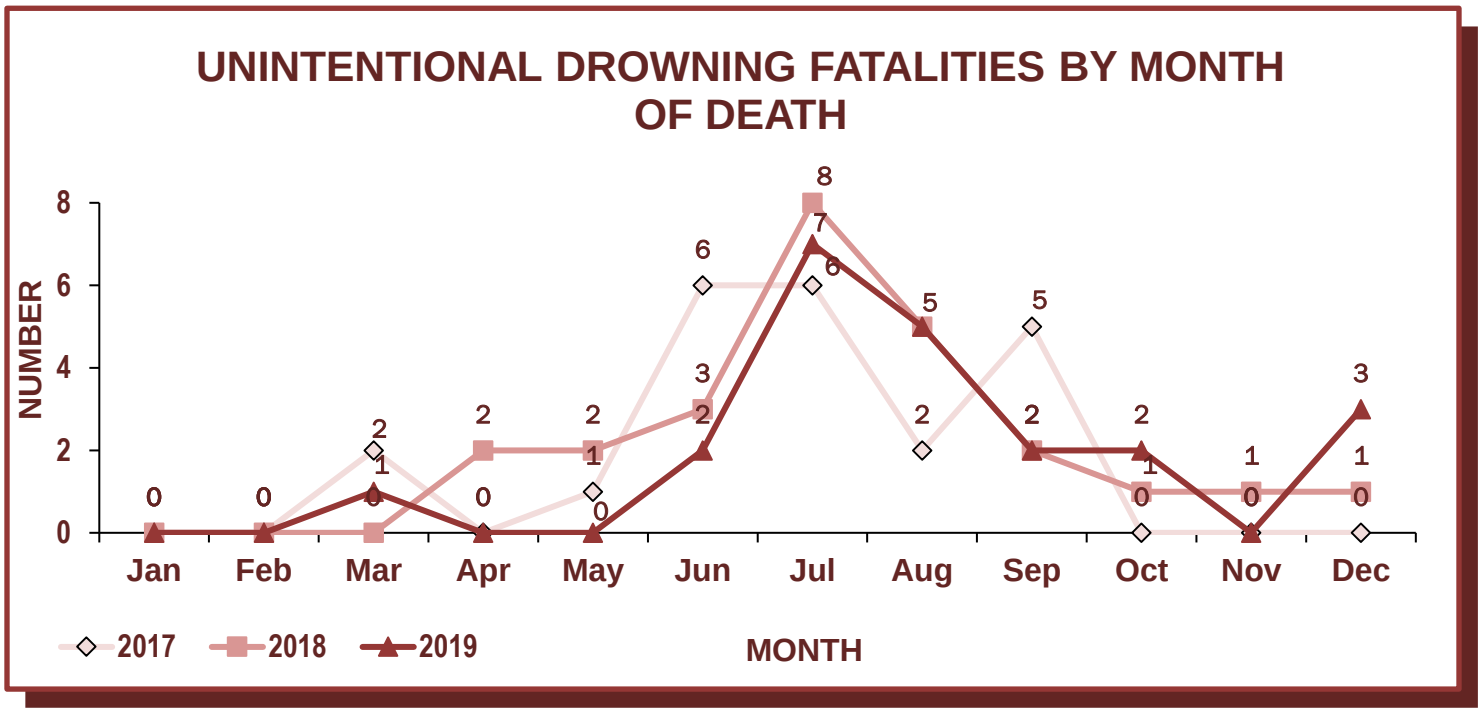
Drowning Safety

A 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 drowning, is not accurate. So, experts say just being in the area, reading a book or a tablet is not enough. Adult supervision needs 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 someone in the face can cause them to flounder and go under; which is why it is recommended that Coast Guard approved flotation devices such as life vests/jackets be worn when swimming and that children should never swim alone

Use of a snug-fitting, age appropriate Coast Guard approved personal flotation device (PFD) such as a life vest/jacket, is well-established as an effective means to prevent drowning deaths. Type IV PFDs such as ring life buoys or buoyant cushions are for emergency rescues only, and are not acceptable as PFDs for children, especially under the age of seven. Of the drownings investigated and reported by the Missouri State Highway Patrol and data collected from CFRP panels, **none** of the children who drowned was wearing a PFD.

With the abundance of water recreation areas within the state, warm weather months of May, June, July, and August are peak months for drowning in pools and open water.

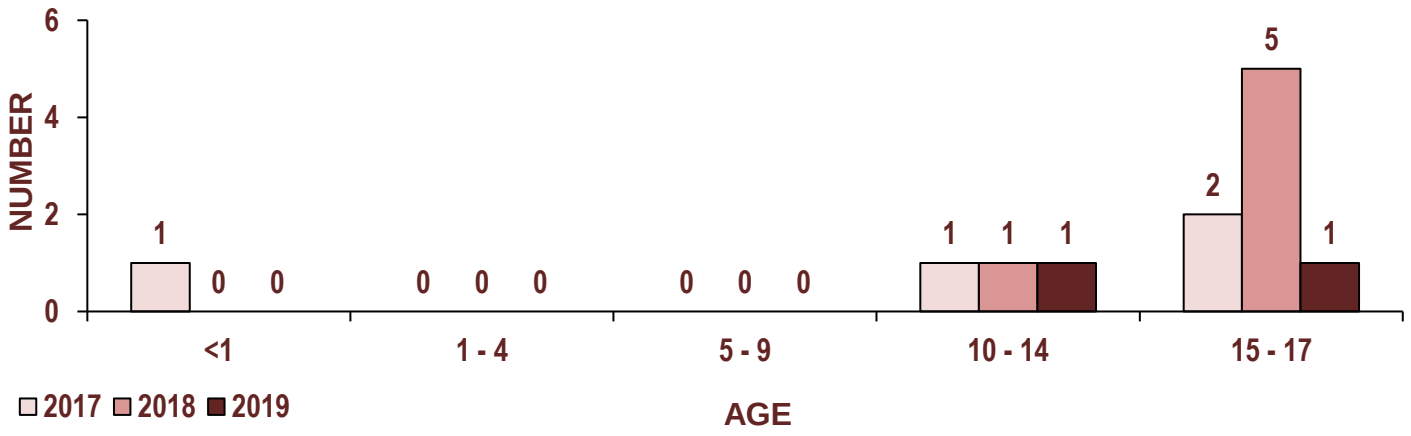

UNINTENTIONAL DROWNING FATALITIES BY MONTH OF DEATH
NUMBER
MONTH
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2017
2018
2019

POISONINGS

In 2019, two children died of unintentional poisoning.

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, carbon monoxide, button cell batteries and water.

UNINTENTIONAL POISONING FATALITIES BY AGE

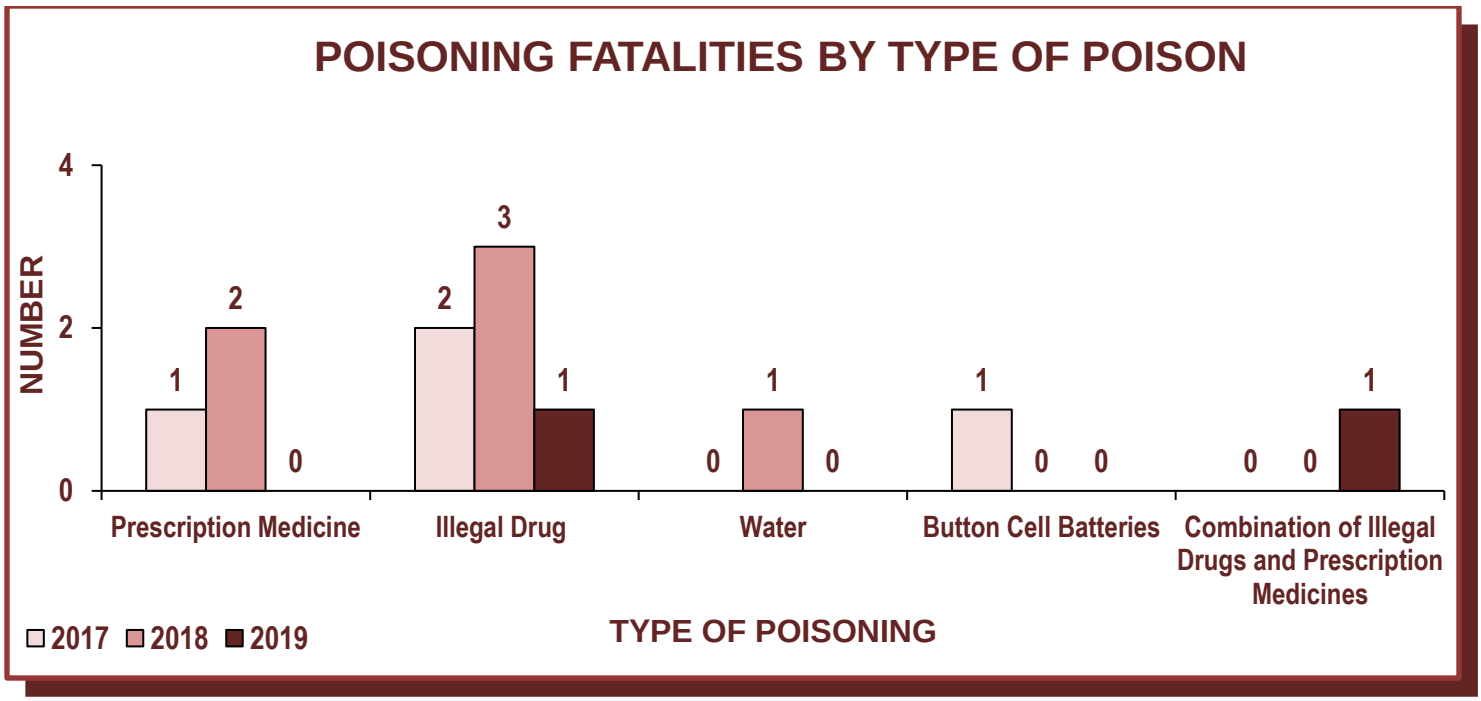


POISONING BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	3	3	0	White	1	6	1
Male	1	3	2	Black	3	0	0
				Multi-Racial	0	0	1
	4	6	2		4	6	2

Death rates from poisoning overall have decreased, but the percentage of deaths due to medications has increased. In children under age five, unintentional medication overdoses are caused by unsupervised accidental ingestion.

Two teens died of unintentional poisoning in 2019, **one** died from an illegal drug (Fentanyl), and **one** died from a combination of prescription medications and illegal drugs (Cocaine, Morphine, Fluoxetine and Hydroxyzine).



In the United States, Illicit drug use typically begins at junior high school age and increases through high school age.[6] According to the (MTF) almost half of all seniors (47%) Alcohol use statistics are also grim, the MFT states that nearly three fifths of 12th grade students (59%) have at least tried alcohol, and about three out of ten (29%) are current drinkers. Even among 8th graders, a quarter (25%) reported any alcohol use in their lifetime, and one in 13 (7.9%) is a current drinker.

