

## MOTOR VEHICLE FATALITIES

There were 133 motor vehicle fatalities among Missouri children in 2006. Of those, 93 were reviewed by CFRP panels.

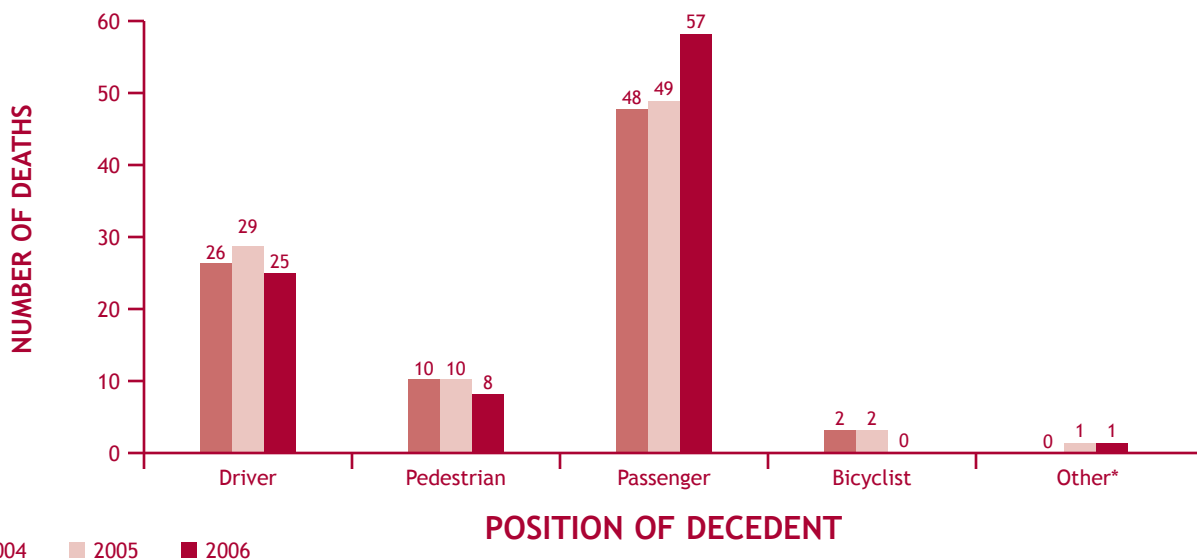
In the United States, motor vehicle crashes are the leading cause of injury death for children and adults and the second leading cause of injury death for children ages birth to one. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles,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

Of the **133** motor vehicle deaths among Missouri children in 2006, **107** were reported to the Child Fatality Review Program; **93** (90%) of those were reviewed by a local CFRP panel. Of those, **two** motor vehicle fatalities were determined to be Homicides, following the panel review, and are discussed in that section of this report.

**MOTOR VEHICLE FATALITIES BY SEX AND RACE**

SEX	2004	2005	2006	RACE	2004	2005	2006
FEMALE	51	43	41	WHITE	99	108	91
MALE	63	79	64	BLACK	13	13	12
OTHER	0	0	0	OTHER	2	1	2
	114	122	105		114	122	105

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



\*\*“Other”, in 2005, refers to a fetus in utero. The crash caused the mother to go into labor, resulting in premature delivery. In 2006, a child riding a skateboard was struck by a motor vehicle.

## MOTOR VEHICLE FATALITIES AS REPORTED ON CFRP DATA FORM 2

TYPE OF VEHICLE			
Car	56	All-Terrain Vehicle	5
Truck/RV/Van/SUV	19	Farm Tractor	1
Motorcycle	1	Not Applicable	8
Skateboard	1		

CONDITION OF ROAD	
Normal	62
Loose Gravel	10
Wet	7
Ice or Snow	1
Other	6
Unknown	5

RESTRAINT USED	
Present, Not Used	47
None in Vehicle	0
Used Correctly	14
Used Incorrectly	2
Unknown	12
Not Applicable	16

PRIMARY CAUSE OF ACCIDENT	
Speeding	26
Carelessness	14
Mechanical Failure	0
Weather Conditions	0
Driver Error	30
Other	11
Unknown	10

ALCOHOL AND/OR OTHER DRUG USE	
Decedent Impaired*	8
Driver of Decedents Vehicle Impaired	11
Driver of Other Vehicle Impaired	4
Not Applicable	55
Not Answered	13

\*NOTE: In five cases, the decedent was the driver of the vehicle.

HELMET USE	
Helmet Worn	2
Helmet Not Worn	6
Not Applicable	79
Not Answered	4

## DRIVER AND PASSENGER FATALITIES

Of the **91** reviewed motor vehicle deaths in Missouri in 2006, **82** (90%) involved drivers and passengers.

### Representative Cases:

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

A three-year-old was riding with his parents in a child safety seat that was not secured nor was the child secured by the harness of the child safety seat. The vehicle's rear seatbelt had been used to fasten the child and the seat into the vehicle. The driver crossed the center line and crashed. The child was found hanging from the car seat belt. He was pronounced dead at the scene.

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

A 15-year-old was driving a pickup truck at a high rate of speed, when he lost control of the vehicle, which left the road and overturned. The teen driver was ejected from the vehicle and died at the scene. His blood alcohol was .10.

The National Center for Injury Prevention and Control lists two factors as most significant in contributing to motor vehicle-related fatalities among children: (1) unrestrained children and (2) drunk drivers. Unrestrained children refers to infants and toddlers who are not riding in properly installed car seats and older children whose seatbelts are not fastened. The National Safe Kids Campaign reports that young children riding unrestrained are at twice the risk of death and injury as those riding restrained. Heightened public awareness of the importance of appropriate selection and proper installation of child safety seats, coupled with increases in the use of child restraint, have resulted in reduction in the rate of passenger fatalities among young children. However, much work needs to be done. In 2006, **35** of the child passenger fatalities in Missouri were known to be riding unrestrained. The most common reasons restrained children are killed are misuse of child safety seats and premature graduation to seatbelts.

Of the **91** reviewed motor vehicle fatalities, **23** involved either a victim or a driver who was impaired. In 2006, CFRP panels indicated that **eight** of these deaths involved a teen victim who was impaired; **five** of those were drivers of a vehicle that crashed, and the other **three** were drunken passengers. There were **11** deaths in which the driver of the victim's vehicle was impaired; **four** of those fatalities involved a teen riding with a driver who was impaired. The last **four** of these 23 deaths involved collisions with other vehicles driven by an impaired driver.

The highest fatality rates are found among teenage drivers. Teenagers are three to four times more likely to be involved in a crash than the driving population at large. According to the National Center for Injury Prevention and Control, the most significant risk factors among teenage drivers are inexperience, low rates of seatbelt use and alcohol. Inexperienced drivers lack the perception, judgment and decision-making skills that take practice to acquire.

Graduated licensing for teen drives must be combined with education for parents and teens about risks to teenage drivers, including the dangers of underage drinking, speeding, inattention and low seatbelt use. Seatbelts are known to reduce the risk of fatal motor vehicle injury by as much as 45%. In 2006, **55** (60%) of the reviewed motor vehicle fatalities among children in Missouri were teenagers age 15-17. Of those **38** (69%) were known to be unrestrained at the time of the crash; **24** were passengers and **14** were drivers.

## PEDESTRIAN FATALITIES

Of the **91** reviewed motor vehicle fatalities among Missouri children in 2006, **eight** were pedestrians; **three** of those were age four and under; **three** others were between the ages of five and nine.

### Representative Cases:

- **Young children require constant supervision.**

A six-year-old was crossing the street with two other young children, when she started running. She was struck by a passing vehicle.

A four-year-old was left to play in the back yard of his home while the father went to back his truck into the garage. The child entered the garage as the truck was backing in, was struck and run over by the rear wheel.

## PEDESTRIAN DEATHS AMONG CHILDREN

- Children are particularly vulnerable to pedestrian death, because they are exposed to traffic threats that exceed their cognitive, developmental, behavioral, physical and sensory abilities. This is exacerbated by the fact that parents overestimate their children's pedestrian skills. Children are impulsive and have difficulty judging speed, spatial relations and distance.
- Toddlers (ages one and two years) sustain the highest number of pedestrian injuries, primarily due to their small size and limited traffic experience. More than half of all pedestrian injuries involving toddlers occur when a vehicle is backing up. Young children are at increased risk of pedestrian death and injury in driveways and other relatively protected areas.
- Children, age five through nine, are at the greatest risk from pedestrian death and injury. Children, ages 14 and under, are more likely to suffer pedestrian injuries in residential areas with high traffic volume, a higher number of parked vehicles on the street, higher posted speed limits, few pedestrian-control devices and few alternative play areas.
- Practical, skills-based pedestrian safety training efforts have demonstrated improvements in children's traffic behavior. Environmental modifications are effective at reducing pedestrian-motor-vehicle related incidents. (*Safe Kids*)

## BICYCLE-RELATED FATALITIES

By definition, motor vehicle fatalities include bicycle-related injuries that occur when children are either struck by a motor vehicle or fall. Of the **91** reviewed motor vehicle fatalities among Missouri children in 2006, **none** were bicycle-related.