Research tells us that the brain is still developing during adolescence, particularly in those areas that control decision making. As these are vulnerable years for children, parents and other adults need to be not only familiar with, but also watch out for warning signs of drug and/or alcohol use, so they can provide intervention that not only addresses addiction, but can also save the child's wellbeing and/or life.

A new poisoning issue for toddlers and young children are button cell batteries. Button cell batteries are small single celled batteries which range between 5 mm to 25 mm. The problem with these batteries is that they are easy to swallow without choking or coughing, which means unless someone sees the child swallowing the battery, parents or caregivers will have no idea what has happened.

Once swallowed, these batteries can cause devastating internal injuries. If the battery becomes stuck in the esophagus, it can burn through the tissue in a little as two hours. Even once the battery starts to burn, the symptoms such as coughing and feeling ill can easily be written off by parents or medical personnel as something else.

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 **https://missouripoisoncenter.org/,** or toll free at **1-800-222-1222.**

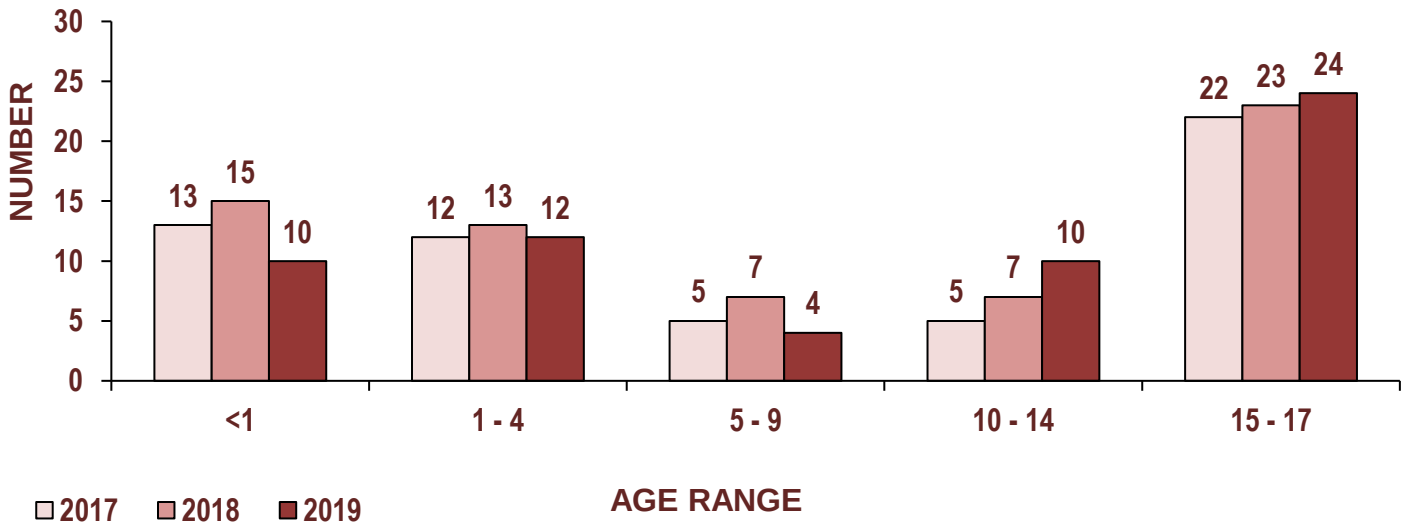
HOMICIDES

In 2019, homicide was listed as the death certificate manner of death for 60 Missouri children.

Non-Abuse 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 **41** such fatalities. Of those, the CFRP panels identified **five** child deaths in which parental negligence was a contributing factor.

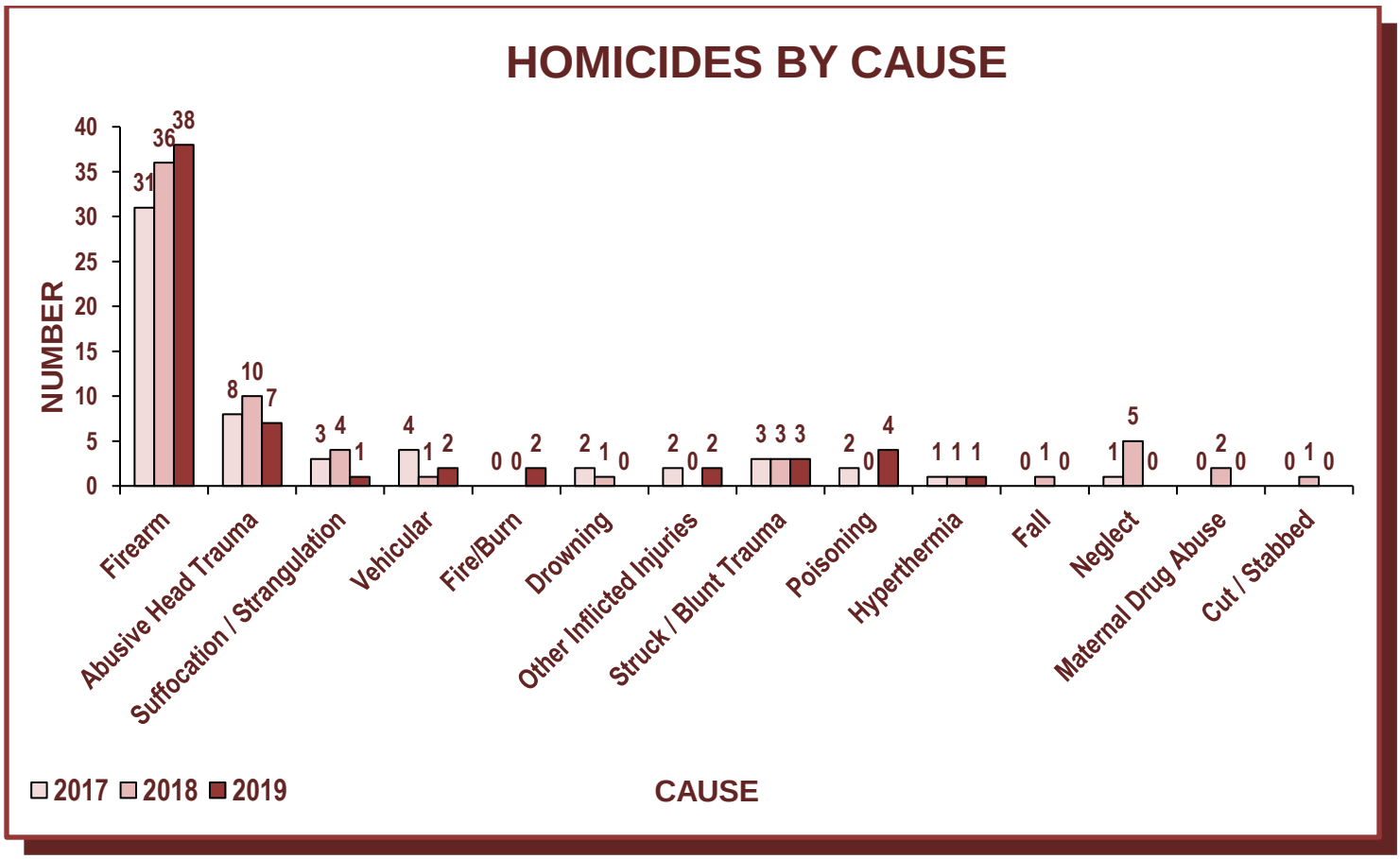
Fatal Child Abuse and Neglect: Child death resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker (as of 2018, this treatment is reported to CFRP as either lack of supervision or exposure to hazards), regardless of motive or intent. This includes, but is not limited to, children whose deaths were reported as homicide by death certificate. A total of **138** children were identified by CFRP panels, as victims of Fatal Child Abuse and/or Neglect; of those, **24** were reported by death certificate as Homicide, with **19** being considered "Child Abuse."

HOMICIDES BY AGE



HOMICIDES BY SEX AND RACE

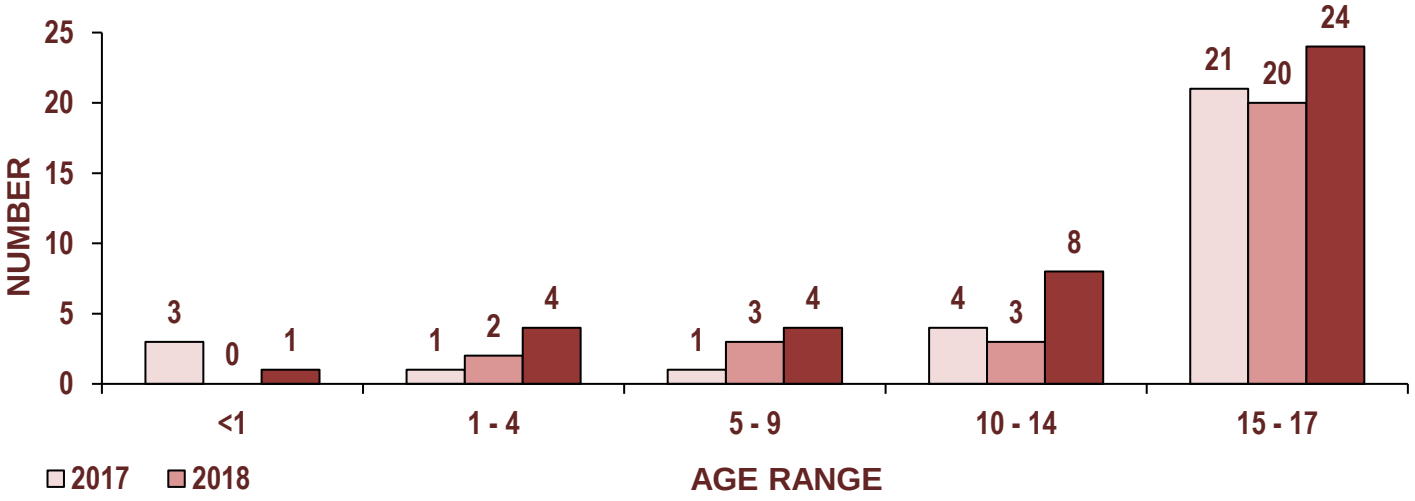
SEX	2017	2018	2019	RACE	2017	2018	2019
Female	17	23	19	White	22	25	14
Male	40	42	41	Black	30	35	41
				Multi-Racial	5	5	5
	57	65	60	RACE	57	65	60


HOMICIDES BY CAUSE
NUMBER
40
35
30
25
20
15
10
5
0
31 36 38
8 10 7
3 4 1
4 1 2
0 0 2
2 1 0
2 0 2
3 3 3
2 0 4
1 1 1
0 1 0
1 5 0
0 2 0
0 1 0
Firearm
Abusive Head Trauma
Suffocation / Strangulation
Vehicular
Fire/Burn
Drowning
Other Inflicted Injuries
Struck / Blunt Trauma
Poisoning
Hyperthermia
Fall
Neglect
Maternal Drug Abuse
Cut / Stabbed
2017 2018 2019
CAUSE

NON-ABUSE HOMICIDES

Of the 60 child homicides in Missouri in 2019, 41 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.