Bicycles are associated with more childhood injuries than any other consumer product except the automobile. Head injury is the leading cause of death in bicycle crashes and is the most important determinant of bicycle-related death and permanent disability. Scientific evidence has shown that the single most effective safety device available to reduce head injury and death from bicycle crashes is a helmet, which reduces the risk of bicycle-related death and injury, as well as the severity of head injury when a crash occurs. In the event of a crash, wearing a bicycle helmet reduces the risk of serious head injury by as much as 85% and the risk for brain injury by as much as 88%. (*Safe Kids*)

In the United States, between 1987 and 2000, the bicycle injury death rate among children declined by 60%. The nationwide proliferation of bicycle helmet education campaigns and activities (such as rodeos and safety fairs) as well as improvements in helmet design have likely made a difference. The primary strategies to increase bike helmet use include education, legislation and helmet-distribution programs. (*National Center for Injury Prevention and Control*)

## FATALITIES INVOLVING ALL-TERRAIN VEHICLES

**Five** of the **91** motor vehicle fatalities reviewed by CFRP panels in 2006 involved all-terrain vehicles (ATV's).

### Representative Cases:

- **Children younger than 16 should not ride adult-size all-terrain vehicles.**

A nine-year-old was riding an ATV in an open field. He apparently lost control of the ATV, fell off of it and landed face down in a ditch. He suffered head and chest injuries and died later at a hospital.

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

A 10-year-old was riding as a passenger on an ATV, driven by an adult. As the driver attempted to negotiate a turn in the gravel road, he lost control and struck a tree. Both driver and passenger suffered massive head injuries; neither of them was wearing a helmet.

All-terrain vehicles are motorized cycles, with three or four, over-sized, low-pressure tires, designed for off-road use on a variety of terrains. Although ATV's give the appearance of stability, the three-wheeled design is especially unstable on hard surfaces. The ATV stability is further compromised by a high center of gravity, a poor or absent suspension system, and no rear-wheel differential. The

danger is magnified, because these vehicles can weigh over 600 pounds and attain substantial speeds up to 75 mph. As bigger and faster ATV's have been introduced into the market over the past decade, ATV-related deaths and injuries have increased substantially in every age group. In the United States, children account for nearly one-third of all ATV-related injuries.

Most injuries involving ATV's occur when the driver loses control and the vehicle rolls over, the driver or passenger is thrown off, or there is a collision with a fixed object. Head injuries account for most of the deaths, which are instantaneous. Only **one** of the **five** Missouri children who died in ATV-related accidents in 2006 was wearing a helmet.

ATV's are inherently difficult to operate. Children under the age of 16 do not have the cognitive and physical capabilities to operate these vehicles safely. In June 2000, the American Academy of Pediatrics (AAP) issued a policy statement which included recommendations for legislation in all states prohibiting the use of two and four-wheeled off-road vehicles by children younger than 16 years, as well as a ban on the sale of new and used three-wheeled ATV's. Currently, 27 states have minimum age requirements for operation of an ATV. Missouri is one of only three states that require ATV operators to be 16 or older. (*AAP, Safe Kids, National Center for Injury Prevention and Control*) In 2006, **four** of the **five** ATV fatalities among Missouri children were younger than 16; one child was five and another was seven years old.

## PREVENTION RECOMMENDATIONS:

### For parents:

- Children, 12 years old and younger, should always ride appropriately restrained in the back seat of all passenger vehicles, particularly vehicles with airbags.
- Children under eight should ride in a booster seat, unless they are 80 pounds or 4'9" tall.
- Children should always wear a helmet when participating in any wheeled activities, including bicycles, skateboards, inline skates, scooters, etc.
- Never allow children under age 12 to cross streets alone.
- Always model and teach proper pedestrian behavior.
- Children under the age of 16 should never ride or operate ATV's of any size, including youth-sized ATV's.
- Never leave children alone in a motor vehicle, even when they are asleep or restrained.

### For community leaders and policy makers:

- Community leaders should encourage enforcement of existing child restraint laws.
- Missouri lawmakers should strengthen child restraint laws by mandating the following:
  - Include children age four through 15 in the child restraint law; thereby, making restraint use in the age group subject to primary enforcement.

- Raise the penalty for violation of child restraint laws to at least \$100 and one driver's license point.
- Remove the provision of the vehicle equipment regulations that states if there are not enough safety belts for all passengers, they are not in violation for failure to use.

*For professionals:*

- Facilitate and implement programs that educate parents on appropriate restraint of children in motor vehicles, and provide child safety seats to those who do not have them, such as safety seat check-up events.
- Facilitate and implement programs that educate parents and children on helmet use, instructions on fitting helmets properly and events that provide helmets at little or no cost.

*For Child Fatality Review Panels:*

- Ensure that speed limits, and laws prohibiting driving while intoxicated, along with other traffic safety laws, are strictly enforced.



**RESOURCES AND LINKS:**

American Academy of Pediatrics . . . . .	<a href="http://www.aap.org">www.aap.org</a>
Children's Safety Network . . . . .	<a href="http://research.marshfieldclinic.org">http://research.marshfieldclinic.org</a>
National Safe Kids Campaign . . . . .	<a href="http://www.safekids.org">www.safekids.org</a>
National Center for Injury Prevention and Control . . . . .	<a href="http://www.cdc.gov/ncipc">www.cdc.gov/ncipc</a>
Harborview Injury Prevention and Research Center . . . . .	<a href="http://depts.washington.edu">http://depts.washington.edu</a>
National Highway Transportation Safety Administration . . . . .	<a href="http://www.nhtsa.dot.gov">www.nhtsa.dot.gov</a>
Missouri Coalition for Roadway Safety . . . . .	<a href="http://www.saveMolives.org">www.saveMolives.org</a>
The Think First Injury Prevention Foundation . . . . .	<a href="http://www.thinkfirst.org">www.thinkfirst.org</a>
Harrison's Hope (Formerly Kids 'N Cars) . . . . .	<a href="http://www.harrisonshope.org">www.harrisonshope.org</a>

## KEEPING CHILDREN SAFE IN AND AROUND MOTOR VEHICLES

Attention concerning child safety and motor vehicles has focused largely on protecting children as they ride in and on vehicles of all kinds, primarily motor vehicles on public roads. The Missouri CFRP reviews and collects data on motor vehicle fatalities among children as passengers and drivers, pedestrians and bicyclists. However, children who are unsupervised in or around motor vehicles that are not in traffic are at an increased risk for injury and death.

The Centers for Disease Control (CDC) examined injuries and fatalities among children involved in non-traffic, motor vehicle-related incidents from July 2000-June 2001, and documented 78 fatal injuries. Of the fatally injured children, most were age <4 years. The most common type of fatal incident was exposure to excessive heat inside a motor vehicle, followed by being backed over and being hurt when a child put a motor vehicle in motion.

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

Harrison's Hope (Formerly Kids 'N Cars) maintains a national database to evaluate the circumstances and consequences of leaving children unattended in or around motor vehicles. Go to [www.harrisonshope.org](http://www.harrisonshope.org) for more information.

### SOMETHING WE CAN DO: "NOT EVEN FOR A MINUTE" CAMPAIGN



Children's Trust Fund points out that a child left alone in an automobile is a car accident that can be prevented. For additional information or to order education materials contact CTF at 573-751-5147 or visit the web site at [www.ctf4kids.org](http://www.ctf4kids.org).

#### RESOURCES AND LINKS:

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

Harrison's Hope (Formerly Kids 'n Cars) . . . . . [www.harrisonshope.org](http://www.harrisonshope.org)



**Not even for a minute!**  
Never leave a child alone in a car.

Left alone in a vehicle, even for a short time, a child is in danger of: **dehydration • injury • abduction.**

For more information call the Children's Trust Fund at 573-751-5147 or visit our Web site at [www.ctf4kids.org](http://www.ctf4kids.org).



Missouri's Non-Profit for Child Abuse Prevention



## UNINTENTIONAL SUFFOCATION/STRANGULATION, CHILDREN AGE ONE YEAR AND OLDER

In 2006, there were 7 unintentional suffocation/strangulation deaths among Missouri children age one year and older.

### Representative Cases:

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

A 14-month-old was sleeping on a couch with an older sibling, who was very large. She was apparently wedged between the back of the couch and the cushion, and suffocated.

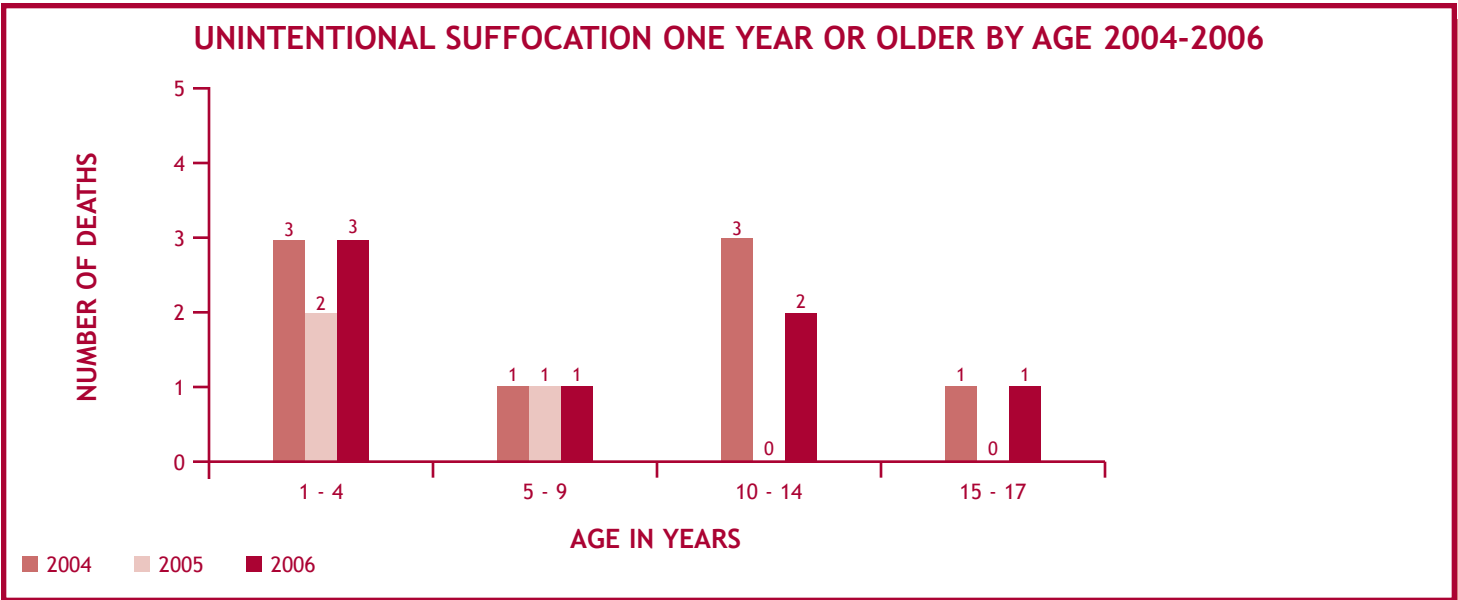
A 16-year-old accidentally hung himself while playing a "choking game," which produces a feeling of euphoria or being high.

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

## AIRWAY OBSTRUCTION INJURIES AMONG YOUNG CHILDREN: CHOKING, SUFFOCATION AND STRANGULATION

The majority of airway obstruction injuries occur among infants less than one year of age. In the United States, it is estimated that as many as 900 infants, whose deaths are attributed to Sudden Infant Death Syndrome (SIDS) each year, are found in potentially suffocating environments, frequently on their stomachs, with their noses and mouths covered by soft bedding. Children placed in adult beds are at increased risk for airway obstruction injury as well. (*Safe Kids*) Sudden, unexpected deaths of infants under the age of one year, including suffocations related to unsafe sleep environments, are described and discussed in "Sudden, Unexpected Infant Deaths."

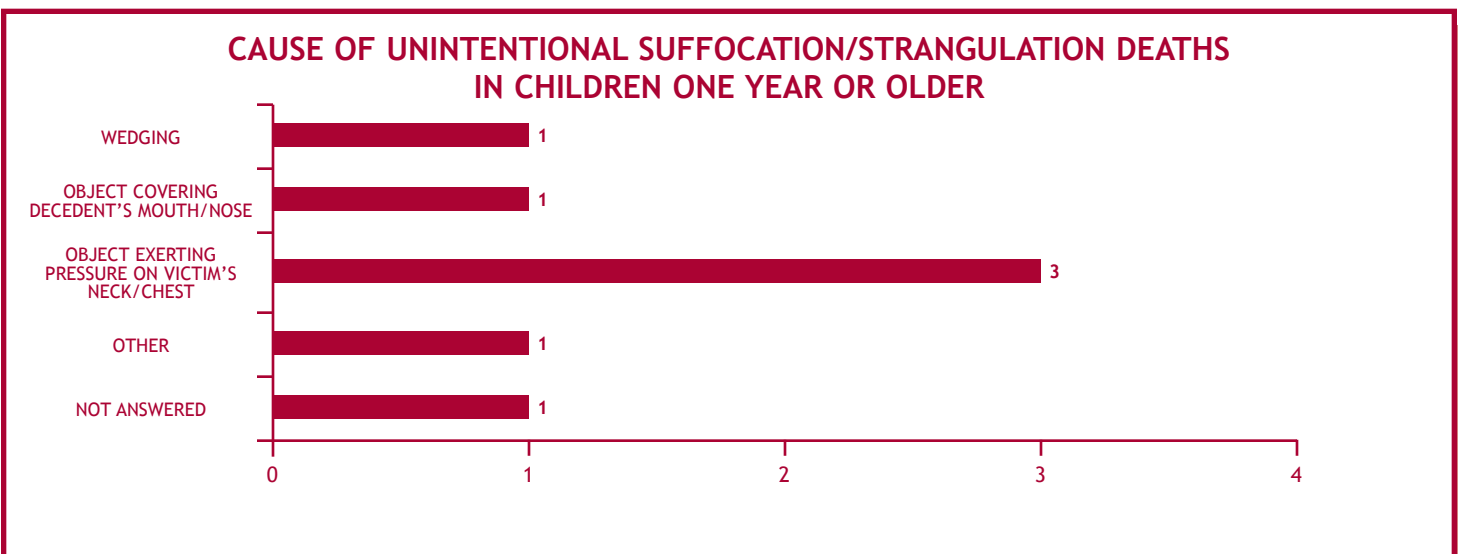
Airway obstruction injuries occur when children are unable to breathe normally, because food or objects block their internal airways (choking); materials block or cover their external airways (suffocation); or items become wrapped around their neck or exert pressure on their neck and interfere with breathing (strangulation). Young children, especially those under age three, are particularly vulnerable to airway obstruction injury and death, due to the small size of their upper airways, their relative inexperience with chewing, and their natural tendency to put objects in their mouths. Additionally, infants' inability to lift their heads or extricate themselves from tight places, puts them at greater risk. In Missouri, in 2006, **seven** children over the age of one year died of unintentional airway obstruction injuries; of those, **three** were young children under the age of four years.



### UNINTENTIONAL SUFFOCATIONS ONE YEAR OR OLDER BY SEX AND RACE

SEX	2004	2005	2006	RACE	2004	2005	2006
FEMALE	0	0	2	WHITE	7	3	4
MALE	8	3	5	BLACK	1	0	3
	8	3	7		8	3	7

The majority of childhood choking injuries are associated with food. Children are at risk from choking on small, round foods such as hot dogs, candies, nuts, grapes, carrots and popcorn. Children can easily choke or aspirate small objects, most often, toys, beads, balloons and coins. In the United States, cribs and play yards are involved in nearly 53% of all nursery product-related deaths among children ages five and under. Cribs (primarily older, used cribs) are responsible for about 26 strangulation and suffocation deaths each year. *(Safe Kids)*



Airway obstruction injuries can also result from entanglement or entrapment. Children strangle in openings big enough for parts of their bodies, but too small for their heads. These include spaces in bunk beds, cribs, playground equipment, baby strollers, carriages and high chairs. Since 1990, at least 57 children in the United States, nearly all ages three and under, have died due to entrapment in bunk beds. Children can also become entangled in clothing drawstrings and window covering cords, resulting in strangulation.

Young children can become entrapped or wedged in a small space, such as between a bed or mattress and a wall. They can also become entrapped in airtight spaces, such as a cedar chest, unused refrigerator or freezer.