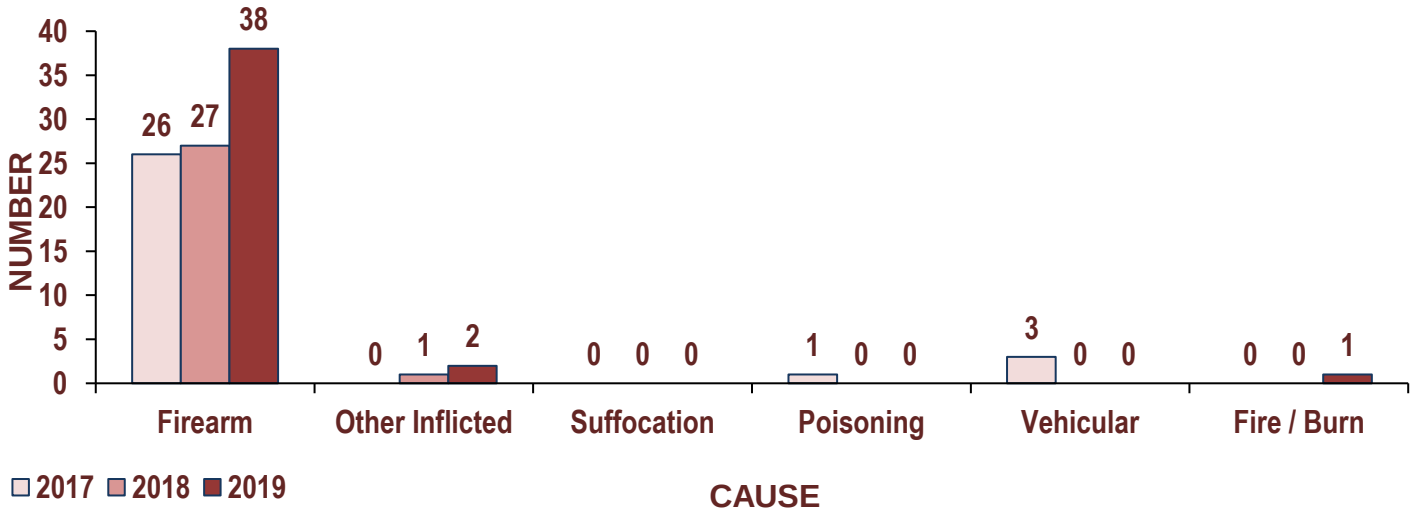
NON-ABUSE HOMICIDE DEATHS BY AGE



NON-ABUSE HOMICIDES BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	5	4	9	White	6	4	5
Male	25	24	32	Black	23	22	33
				Multi-Racial	1	2	3
	30	28	41		30	28	41

NON-ABUSE HOMICIDES BY CAUSE



Twenty-three deaths were related to youth violence. According to the CDC, Youth Violence is the intentional use of physical force or power to threaten or harm others by young people ages 10-24.[7]

Additionally, **seventeen** of these 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 understanding of factors that make some populations more vulnerable to victimization and perpetration. Risk factors contribute and increase the likelihood that a young person will engage in violence. However, risk factors are not direct causes of youth violence.

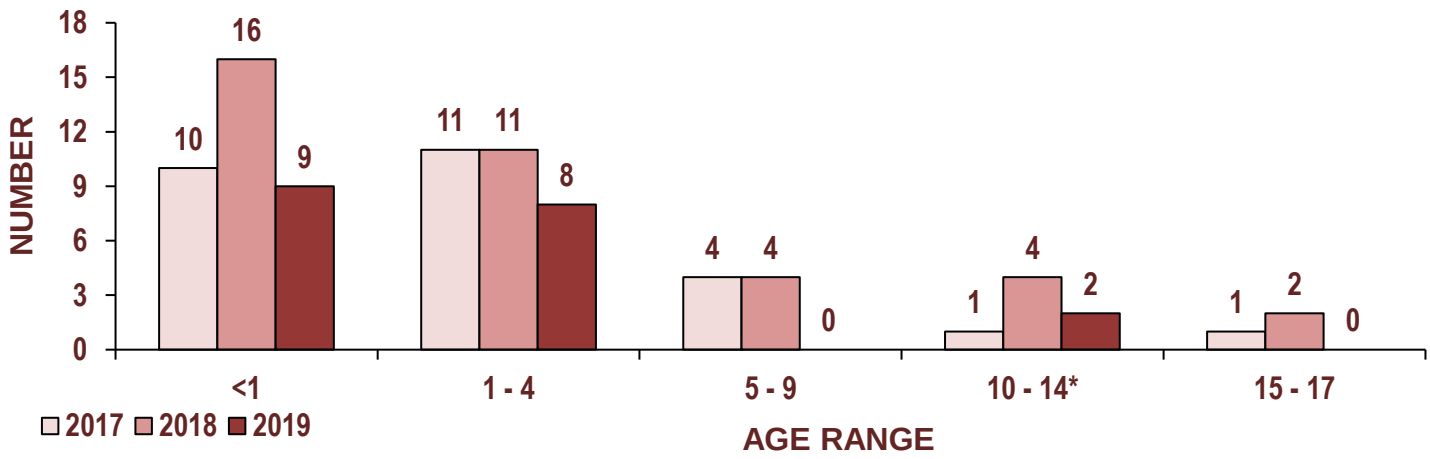
CHILD ABUSE HOMICIDES

In 2019, 19 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 vulnerable to die from abuse and neglect due to their dependency, small size, and inability to defend themselves.

In 2019, **17** of the **19** 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 those, **nine** were infants under the age of one year.

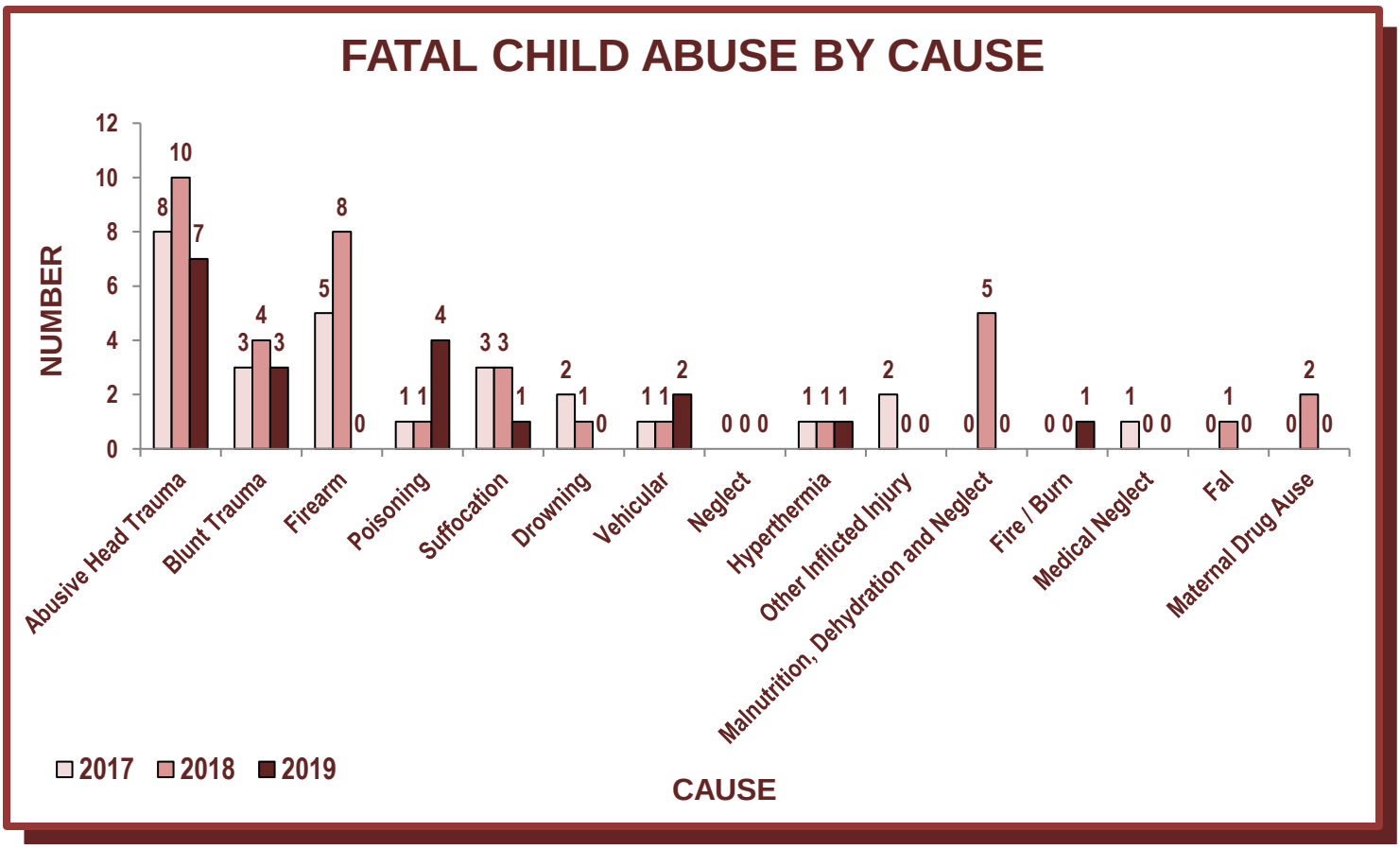
CHILD ABUSE FATALITIES BY AGE



* In 2018, two children died from child abuse who were injured as toddlers and have been on life support since, and in 2019 another child died who been shaken as a toddler and lived to be 14 years old.

FATAL CHILD ABUSE BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	12	20	10	White	16	22	9
Male	15	17	9	Black	7	12	8
				Multi-Racial	4	3	2
	27	37	19		27	37	19



Abusive Head Trauma

Of the **19** Missouri children who died from inflicted injury at the hand of a parent or caretaker in 2019, **seven** were victims of abusive head trauma, formerly known as Shaken Baby Syndrome.

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. 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.

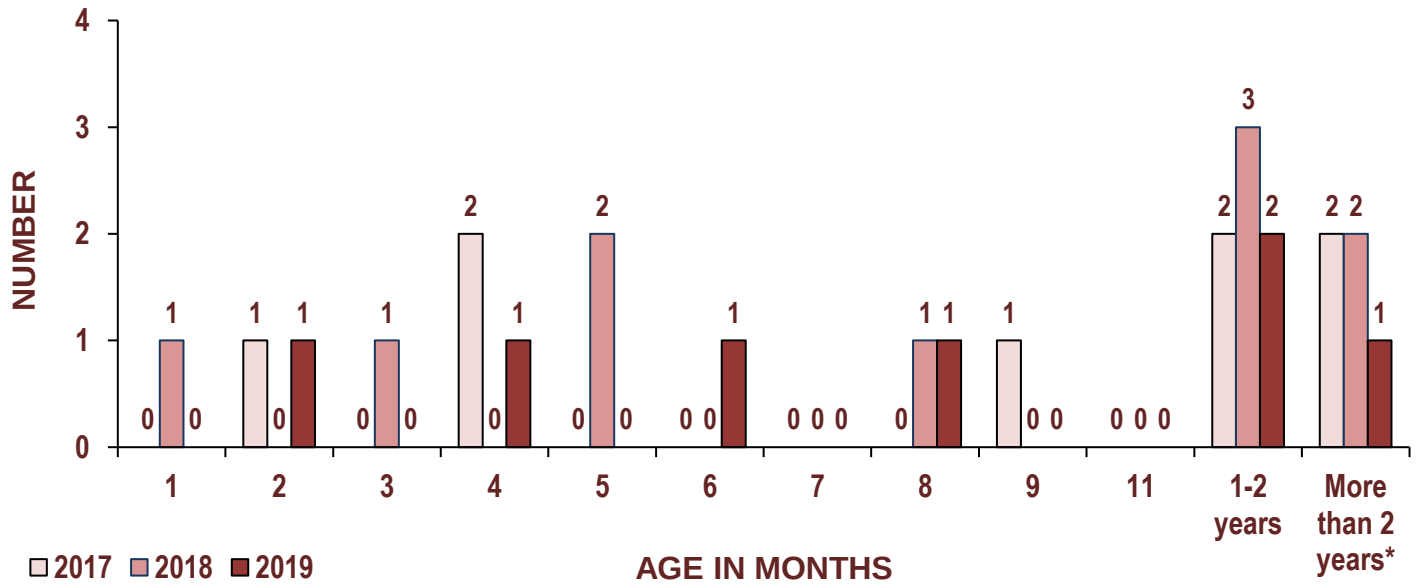
Pediatric abusive head trauma is defined as an injury to the skull or intracranial contents of an infant or young child under five years of age, due to inflicted blunt impact and/or violent shaking. The signs and symptoms that a child exhibits after having been subjected to this kind of trauma range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

Not all abusive head injuries are fatal. According to Mary Case, M.D., St. Louis County Medical Examiner and Forensic Pathologist, who has conducted significant research on the topic, up to 30 percent of children who suffer abusive head injuries die, 30-50 percent suffer significant cognitive or neurological deficits of which 30 percent 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. **One** of the children who died from Abusive Head Trauma was injured as a toddler in 2005 and died in 2019

ABUSIVE HEAD TRAUMA BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	4	7	3	White	5	6	3
Male	4	3	4	Black	1	4	3
				Multi-Racial	2	0	1
	8	10	7		8	10	7

ABUSIVE HEAD TRAUMA BY AGE



* In 2018, two children died from abusive head trauma who were injured as toddlers and have been on life support since. And in 2019 another child died who been shaken as a toddler and lived to be 14 years old.

In 2019, the average age of victims was eleven months. Only **four** of the **seven** children who died from abusive head trauma were under one year of age. The oldest child was two years of age when they were injured.

Young parents, unstable family conditions, low socioeconomic status, 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 found that the amount of crying in infants 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.[8] While some babies cry more than others, all infants go through this same pattern.

The triggering event in **two** of the abusive head trauma deaths was crying. This question was not answered in the other five cases.

Perpetrators of abusive head trauma fatalities in Missouri included **four** male partner of child's mother, **one** babysitter's husband, **one** mother and **one** male foster parent.

FATAL CHILD ABUSE AND NEGLECT

In 2019, 138* Missouri children were victims of Fatal Child Abuse and Neglect, of which, 24 were reported as homicide by death certificate.

* Starting in 2018, additional neglect questions were added to the online reporting system, making a higher percentage of deaths fall under this category than in prior years.

Child fatalities are the most tragic consequences of child abuse and neglect. It is well documented that child abuse and neglect fatalities have been under-reported, both nationally and in Missouri. Properly organized and functioning child fatality review systems have improved the accuracy of child death reporting.

There are three entities within Missouri's 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 CFRP. 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 CFRP 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 to serve as legal documentation that a specific individual has died, but not as legal proof of the cause of death. It also provides information for mortality statistics that may be used to assess the state's heath, 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 an inadequate single source for identification of child abuse and neglect deaths, due to 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, and 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 Department of Social Services - Children's Division is the hub of Missouri's child protection community. The Children's Division provides a multi-response system for addressing each report of child abuse and neglect received by the Child Abuse/Neglect Hotline Unit (CANHU). Its responsibilities are limited to reports that meet the legal definition of child abuse and neglect, stipulated in RSMo. 210.110, for children under the age of 18, for whom the perpetrator has care, custody and control.

Since 2000, all child deaths are to be reported to the CANHU and, by statute, are specifically mandated 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. Children's Division is also responsible for protecting any other children in the household, including removal by order of the court, if applicable, until the investigation is complete, and their safety can be assured. The CFRP is also immediately notified by the Children's Division Central Registry Unit of all reported fatalities.

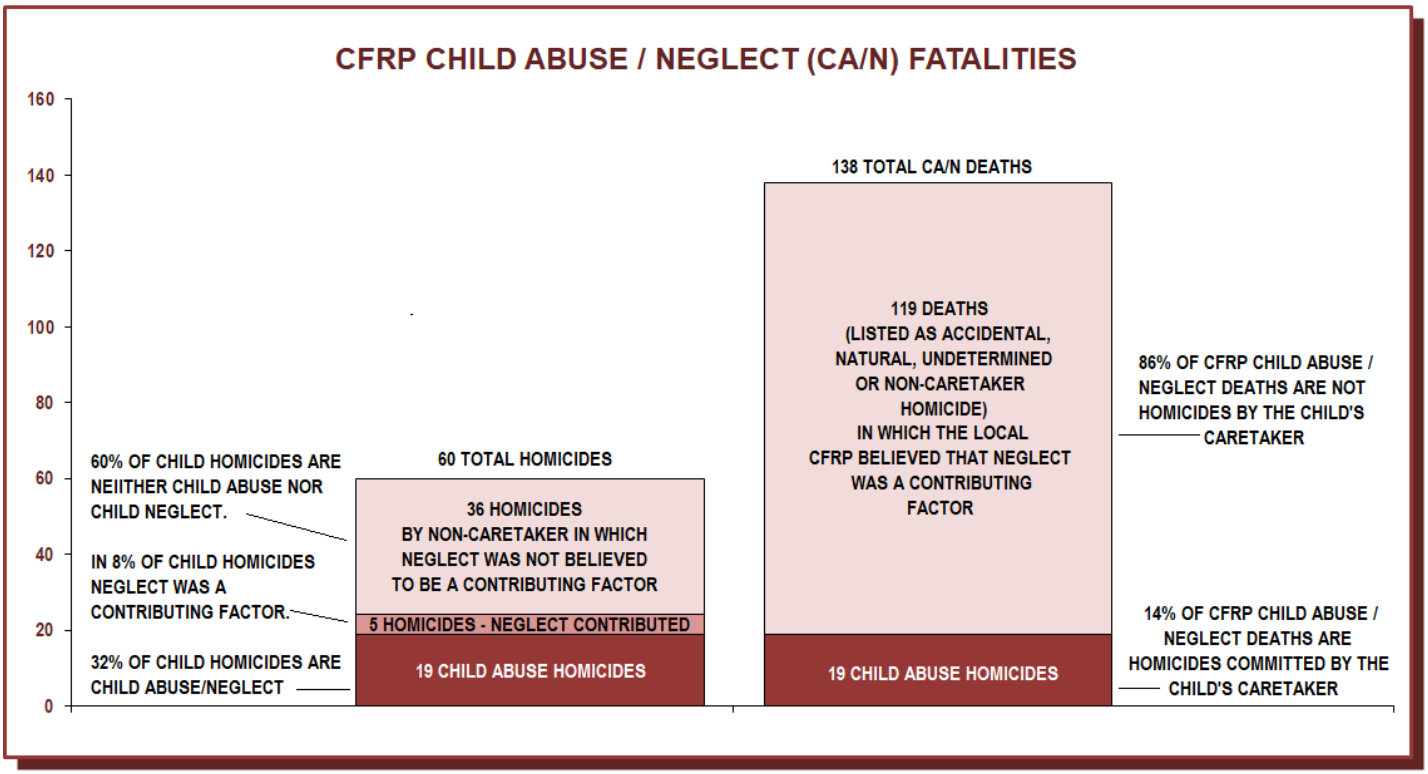
Investigations are classified as *preponderance of evidence child abuse and neglect*, when there is sufficient evidence that a child was abused or neglected, or when the finding is court-adjudicated. An example would be an unsupervised toddler who was run over in the driveway of her home. That death would be included as a pedestrian fatality in this CFRP Annual Report, with Inadequate Care as a contributing factor. In incidents, 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.

Missouri Child Fatality Review Program: Fatal Child Abuse, Neglect and Exposure to Hazards

Over the years, research discovered that many fatal child injury cases were inadequately investigated, as many children were not only dying from common household hazards due to inadequate supervision, but also from undetected fatal abuse and neglect misclassified as natural deaths, accidents, or suicides. Additionally, information necessary for a thorough investigation of a child death was distributed among agencies, which could not share records.

In 1991, Missouri initiated a comprehensive, statewide CFRP which has resulted in better investigations, more timely communication, improved coordination of provision of services and prevention efforts, 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, if anyone, may be responsible.

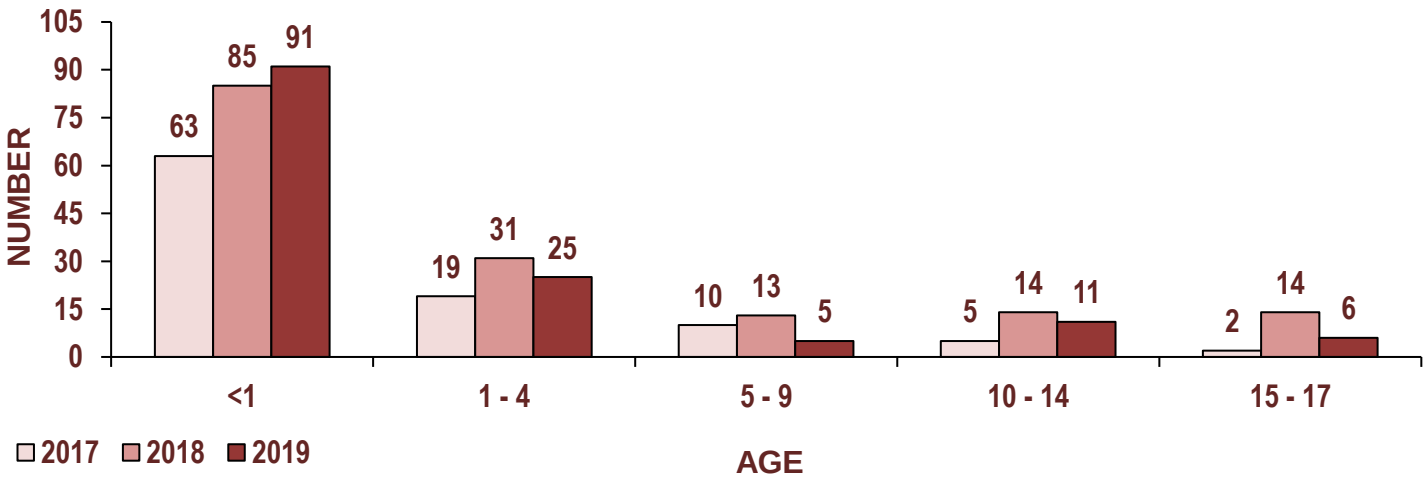
The CFRP defines fatal abuse and neglect as child deaths resulting directly from inflicted physical injury and/or grossly negligent treatment and exposure to hazards by a parent or caretaker, regardless of motive or intent. This number includes, but is no longer limited to, children whose deaths were reported as homicide by death certificate; their death certificate *manner of death* may include natural, accident, or undetermined.