Fortunately, safety laws and regulations protect children from airway obstruction injury hazards. For example, the Child Safety Protection Act bans any toy intended for use by children under age 3, 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. In 1999, the U.S. Consumer Product Safety Commission (CPSC) issued a mandatory standard for bunk beds to address entrapment hazards. The CPSC has also issued voluntary guidelines for drawstrings on children's clothing, to prevent children from strangling in the neck and waist drawstrings of upper outerwear garments, such as jackets and sweatshirts.

## **PREVENTION RECOMMENDATIONS:**

### *For parents:*

- Remove drawstrings from children's clothing.
- Tie up or remove all cords for window covers.
- Buy only age-appropriate toys.

### *For community leaders and policy makers:*

- Support legislation that requires improved product design, or removal of hazardous products from the market.

### *For professionals:*

- Information about unintentional suffocation/strangulation hazards to young children, including unsafe sleep practices should be widely disseminated.
- Teach parents CPR and the Heimlich Maneuver for infants and young children.

### *For Child Fatality Review Panels:*

- Report any child death that appears to involve a product hazard to Consumer Product Safety Commission. The CPSC can also be accessed for product safety research assistance; contact STAT for assistance.

**RESOURCES AND LINKS:**

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

## UNINTENTIONAL FIRE/BURN FATALITIES

In 2006, 16 Missouri children died of fire/burn injuries.

**Representative Cases:**

- **Lighters, matches and other sources of fire should be kept locked away from children.**

A four-year-old started a fire in the mobile home occupied by his mother and three other children. He was apparently playing with a cigarette lighter which had been left sitting on a coffee table. The four-year-old died in the fire.

- **Properly installed and maintained smoke detectors are effective in preventing fatalities.**

Five children were sleeping in a second-floor bedroom, when a fire broke out on the first floor. The house was occupied by 17 people, including six adults. There were no working smoke detectors and the landlord had been cited previously for faulty wiring. All five children died in the fire.

- **Children who are chronically neglected are at great risk of severe and fatal injury.**

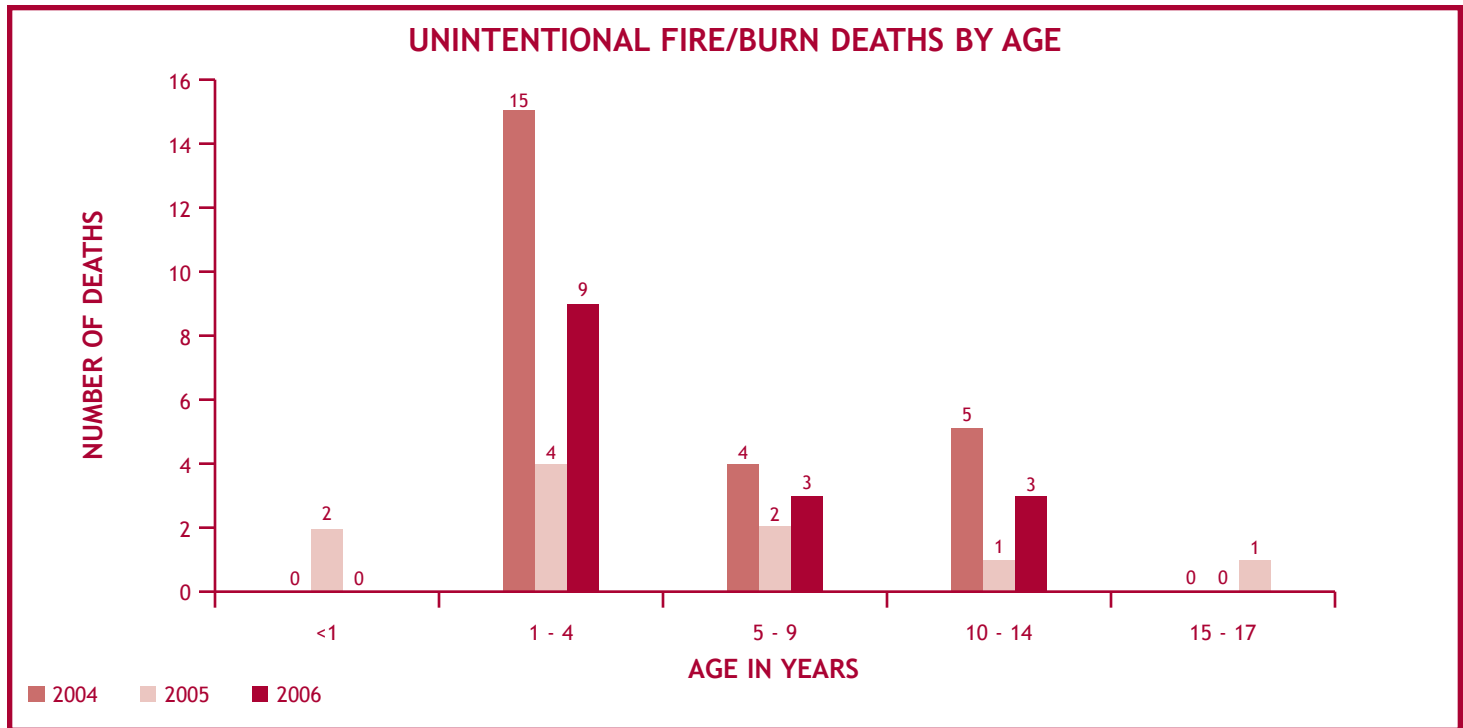
A two-year-old child and his mother died in a mobile home fire. The child was found under a pile of burned debris, which was believed to have blocked the only escape route. The family had a history of lack of supervision of the children and unsanitary living conditions.

Each year in the United States, more than 600 children ages 14 and under die, and nearly 47,000 are injured, in fires. In Missouri in 2006, **16** children died as a result of unintentional fire/burn injury. Fire and burn injuries are the third leading cause of unintentional injury deaths among Missouri children.

### FIRE/BURN DEATHS AMONG CHILDREN

Young children, ages four and under are at greatest risk from home fire- and burn-related death and injury and are more than twice as likely to die in a fire than the rest of the population. Of the **16** fire/burn fatalities among children in Missouri in 2006, **nine** were under the age of five. Young children have a less acute perception of danger, limited ability to quickly and properly respond to a life-threatening fire or burn situation, and faster metabolic rates. They are also less able to physically tolerate toxic

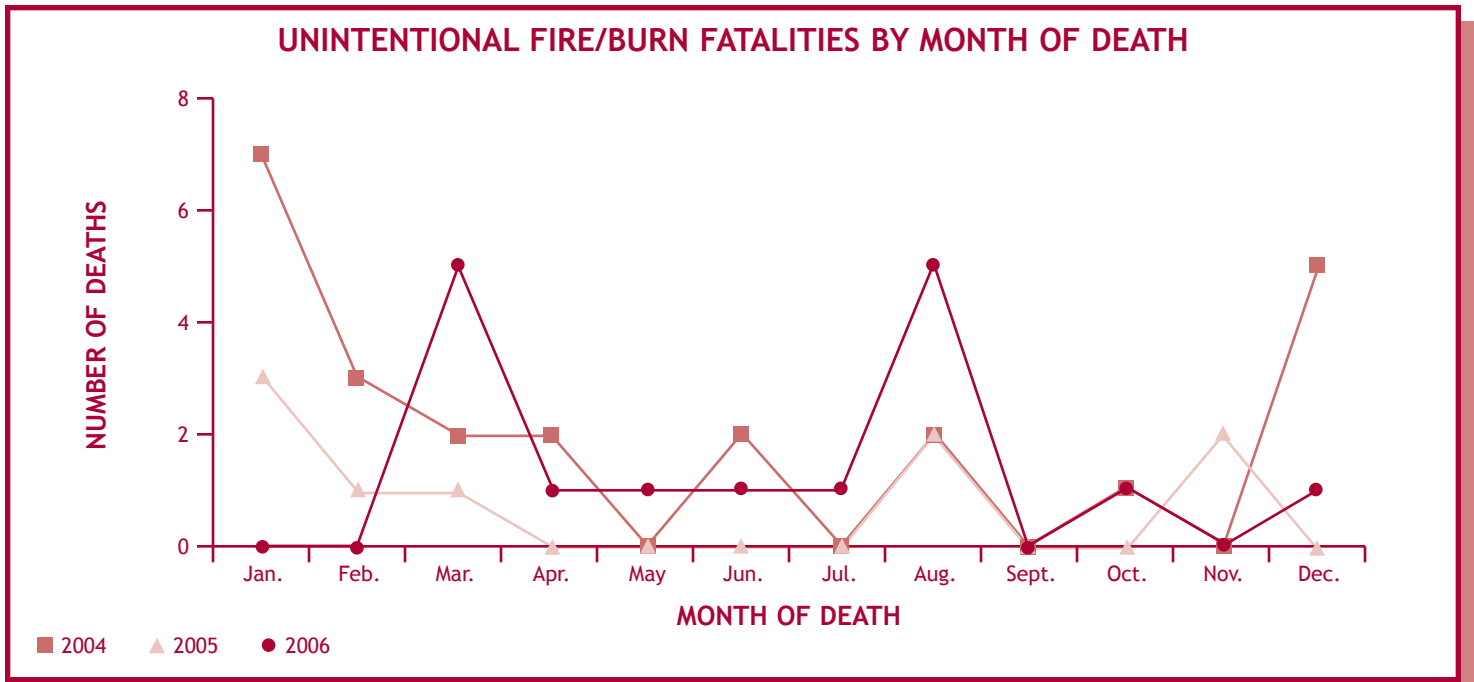
combustion products, rendering them more susceptible to fire-related asphyxiation. Additionally, because younger children have thinner skin than adults, their skin burns at lower temperatures and more deeply. (*Safe Kids*) Children with disabilities are also at high risk of burn-related death and injury. These children are especially at risk from scald and contact burns.



SEX	2004	2005	2006	RACE	2004	2005	2006
FEMALE	13	4	8	WHITE	21	6	7
MALE	11	5	8	BLACK	3	3	9
	24	9	16		24	9	16

In the United States, the largest percentage of fire-related deaths (76% in 2004) occurs in residences, with the majority of these one- and two-family dwellings. Cooking is the leading cause of fires at 28%; incendiary or suspicious fires (arson) cause another 21% of fires. The two leading causes of civilian deaths are arson and smoking. Residential structure fires and related fatalities tend to occur more often during cold-weather months, when the use of heating systems is at a peak. Most heating fires are initiated by space heater. (*United States Fire Administration*)

In the United States, a working smoke alarm is not present in two-thirds of the residential fires in which a child is injured or killed. Smoke detectors were reported to be present in only **five** of the **16** fatal Missouri fires reviewed by county CFRP panels in 2006, of those, **four** were known to be in working order. Approximately 90% of homes in the U.S. have a smoke alarm; however, these alarms are not always properly maintained. (*United States Fire Administration*)



Children from low-income families are at greater risk for fire-related death and injury, due to factors such as lack of working smoke alarms, substandard housing, use of alternative heating sources and economic constraints on providing adequate adult supervision. Children living in rural areas have a dramatically higher risk of dying in a residential fire. (*Safe Kids, USFA*)

The death rate from fire and burn injury declined 56% among children ages 14 and under from 1987 to 2000, yet fire and burn injury remains the fifth leading cause of child unintentional injury-related death in the United State. Smoke alarms have been duly promoted as an invaluable tool for preventing fire and burn injury. Nationwide increases in the prevalence of smoke alarms in homes and the passage of smoke alarm legislation requiring smoke alarms for new and existing dwellings, partly explain the downward trend in the fire and burn death rate.

Intensive public education campaigns by federal agencies such as the CPSC and the U.S. Fire Administration, national organizations and fire departments that promote residential fire safety and burn prevention have played a role in reducing the death rate from fire and burn injury. The regulation child-resistant cigarette lighter, fireworks and other burn-related products by the CPSC and the enforcement of the Flammable Fabrics Act that set flammability standards for apparel, children's sleepwear, rugs and mattresses, have also been important. (*United States Fire Administration, SafeKids*)

## JUVENILE FIRESETTING

Nationally, over 30% of the fires that kill young children are started by children playing with matches or lighters. These fires tend to begin in the bedroom or living room, where children are often left alone to play. (*National Center for Injury Prevention and Control*) In Missouri, in 2006, **two** children are known to have died in fires started by other children playing with matches or lighters. The United States Fire Administration points out that events such as this are not isolated incidents and the number of fires set by children is growing. In a typical year in the United States, 300 people are killed and \$300

million in property is destroyed in fires set by children. Children themselves are usually the victims of these fires, accounting for 85 of every 100 fatalities.

It is generally recognized that the motivation for firesetting can be considered in two categories: (1) *Curiosity firesetters* are usually two to seven year olds, whose fascination leads them to play with matches or lighters. These children do not recognize the consequences of the behavior. They usually respond to educational services, including educational programs, firehouse tours, etc. (2) *Problem firesetters* may also be very young, but generally are five to 17 years old. Their behavior may be considered pathological, a “cry for help.” These children appear to light fires because of emotional or mental disturbances ranging from mild to severe. When firesetting appears to be related to emotional problems, referrals should be made to mental health services. (*United States Fire Administration*)

Regardless of the motivation, firesetting behavior must always be taken very seriously. The United States Fire Administration recommends that parent contact their local fire department or state fire services for help. Local fire departments throughout the state are adopting various approaches to critical elements of prevention: (1) identification/referral of the firesetter, (2) evaluation, and (3) intervention.

## FIRE/BURN FATALITIES AS REPORTED ON CFRP DATA FORMS

SMOKE ALARM PRESENT	
Yes	5
No	2
Unknown	9
Not Applicable	0

SMOKE ALARM IN WORKING ORDER	
Yes	4
No	1
Unknown	8
Not Applicable	3

FIRE STARTED BY	
Decedent	1
Other	5
No One	8
Unknown	2

ACTIVITY OF PERSON STARTING FIRE	
Playing	2
Smoking	2
Cooking	2
Unknown	1
Not Applicable	8
Not Answered	1

SOURCE OF FIRE	
Matches	1
Lighter	1
Cigarette	1
Faulty Wiring	5
Other	3
Unknown	5

MULTIPLE FIRE DEATHS	
Yes	10
No	6

FOR A STRUCTURE FIRE, WHERE WAS THE DECEDENT FOUND?	
Hiding	1
In Bed	1
Close to Exit	4
Other	10

## SOMETHING WE CAN DO: FIRE PREVENTION AWARENESS DAY

When three children died in a house fire in St. Louis, CFRP panel members and other community leaders talked about finding a way to target that neighborhood for a fire safety campaign that would provide an appropriate prevention response to those tragic deaths. Smoke detectors, properly installed and maintained, have proven extremely effective in preventing fatalities. For the last 10 years, volunteers have brought “Fire Prevention Awareness Day” to high-risk neighborhoods throughout the region. Working from a staging area where families can gather for food, fun and prevention education, firefighters and volunteers go door to door, installing smoke detectors or fresh batteries and providing fire safety information. Media attention for these events helps spread the prevention message.

### PREVENTION RECOMMENDATIONS:

#### *For parents:*

- Young children require vigilant supervision.
- Keep matches, gasoline, lighters and all other flammable materials locked away and out of children’s reach.
- Install smoke alarms on every level and in every sleeping area. Test them once a month. Replace batteries at least once a year.
- Plan and practice several fire escape routes from each room of the home and identify an outside meeting place. Practicing an escape plan may help children who become frightened and confused in a fire, to escape to safety.

#### *For community leaders and policy makers:*

- Enact laws that require smoke detectors in new and existing housing, and making landlords responsible for ensuring that rental properties have working smoke detectors.
- Enforce building codes and conduct inspections.

#### *For professionals:*

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

#### *For Child Fatality Review Panels:*

- When reviewing a child death that is the result of a residential fire, determine if the local building code requires smoke detectors in residences, and if a working smoke detector was present in the home. Use that information to develop an action plan, such as working to change the code or pursuing prosecution of a negligent landlord. Special attention should be paid to the issue of adult supervision, when investigating deaths of young children in house fires.



## RESOURCES AND LINKS:

Missouri Division of Fire Safety . . . . .	<a href="http://www.dfs.dps.mo.gov">www.dfs.dps.mo.gov</a>
United States Fire Administration . . . . .	<a href="http://www.usfa.fema.gov">www.usfa.fema.gov</a>
National Safe Kids Campaign . . . . .	<a href="http://www.safekids.org">www.safekids.org</a>
Harborview Injury Prevention and Research Center . . . . .	<a href="http://depts.washington.edu/hiprc">depts.washington.edu/hiprc</a>

## UNINTENTIONAL DROWNINGS

In 2006, 13 children drowned in Missouri.

### Representative Cases:

- **Personal flotation devices should be worn at all times in and around open water.**

A large group of children was on an outing at a state park. Five of the children were swimming in the river when one of them began to drown; when the four other children attempted to help, they, too were caught in the undertow and all five drowned. There were no adults with the children when they went into the water and none of them were wearing a personal flotation device.