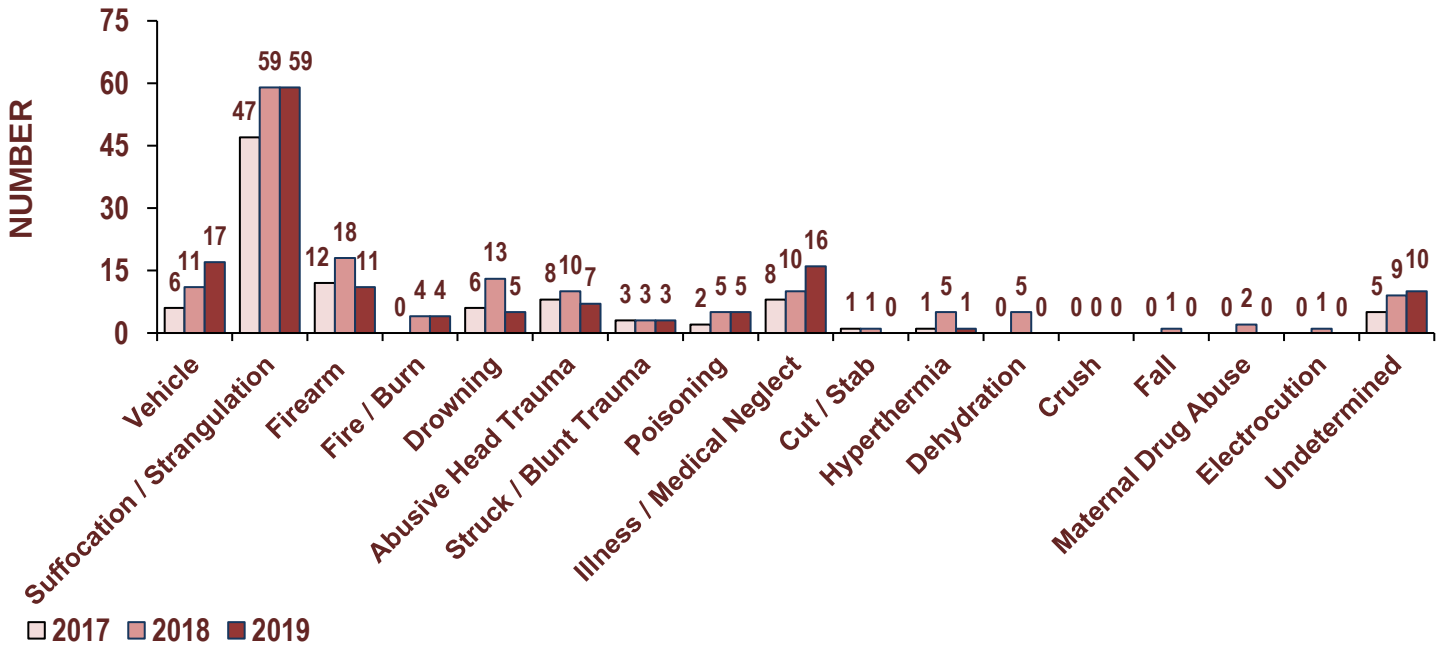
CHILD ABUSE AND NEGLECT FATALITIES BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	40	72	58	White	35	56	74
Male	59	85	80	Black	28	36	47
				Asian	0	0	2
				Multi-Racial	5	7	15
	99	157	138		68	99	138

CHILD ABUSE AND NEGLECT FATALITIES BY AGE



CHILD ABUSE AND NEGLECT DEATHS BY CAUSE



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; i.e., when infants and toddlers drown in bathtubs and swimming pools, or young children dart in front of moving vehicles. Parents and others often underestimate the degree of supervision required for young children.

Negligent treatment of a child is an act of omission, which can be fatal when due to gross inadequate physical protection; or 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, emotional, medical, mental,* and *educational*. There are subsets and variations in severity that often include *severe, near- 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 or neglectful due to factors such as ignorance, depression, overwhelming stress, or inadequate support.

Gross negligent treatment by a parent or caretaker generally involves failure to protect from harm and withholding or failing to provide supervision, 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 fatalities 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; i.e., a child less than one year old left unattended in a bathtub with water running; parental gang or drug activity; or small children unrestrained while riding in a vehicle driven by an intoxicated parent.

Medical neglect 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; i.e., 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 Gross Negligent Treatment had contributed to the death of the child. CFRP panels found that Gross Negligent Treatment contributed to the deaths of **138** Missouri children. Of those, **24** were designated as Homicide by death certificate – **19** were discussed in **Child Abuse Homicides** and **five** are included in the **Non-Abuse Homicides** section. For data purposes, all fatal child neglect deaths are included in the appropriate data section, **Natural Causes**, **Unintentional Injury**, **Homicide** or **Suicide**.

NEGLECT FATALITIES BY CAUSE OF DEATH AND MANNER OF NEGLECT				
Total Child Fatalities	Cause	*Gross Negligent Treatment that Contributed to the Fatality		
		Child neglect	Poor / Absent Supervision	Exposure to Hazards
5	Drowning	0	4	1
11	Firearm	2	6	3
16	Illness / Natural	7	1	8
1	Poisoning	0	1	0
58	Suffocation / Strangulation	0	7	51
10	Undetermined	0	1	9
15	Vehicular	1	5	9
3	Fire / Burn	0	3	0
Total Child Neglect Deaths = 119		10	28	81

On the National Database, counties are asked to break down the type of neglect the child was exposed to into one of three categories.

- **Child neglect**: This is where the parent or guardian fails to provide adequate care to a child. This category covers such things as failure to provide medical care, allowing the child to run in gangs or be active in drug sales, or failure to use a car seat that had been provided.

- **Poor / Absent Supervision:** This is where a parent or guardian fails to watch a child and keep them out of harm's way. This category includes not watching a small child around water, letting kids get play with guns, not making sure the supervisor has a child's medications, allowing kids to get a hold of drugs, not ensuring kids are kept away from items they can smother in or strangle on, allowing young kids to use ATV's unsupervised, or leaving matches or lighters around where small children may find and play with them.

- **Exposure to hazards:** This is where a parent or guardian fails to take care of hazardous situations, which in turn leads to a child's death. This covers such things as owning a pool with no fences or barriers, having loaded handguns where small children can find them, taking drugs while pregnant, placing infants in unsafe sleep situations, failure to restrain in a vehicle, drinking and driving while a child is in the car, or driving into water covering the road.

SUICIDES

In 2019, 39 Missouri children died from suicide.

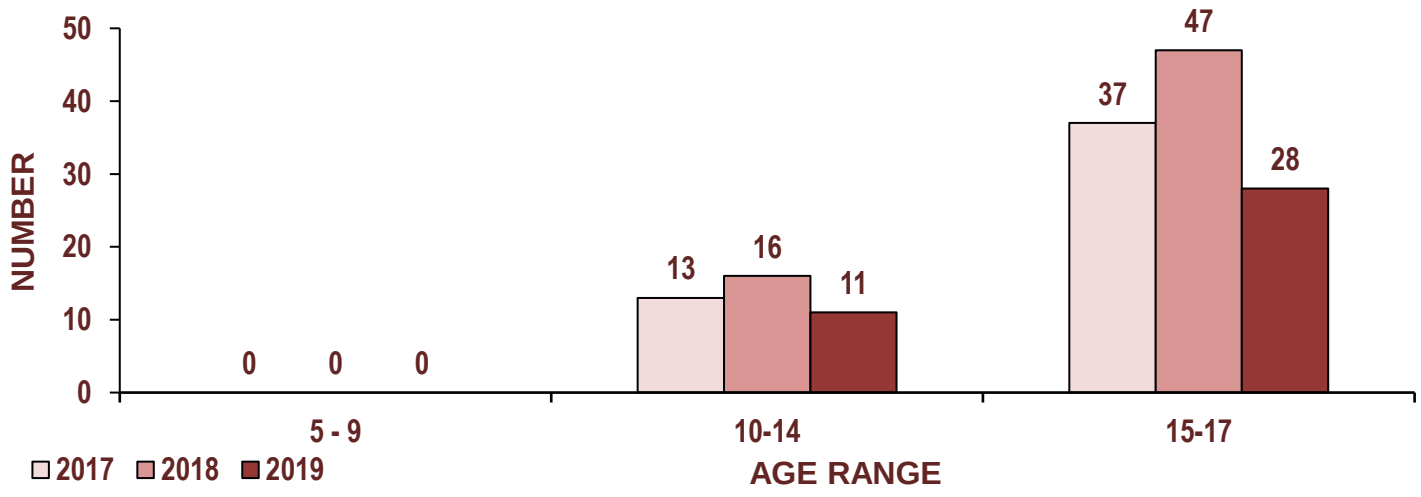
- Thirty-eight percent of the children who died from suicide had a known history of maltreatment as a victim.
- Forty-one percent of the children who completed suicide were reported have had a history of mental health services or medication.
- Fifty-one percent of child suicide victims had a recent personal crisis.
- Thirty-three percent of the children who completed suicide were receiving Medicaid.

Note: the local panels reviewed only 36 of the 39 Missouri child suicide deaths.

According to Missouri Department of Mental Health, for over a decade the suicide rate in Missouri has been higher than the national rate.[9] In 2018, Missouri's suicide rate was up to 19.5 per 100,000, which is significantly higher, when compared to the national 2018 rate of 14.2 per 100,000. Suicide was the tenth leading cause of death overall in the United States, but it was the second leading cause of death in persons 10-34. In 2019, **39** children died of self-inflicted injuries; **28** were ages 15-17; and the remaining **11** were children ages 10-14.

The 2019 Youth Risk Behavioral Survey (YRBS) found that 17.4 percent of all Missouri high school students reported they seriously considered suicide. It also stated that 13.8 percent of all students actually made a suicide plan. Many more students attempt suicide than those that succeed, 8.6 percent of the students surveyed stated they had attempted suicide. The suicide attempt rate for females is 25 percent higher than males, but more males succeed than females. Males took their lives at nearly double the rate of females, representing 72 percent of all child suicides in Missouri.