- **Infants and young children require constant supervision while in a bathtub.**

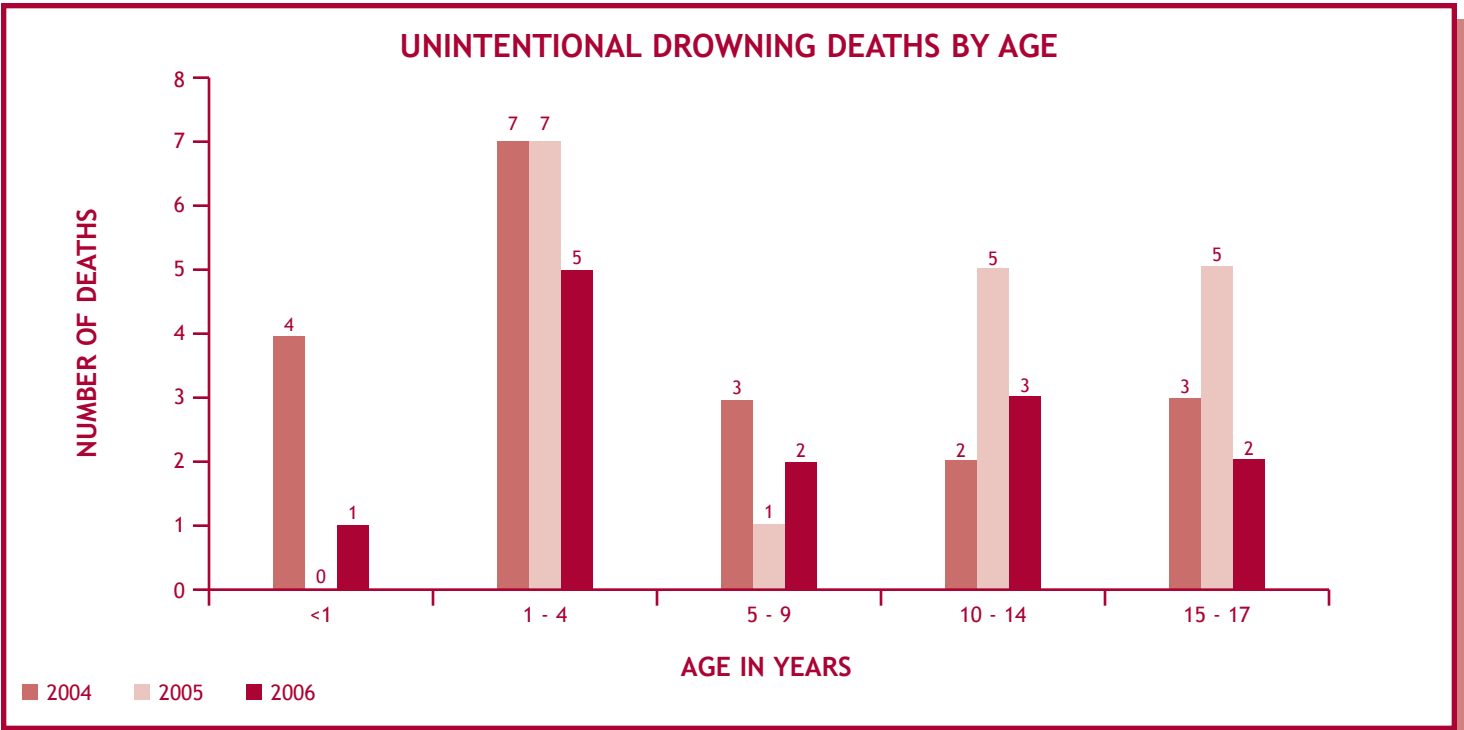
A 10-month-old child was left to play in the bathtub while her mother finished getting dressed. When the mother returned to the bathtub, the baby was facedown in four inches of water.

- **Young children require vigilant adult supervision when outdoors near bodies of water, such as pools, creeks and streams.**

A 15-month-old was sent outside to play with his six-year-old brother. Less than ten minutes later, the six-year-old found the toddler in the swimming pool, where he had drowned.

Two young children wandered out of the house and drowned in a swimming pool, while their parents and grandparents were occupied watching a television program.

In the United States, drowning is the second leading cause of unintentional injury-related deaths among children ages one to 14 and the leading cause of unintentional injury-related death among children ages one to four years. Young children, age four and under, have the highest drowning death rate. Of the **13** Missouri children who drowned in 2006, **six** (46%) were age four and under.

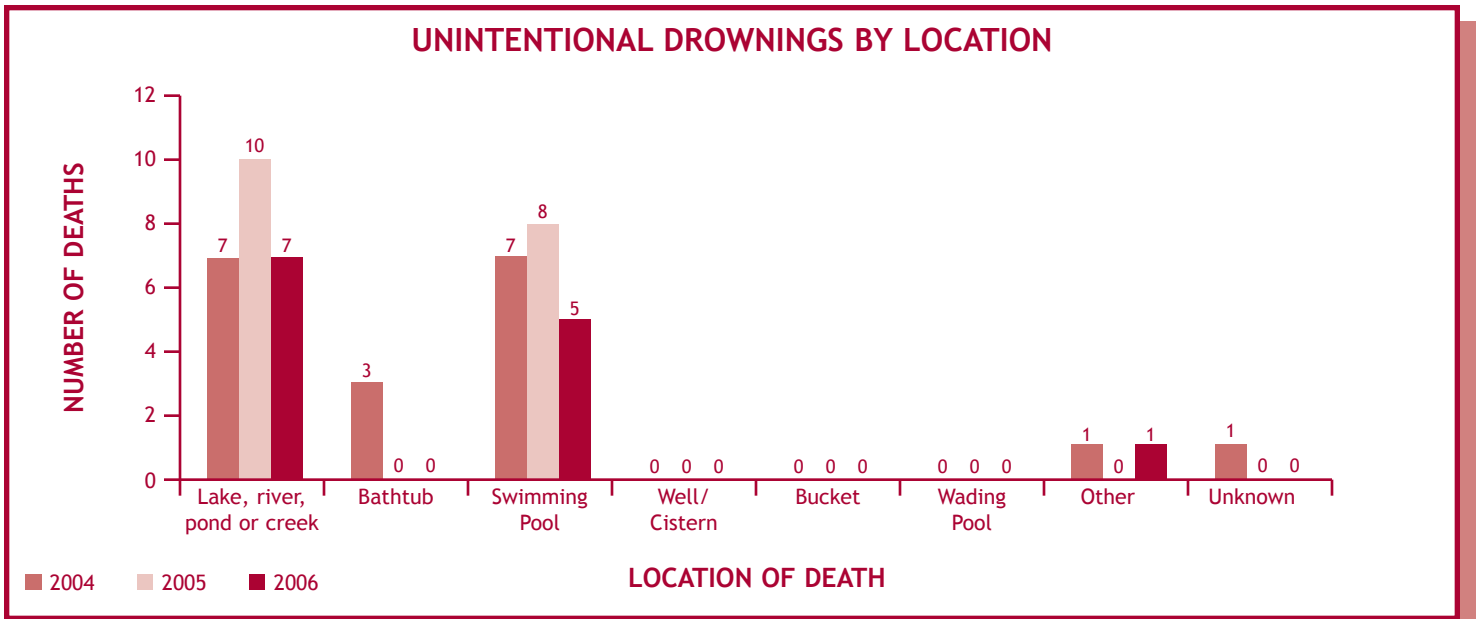


SEX	2004	2005	2006	RACE	2004	2005	2006
FEMALE	10	4	5	WHITE	16	16	6
MALE	9	14	8	BLACK	3	2	7
	19	18	13		19	18	13

Drownings among infants under age one, typically occur in residential bathtubs. Most drownings among children one through four years old, occur in residential swimming pools. However, children can drown in as little as one inch of water and, therefore, are at risk of drowning in wading pools, buckets, toilets and hot tubs. In 2006, **one** Missouri infant under the age of one drowned in a toilet. The head of an infant or toddler is disproportionately large and heavy, representing approximately 20% of the total body weight, making them top-heavy and unable to escape when head-first in a toilet or bucket.

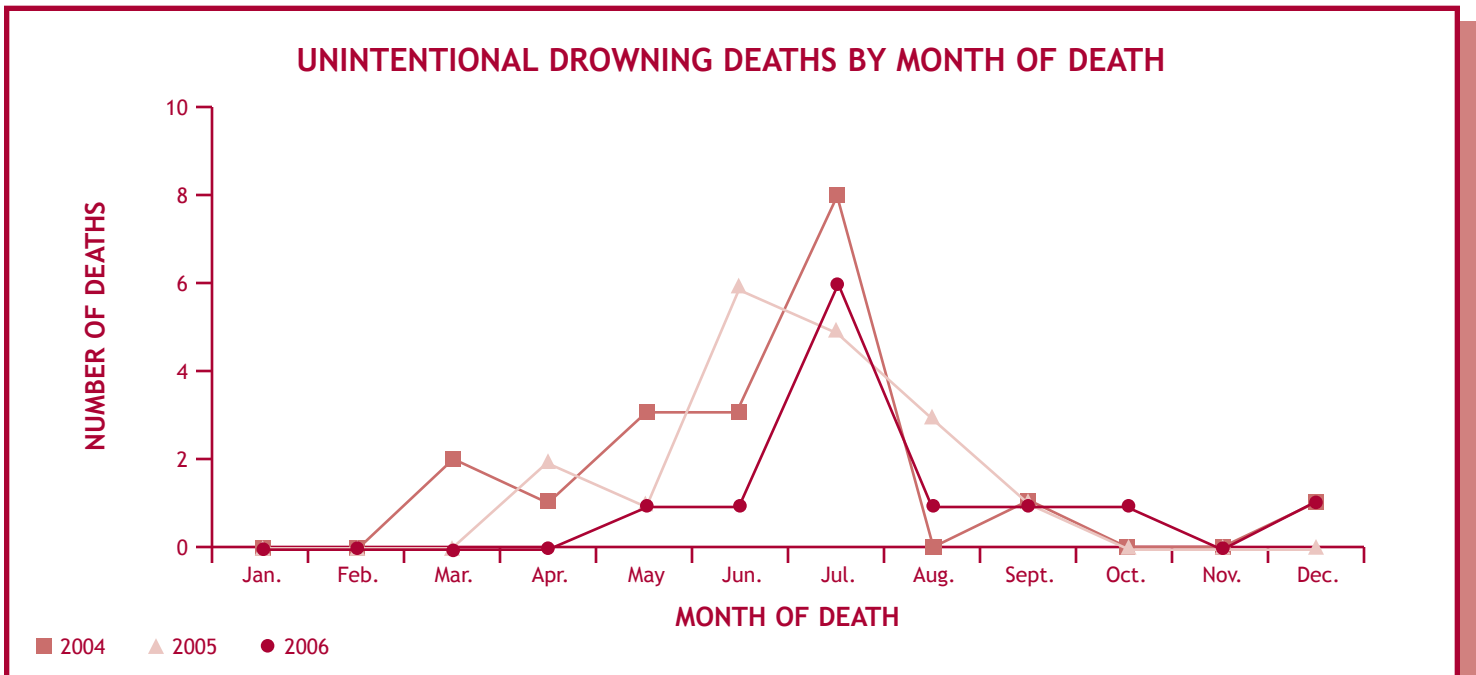
Older children are more likely to drown in open water sites such as creeks, lakes and rivers. Of the **13** Missouri children who drowned in 2006, **five** (38%) occurred in swimming pools and **seven** (54%) occurred in open water sites.

Childhood drownings can happen in a matter of seconds and typically occur when a child is left unattended, or during a brief lapse in supervision. Contrary to what many people believe, drowning usually occurs quickly and silently. The scenario that a drowning person will make lots of noise, while thrashing around in the water and resurface several times before actually drowning, is pervasive, but entirely false. (*SafeKids*)



## DROWNING DEATHS AMONG CHILDREN

- Supervision of children in and around water is critical. Of the **13** drowning fatalities in 2006, in which supervision of the child victim was a consideration, panels found that **10** (77%) had entered the water unattended.
- Use of a personal flotation device is well established as an effective means to prevent drowning deaths. **None** of the Missouri children who drowned in 2006, were wearing a personal flotation device.
- The warm-weather months of June, July, August and September are peak months for drowning, coinciding with increased activity in swimming pools and open water sites.



**PREVENTION RECOMMENDATIONS:**

*For parents:*

- Never leave a child unsupervised in or around water in the home or outdoors, even for a moment.
- For families with residential swimming pools: Install four-sided pool fencing with self-closing and self-latching gates. The fence should be at least four feet tall and completely separate the pool from the house and play area of the yard.
- Ensure that children always wear U.S. Coast Guard-approved personal flotation devices near open water or when participating in water sports.
- Learn CPR.

*For community leaders and policy makers:*

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

*For professionals:*

- Parents, as well as children, should receive water safety education. This should include discussion of water hazards to children (including buckets) and the importance of vigilant supervision.
- Facilitate CPR training for parents of small children.

*For Child Fatality Review Panels:*

- Promote public education about drowning hazards to children and strategies to prevent drowning.

**RESOURCES AND LINKS:**

National Safe Kids Campaign . . . . .	<a href="http://www.safekids.org">www.safekids.org</a>
National Center for Injury Prevention . . . . .	<a href="http://www.cdc.gov/ncipc">www.cdc.gov/ncipc</a>
Harborview Injury Prevention and Research Center . . . . .	<a href="http://depts.washington.edu/hiprc">http://depts.washington.edu/hiprc</a>
Consumer Product Safety Commission . . . . .	<a href="http://www.cpsc.gov">www.cpsc.gov</a>
Red Cross . . . . .	<a href="http://www.redcross.org">www.redcross.org</a>
The United States Lifesaving Association (USLA) . . . . .	<a href="http://www.usla.org">www.usla.org</a>

## UNINTENTIONAL POISONING

In 2006, 16 Missouri children died of unintentional poisoning.

### Representative Cases:

- Parents should ensure that all medications are properly labeled and follow instructions carefully.

An adult prescription medication was stored in an infant's prescription container. The infant died of an overdose when the mother accidentally gave him methadone.

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

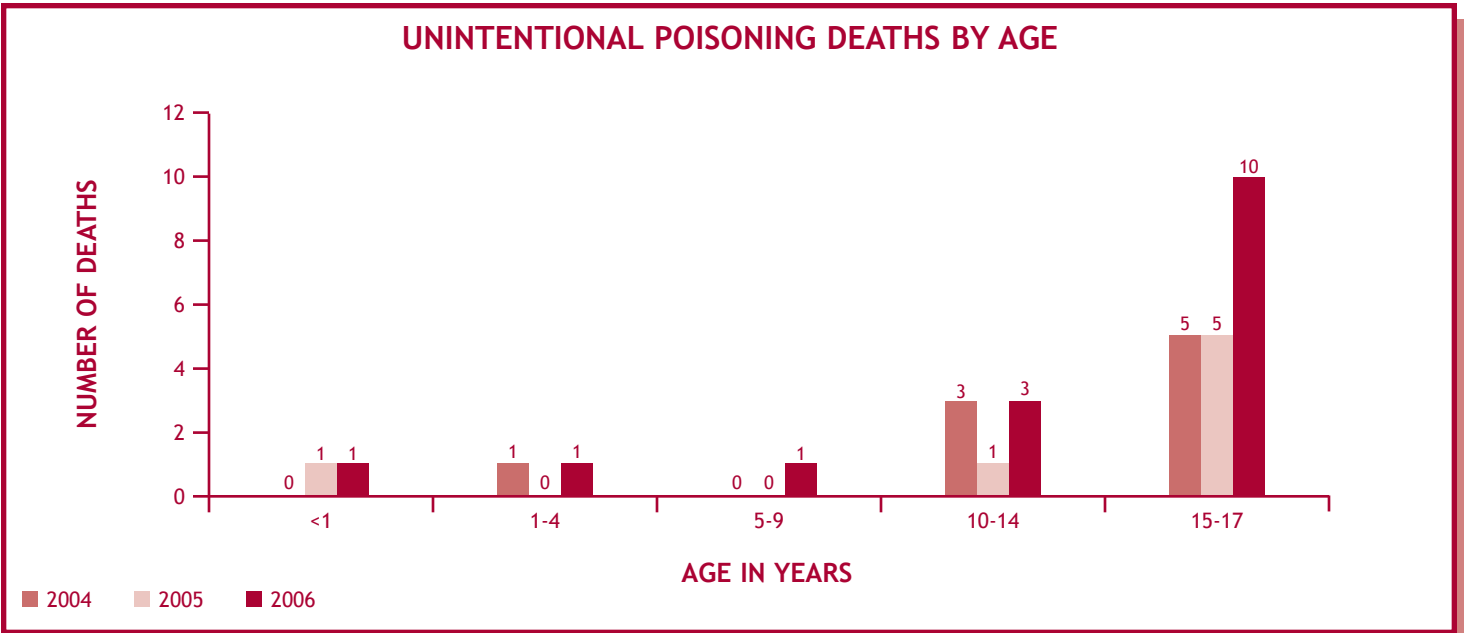
A 16-year-old was given prescription pain medication by the parent of a friend. He was found unresponsive the next morning. Cause of death was overdose of Oxycontin.