SUICIDES BY AGE

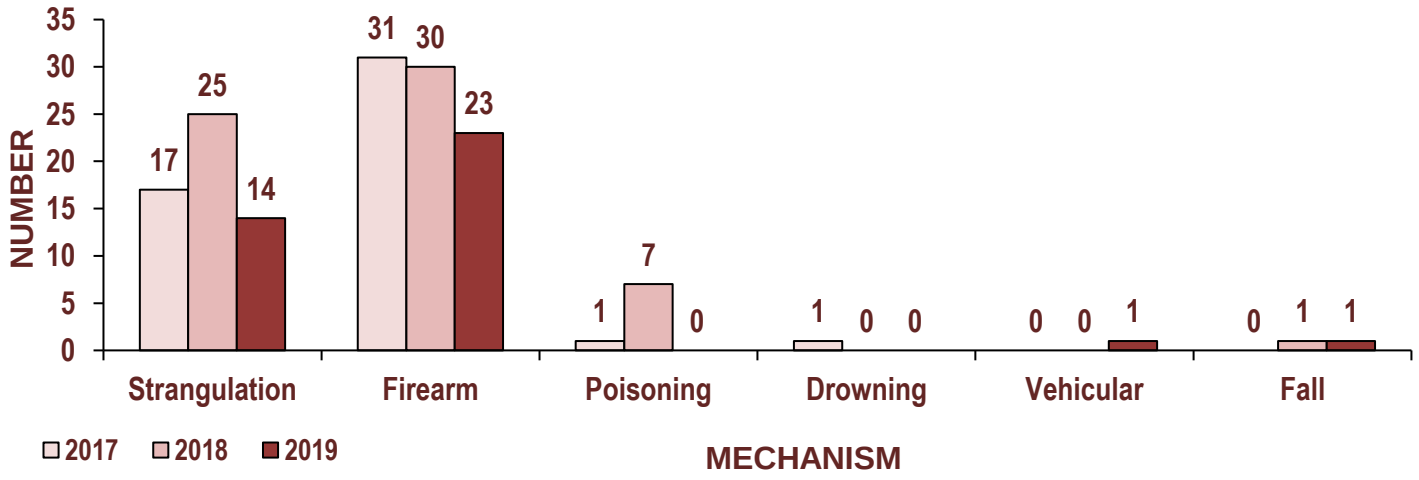


SUICIDES BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	14	17	11	White	44	53	32
Male	36	46	28	Black	5	5	4
				Asian	1	2	2
				Multiracial		3	1
	50	63	39		50	63	39

Firearms and strangulation are the most common mechanism of suicide among Missouri children.

SUICIDES BY MECHANISM

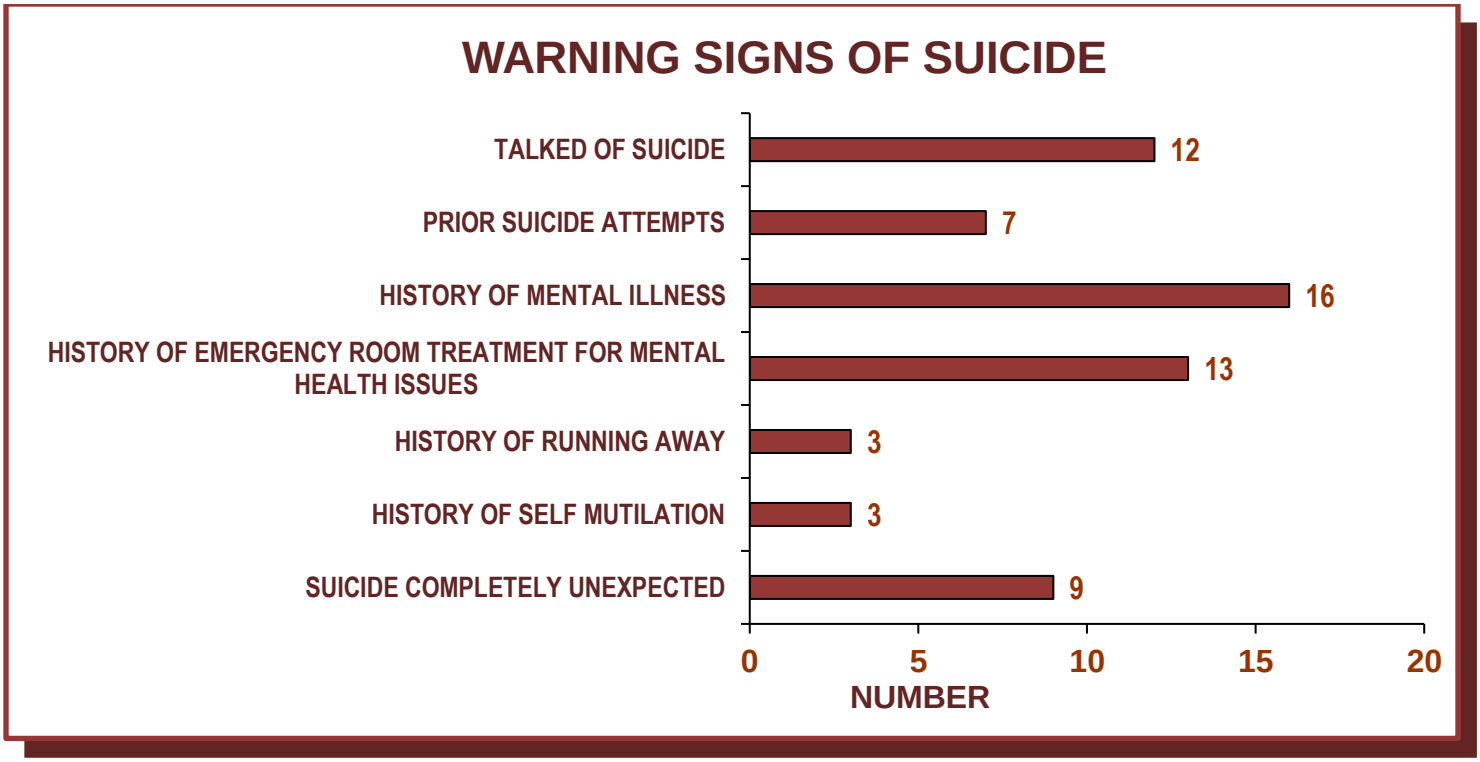


Suicide is many times brought about due to a personal crisis. **Sixteen** of the children, who completed suicide in 2019, had recent history of one or more personal crises.

RECENT HISTORY OF PERSONAL CRISES

family discord	5	school failure	2
argument with parents	5	death of peers, friends, or family members	2
argument with significant other	4	new school	1
breakup with significant other	2	negative consequences of online gaming	1
argument with friends	2	divorce	1
victim of bullying	2	problems with social media	1
history of death of loved one	2	school sports team disagreements	1

Suicide is rarely a spontaneous decision and most people give warning signs that they are contemplating taking their own lives. Of the **39** Missouri children who completed suicide in 2019, **15** were known to have displayed one or more warning signs. NOTE: In **11** child fatality cases, the "warning signs" questions were not answered.



Risk and Protective Factors for Youth Suicide

Suicide is a reaction to intense feelings of loneliness, worthlessness, hopelessness, or depression. Suicidal behaviors in youth 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 CDC 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.[10] 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:

Risk Factors

- Family history of suicide
- Family history of child maltreatment
- Previous suicide attempt(s)
- History of mental disorders, particularly clinical depression
- History of alcohol and substance abuse
- Feelings of hopelessness
- Impulsive or aggressive tendencies
- Cultural and religious beliefs (e.g., belief that suicide is noble resolution of a personal dilemma)
- Local epidemics of suicide
- Isolation, a feeling of being cut off from other people
- Barriers to accessing mental health treatment
- Loss (relational, social, work, or financial)
- Physical illness
- Easy access to lethal methods
- Unwillingness to seek help because of the stigma attached to mental health and substance abuse disorders or to suicidal thoughts

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 abuse disorders
- Easy access to a variety of clinical interventions and support for help seeking
- Family and community support (connectedness)
- Support from ongoing medical and mental health care relationships
- Skills in problem solving, conflict resolution, and nonviolent ways of handling disputes
- Cultural and religious beliefs that discourage suicide and support instincts for self-preservation

The Missouri Suicide Prevention Plan

The Missouri Suicide Prevention Plan – A Collaborative Effort – Bringing a National Dialogue to the State, 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: **https://www.sprc.org/sites/default/files/Missouri%20suicideplan.pdf**. The plan emphasizes 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 is 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.

Youth Suicide Awareness and Prevention

The Missouri Department of Elementary and Secondary Education has developed a model policy for suicide awareness and prevention, utilizing a variety of organizations with expertise in youth and suicide prevention. The model policy includes resources that can be used for related training and professional development. Additional information can be found at **https://dese.mo.gov/sites/default/files/dese-youth-suicide-awareness-and-prevention-model-policy_03_18.pdf.**

UNDETERMINED MANNER: INJURY

In 2019, eight Missouri children died of injuries whose manner could not be determined.

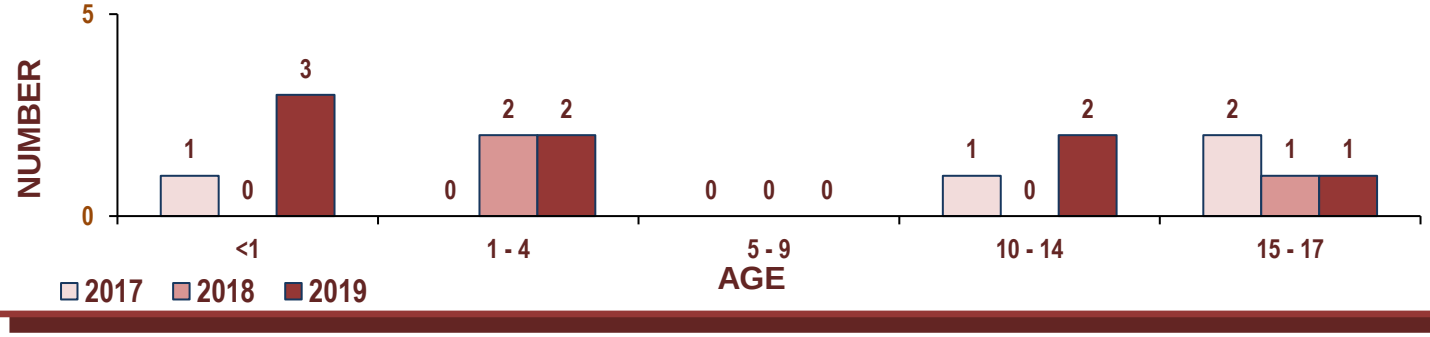
When a child dies, the cause of death is often evident, but the actual intent might not be readily determined. For example, when a teenager dies from suffocation, poisoning, pedestrian injury, or vehicle crash, the difference between the event being intentional or unintentional is sometimes impossible 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 the 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 2019, there were **eight** injury deaths of undetermined manner.

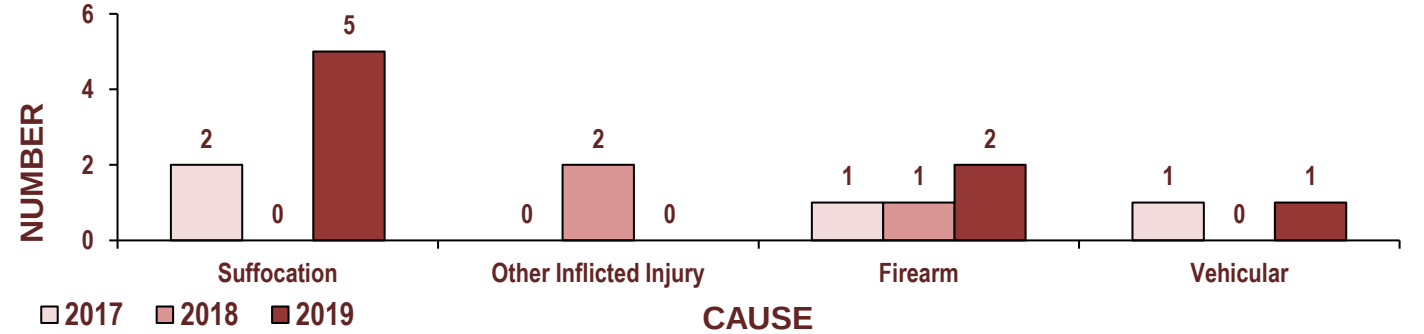
UNDETERMINED INJURY FATALITIES BY SEX AND RACE

	2017	2018	2019	RACE	2017	2018	2019
Female	1	1	3	White	4	1	3
Male	3	2	5	Black	0	2	4
				Multi-racial			1
	4	3	8		4	3	8

UNDETERMINED INJURY DEATHS BY AGE



CAUSE OF INJURY FATALITIES OF UNDETERMINED MANNER

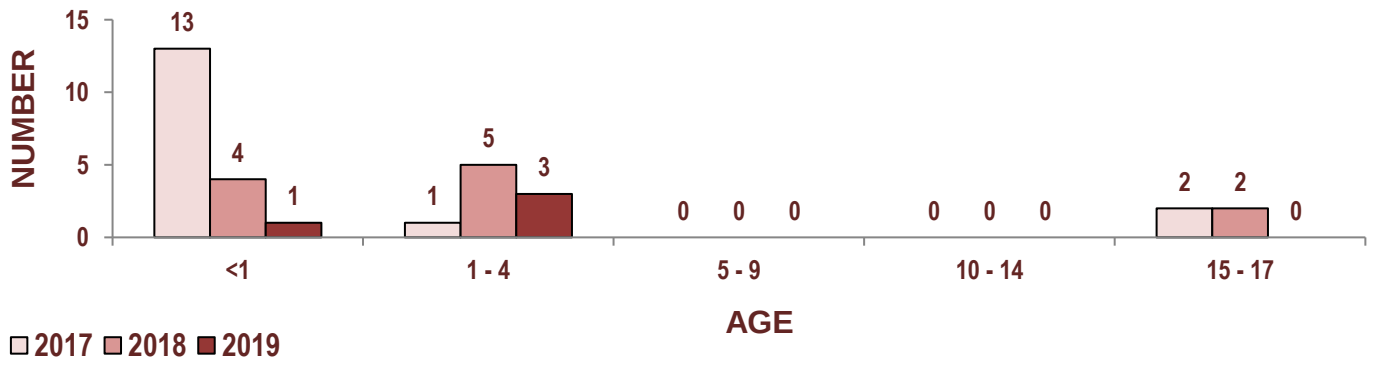


UNDETERMINED CAUSE AND MANNER

In 2019, there were four non-sleep-related Missouri children whose cause and manner of death could not be determined.

There were a total of 21 deaths whose cause **and** manner could not be determined in 2019. Seventeen of these deaths were discussed in the sleep-related death section. **Three** were between one to four years old, and the remaining **one** was an infant under one year of age. 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 one year of age that cannot be explained, as a thorough investigation was not conducted and cause of death could not be determined."

UNDETERMINED CAUSE AND MANNER FATALITIES BY AGE



UNDETERMINED CAUSE AND MANNER BY SEX AND RACE

SEX	2017	2018	2019	RACE	2017	2018	2019
Female	6	6	1	White	7	6	3
Male	10	5	3	Black	9	3	1
				Asian	0	1	0
				Multi-Racial	0	1	0
	16	11	4		16	11	4

PREVENTION FINDINGS: THE FINAL REPORT

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 focused on the environment and products used by the public, as well as individual behavior. As a result, unintentional injury-related death rates 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. RSMo 210.192 requires CFRP panels to complete a Final Report, summarizing their findings in terms of prevention messages and community-based prevention initiatives. Unlike the details of the panel meeting itself, these messages and initiatives are open records that can be shared freely across the state to assist other counties in their prevention efforts.

A child's death can capture the attention of the community and create a sense of urgency and a window of opportunity to respond to the question, "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. 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.

Unsafe Sleep:

- The St. Francois County Panel recommended to broaden childcare trainings to include facilities that do not meet required regulations. They also intend to educate parents on the differences between regulated and unregulated facilities.

- Platte County CFR Panel supported continuing to provide education to parents on safe sleep practices and dangers of caring for children while impaired from alcohol or other substances.

- After recommendations from the Christian County panel, the county Probation and Parole will pass out safe sleep items to their clients. The prosecutor's office will also provide safe sleep information to the public during public events.

- The St. Louis County panel advocated adding information about the dangers of bottle propping to their safe-sleep training and handouts.

Unintentional Injury:

- Knox County decided to have law enforcement present a safety program to parents and children at the local school on how to properly operate UTV in a safe manner and discuss proper use of restraints and riding rules.

- The Lincoln County Panel recommended their county coordinate with the Safe Kids Coalition for resources that talk about agricultural death/accidents in a sensitive way. They also intend to borrow a farm safety curriculum from a neighboring county and have a community education day regarding farm equipment safety.

- The Knox County Panel recommends making hunter orange available at the local health department, and is offering county wide firearm safety courses.

- The Boone County Panel suggested the county have clearly defined policies and procedures for all schools to implement regarding bus loading/unloading, a designated parking area for law-enforcement, and signage at the school loading zones.

- The St. Louis City panel coordinated with a local group to provide free smoke detectors. A champion group was enacted in the housing complex to empower the residents to support one another with childcare and services to one another.

- The Franklin County panel recommended that the highway patrol do community water safety education in schools and in the community twice a year instead of just once in the spring.

- The Ralls County Panel endorsed and helped with the passing of a new local ordinance that pools may not have a ladder attached to them when unattended.

Child Abuse:

- The Clay County child fatality review panel advocated continuing to educate parents on the dangers of leaving children with an abusive boyfriend/girlfriend.

Suicides:

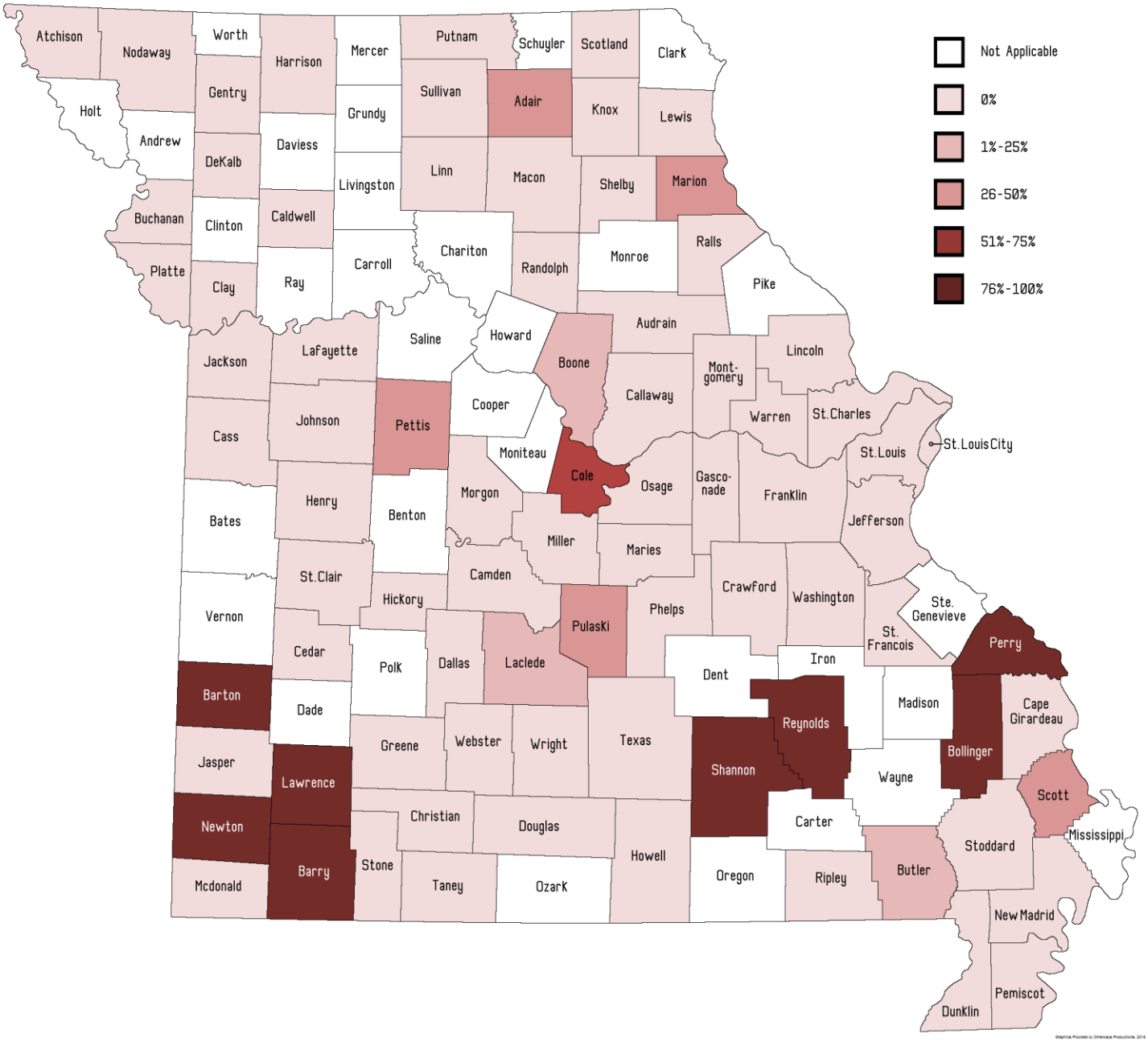
- The Christian County Panel noted an area which seems to have a high amount of suicides compared to the rest of the county. To combat this it recommended starting suicide prevention in middle school.

- In Caldwell County the local schools were doing suicide prevention education and counseling at the high school with students. The panel suggested adding parental education in regards to depression, suicide, etc.

UNREVIEWED INCIDENTS

Unfortunately, in 2019, some reviewable cases were not reviewed by the local county CFRP panels. Or if the death was reviewed, the information was not entered into the National Fatality Review Case Reporting System.

PERCENTAGE OF REVIEWABLE DEATHS NOT REVIEWED BY COUNTY OF EVENT IN 2019



MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY AGE, SEX AND RACE 2017-2019

	All Deaths			Reviewed Deaths			Injury Deaths		
Age	2017	2018	2019	2017	2018	2019	2017	2018	2019
0	571	548	536	129	130	147	96	88	85
1	31	44	33	17	30	15	14	25	10
2	29	21	23	19	15	17	18	13	13
3	24	16	16	13	8	10	11	5	12
4	17	12	19	11	6	13	9	5	11
5	11	14	11	5	7	7	2	7	5
6	12	7	13	3	4	7	3	4	4
7	7	8	15	3	5	11	3	4	9
8	14	15	11	7	5	7	6	3	5
9	12	6	6	5	4	3	6	5	2
10	21	17	11	11	8	6	12	8	4
11	14	9	15	7	6	10	4	6	9
12	22	7	7	11	6	4	8	4	5
13	18	18	12	13	12	10	13	8	8
14	18	21	33	9	13	30	8	15	26
15	32	39	26	22	27	22	21	24	21
16	44	54	43	35	38	34	41	46	34
17	58	54	51	42	39	39	44	46	38
TOTAL	955	910	881	362	363	392	319	316	301

	All Deaths			Reviewed Deaths			Injury Deaths		
Sex	2017	2018	2019	2017	2018	2019	2017	2018	2019
Female	401	394	355	128	135	144	109	115	103
Male	553	516	526	234	228	248	210	201	198
Unknown	1								
TOTAL	955	910	881	362	363	392	319	316	301

	All Deaths			Reviewed Deaths			Injury Deaths		
Race	2017	2018	2019	2017	2018	2019	2017	2018	2019
White	640	630	570	225	236	236	206	210	177
Black	275	227	266	129	108	135	106	88	105
Pacific Islander	3	0	2	2	0	0	1	0	0
American Indian	0	0	0	0	0	0	0	0	0
Asian	13	12	14	1	4	5	1	4	5
Multi-Racial	24	41	26	5	15	15	5	14	13
Other / Unknown	0	0	3			1			1
TOTAL	955	910	881	362	363	392	319	316	301

MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2017-2019

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Adair	8	2	3	0	0	1	3	1	2
Andrew	2	1	0	1	1	0	1	1	0
Atchison	0	0	0	0	0	0	0	0	0
Audrain	2	5	1	0	1	1	0	2	0
Barry	1	3	3	0	1	0	0	1	1
Barton	2	0	1	2	0	0	0	0	1
Bates	0	0	0	0	0	0	0	0	0
Benton	2	1	1	1	1	0	1	1	0
Bollinger	0	1	3	0	0	0	0	1	2
Boone	45	39	30	9	11	6	7	10	5
Buchanan	16	9	10	10	8	5	10	6	3
Butler	12	5	12	2	0	6	5	3	4
Caldwell	0	0	4	0	0	3	0	0	3
Callaway	2	3	5	2	2	5	1	1	2
Camden	1	12	1	1	9	1	0	7	0
Cape Girardeau	13	9	12	3	8	9	1	6	3
Carroll	0	1	0	0	0	0	0	0	0
Carter	1	0	1	0	0	0	0	0	0
Cass	7	8	5	6	7	4	5	5	2
Cedar	4	1	2	4	0	2	3	0	2
Chariton	0	1	0	0	1	0	0	1	0
Christian	7	5	8	6	4	8	6	3	4
Clark	2	3	0	2	1	0	2	1	0
Clay	17	27	26	9	10	15	6	7	12
Clinton	3	0	0	2	0	0	2	0	0
Cole	10	7	7	5	5	2	2	5	5
Cooper	3	1	0	2	0	0	2	0	0
Crawford	4	5	1	4	5	1	3	4	1
Dade	2	0	0	2	0	0	2	0	0
Dallas	3	3	3	1	2	3	2	2	2
Daviess	1	0	0	1	0	0	1	0	0
DeKalb	1	3	1	1	2	1	1	0	1
Dent	1	1	2	0	0	0	1	1	0
Douglas	0	3	4	0	3	4	0	2	3
Dunklin	5	7	2	0	6	2	3	5	2
Franklin	9	11	14	4	7	11	4	4	6
Gasconade	1	2	2	1	0	2	1	0	2
Gentry	0	3	3	0	1	1	0	1	1
Greene	51	40	51	13	10	14	11	10	8
Grundy	2	3	1	1	1	0	1	0	0
Harrison	0	0	2	0	0	1	0	0	1
Henry	3	1	3	3	1	2	0	1	2

MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2017-2019

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Hickory	0	3	1	0	0	1	0	2	0
Holt	0	0	0	0	0	0	0	0	0
Howard	1	1	0	0	1	6	0	1	0
Howell	7	5	7	3	2	0	4	1	2
Iron	1	1	1	1	1	0	1	1	0
Jackson	167	153	137	55	53	55	37	37	42
Jasper	13	15	16	3	4	12	9	11	9
Jefferson	16	17	16	10	10	12	8	9	7
Johnson	8	4	3	2	2	3	3	2	2
Knox	0	2	2	0	2	2	0	2	2
Laclede	1	8	10	1	6	5	0	7	4
Lafayette	4	0	1	4	0	1	2	0	1
Lawrence	4	6	3	0	0	0	4	1	2
Lewis	2	2	1	2	2	1	2	2	1
Lincoln	1	2	8	1	2	5	1	1	4
Linn	1	6	1	1	1	1	1	4	0
Livingston	1	1	0	1	0	0	1	1	0
McDonald	2	0	4	0	0	3	2	0	3
Macon	2	1	4	2	0	2	1	0	1
Madison	1	0	0	1	0	0	0	0	0
Maries	1	0	2	1	0	1	1	0	1
Marion	1	2	4	0	0	1	0	1	1
Mercer	0	0	0	0	0	0	0	0	0
Miller	1	2	7	0	1	5	1	1	5
Mississippi	2	5	0	2	2	0	2	2	0
Moniteau	4	2	2	2	2	2	4	2	1
Monroe	0	0	0	0	0	0	0	0	0
Montgomery	0	0	2	0	0	1	0	0	1
Morgan	1	0	4	0	0	1	0	0	0
New Madrid	0	1	1	0	1	1	0	0	1
Newton	17	12	8	9	5	0	9	2	1
Nodaway	3	0	1	0	0	1	1	0	1
Oregon	0	0	1	0	0	0	0	0	0
Osage	0	2	1	0	2	1	0	2	0
Ozark	2	1	0	2	1	0	2	1	0
Pemiscot	3	2	3	3	2	3	2	2	3
Perry	1	1	2	0	0	0	1	1	1
Pettis	6	2	4	4	1	1	4	1	1
Phelps	2	6	4	2	5	2	2	4	2

MISSOURI INCIDENT CHILD FATALITIES (AGE LESS THAN 18) BY COUNTY 2017-2019

County of Event	All Deaths			Reviewed Deaths			Injury Deaths		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Pike	1	2	0	1	2	0	0	0	0
Platte	4	7	16	3	4	10	3	3	8
Polk	1	8	1	0	2	0	1	6	0
Pulaski	3	4	5	1	3	1	2	3	2
Putnam	2	1	1	2	1	1	2	0	1
Ralls	0	0	3	0	0	3	0	0	3
Randolph	5	1	2	2	0	2	3	1	1
Ray	2	1	0	2	0	0	1	0	0
Reynolds	1	2	2	0	2	0	1	2	2
Ripley	6	1	3	5	1	3	4	1	1
St. Charles	25	33	21	19	19	10	14	14	6
St. Clair	0	0	2	0	0	2	0	0	2
St. Francois	3	7	4	2	6	3	1	3	3
St. Louis County	152	164	138	44	51	55	37	40	44
Ste. Genevieve	1	1	1	0	1	0	0	1	0
Saline	3	1	1	2	1	0	1	1	0
Schuyler	0	0	0	0	0	0	0	0	0
Scotland	0	0	1	0	0	1	0	0	0
Scott	2	4	3	2	2	1	1	3	2
Shannon	1	0	1	1	0	1	1	0	1
Shelby	1	0	1	1	0	0	0	0	1
Stoddard	1	0	1	1	0	1	1	0	1
Stone	2	4	4	2	4	4	0	1	3
Sullivan	0	1	1	0	0	1	0	0	1
Taney	10	8	6	7	5	3	6	7	1
Texas	1	3	2	0	2	1	0	2	1
Vernon	2	4	0	2	3	0	1	3	0
Warren	1	0	5	0	0	5	0	0	4
Washington	2	4	3	2	4	2	1	3	1
Wayne	0	1	0	0	1	0	0	1	0
Webster	8	5	3	6	3	2	6	3	2
Worth	2	0	0	0	0	0	1	0	0
Wright	3	2	4	3	2	2	1	2	2
St. Louis City	191	150	161	42	28	39	38	23	29
STATE TOTAL	955	910	881	362	363	392	319	316	301

Citations

1. Field D, Boyle E, Draper E, et al. Towards reducing variations in infant mortality and morbidity: a population-based approach. Southampton (UK): NIHR Journals Library; 2016 Mar. (Programme Grants for Applied Research, No. 4.1.) Chapter 3, The Late And Moderately preterm Birth Study. Available from: https://www.ncbi.nlm.nih.gov/books/NBK349423/
2. Dance, A. (2020, June 02). Survival of the littlest: The long-term impacts of being born extremely early. Retrieved from https://www.nature.com/articles/d41586-020-01517-z
3. Teen Driving. (2020, October 19). Retrieved from https://www.nhtsa.gov/road-safety/teen-driving
4. Policy Impact: Seat Belts. (2011, January 03). Retrieved from https://www.cdc.gov/transportationsafety/seatbeltbrief/index.html
5. Consumer Product Safety Commission. *Smoke Alarms – Why, Where, and Which* (CPSC Pub. 559).
6. Miech, R. A., et. al. *MONITORING THE FUTURE NATIONAL SURVEY RESULTS ON DRUG USE, 1975–2019* (Vol. 1, Rep.).The University of Michigan Institute for Social Research.
7. Preventing Youth Violence |Violence Prevention|Injury Center|CDC. (2020, April 07). Retrieved from https://www.cdc.gov/violenceprevention/youthviolence/fastfact.html
8. Barr, M. What is the Period of PURPLE Crying? Retrieved from http://purplecrying.info/what-is-the-period-of-purple crying.php
9. Missouri Institute of Mental Health, & University of Missouri - St. Louis. *Suicide in Missouri: Where We Stand* (Vol. 1, Ser. 2015, Rep.).
10. Suicide Risk and Protective Factors|Suicide|Violence Prevention|Injury Center|CDC. (2019, September 03). Retrieved from https://www.cdc.gov/violenceprevention/suicide/riskprotectivefactors.html