A 15-year old ingested multiple prescription pain medications at a party and died later that night of an overdose of two of the drugs. He had a history of selling prescription drugs obtained at home.

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

In 2006, **16** Missouri children died of unintentional poisoning; **two** children under the age of four and **one** five-year-old died of toxic doses of over-the-counter or prescription medication. The remaining **13** were teens age 12-17. Children ages four and under are at greatest risk of unintentional poisoning, with a death rate 1.5 times higher than that of all children. Poisoning of young children is still a common occurrence, however, deaths have declined dramatically in recent decades. The majority of calls to poison centers in the United States concerning exposures of children under the age of six are non-pharmaceuticals (59%). (McGuigan, 1999)

The reduction in deaths from unintentional poisonings to children under five are due to a myriad of factors, including the decreased use of aspirin for treatment of child fever, reduction of the amount and dosage of child analgesics in bottles, and improved medical care for ingestion treatment. The implementation of child-resistant packaging for certain household substances and medications has been instrumental in the death rate reduction. Also important are increased access to certified poison control centers, warning labels on products containing iron, and finally, intensive efforts to reduce lead in consumer products such as gasoline and paint. (*SafeKids*) Unfortunately, there have not been similar reductions in deaths from carbon monoxide poisoning and other gases, nor in deaths from accidental overdose in older adolescents.



### UNINTENTIONAL POISONING DEATHS BY SEX AND RACE

SEX	2004	2005	2006	RACE	2004	2005	2006
FEMALE	3	4	2	WHITE	7	5	14
MALE	6	3	14	BLACK	2	1	2
UNKNOWN	0	0	0	OTHER	0	1	0
	9	7	16		9	7	16

**Thirteen** Missouri teens ages 12-17, died of unintentional poisoning in 2006; of those, **three** died of carbon monoxide poisoning, **one** died of inhalation of a solvent (commonly known as “huffing”), **one** died of acute alcohol intoxication, and **one** overdosed on illegal drugs. The remaining **seven** overdosed on prescription medications from various sources.

A number of national studies and published reports indicate that the intentional abuse of prescription drugs, such as pain relievers, tranquilizers, stimulants and sedatives, is a growing concern. In fact, among teens ages 12-17, prescription drugs have become the second most abused illegal drug, behind marijuana. This trend has been accompanied by a 21% increase in hospital emergency department visits, admissions for treatment, and an increase in deaths from unintentional overdose. (DAWN, 2007)

Studies show that teens are abusing prescription drugs, because they believe the myth that these drugs provide a medically safe high. Teens admit to abusing prescription medication for reasons other than getting high, including to relieve pain or anxiety, to sleep better, to experiment, to help with concentration or to increase alertness. (Boyd, McCabe, Cranford and Young, 2006)

The majority of teens get prescription drugs easily and for free, often from friends and relatives. Pain relievers such as OxyContin and Vicodin are the most commonly abused prescription drugs by teens, followed by stimulants, tranquilizers and sedatives. (NSDUH, 2006) More than half of teens surveyed

say prescription pain relievers are easy to get from parents’ medicine cabinets, through other people’s prescriptions, online or by phone and they are “available everywhere.” Girls are more likely than boys to intentionally abuse prescription drugs to get high. (SAMHSA, 2006)

Adolescents are more likely than young adults to become dependent on prescription medication. Prescription drug abuse among teens has dramatically increased during the last 10 years and the number of teens going into treatment for addiction to prescription pain relievers has increased by more than 300%. (TEDS, 2006)

**PREVENTION RECOMMENDATIONS:**

*For parents:*

- Parents should education themselves and their teens about the risks of prescription and over-the-counter drug abuse.
- When using prescription medications, parents and children should follow directions carefully and discard old or unused medications.

*For community leaders and policy makers:*

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

*For professionals:*

Increase public education campaigns to improve detection of potential poisoning from carbon monoxide, lead and household products.

*For Child Fatality Review Panels:*

- Promote public education about the hazards to children regarding prescription and over-the-counter medications.

**RESOURCES AND LINKS:**

- National Safe Kids Campaign . . . . . [www.safekids.org](http://www.safekids.org)
- Harborview Injury Prevention and Research Center . . . . . <http://depts.washington.edu/hiprc>
- National Center for Injury Prevention and Control . . . . . [www.cdc.gov/ncipc](http://www.cdc.gov/ncipc)
- Parents, The Anti-Drug . . . . . [www.theantidrug.com/drug\\_info/](http://www.theantidrug.com/drug_info/)
- “Teens and Prescription Drugs, An Analysis of Recent Trend on the Emerging Drug Threat February 2007” and related publications . . . . . [www.whitehousedrugpolicy.gov/publications](http://www.whitehousedrugpolicy.gov/publications)

**“The only way to keep your children from going astray is for them to have a role model they can respect.”**  
*-Mom, from Missouri*

# UNINTENTIONAL FIREARM FATALITIES

In 2006, six Missouri children died of unintentional firearm injuries.

## Representative Cases:

- Education should be offered in all communities about gun safety. Parents should monitor children who are handling firearms.

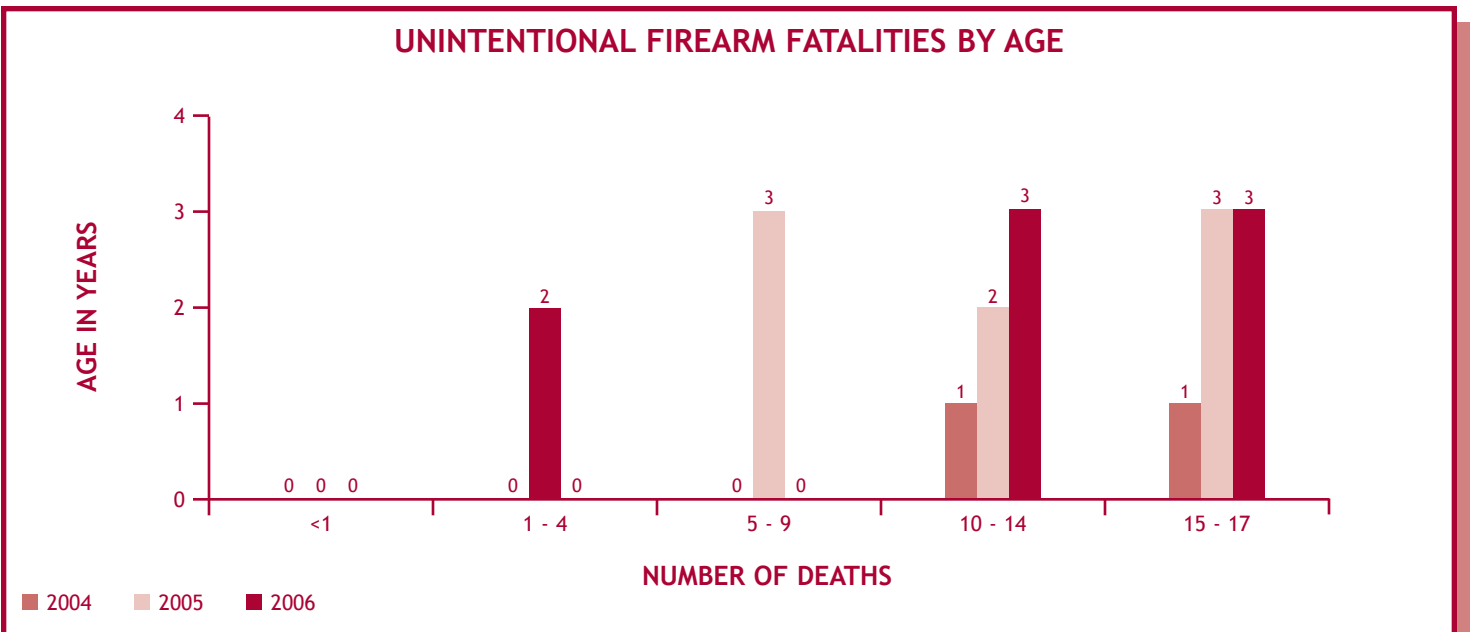
A 14-year-old and his cousin were re-enacting a scene from a video game, using a real gun. He turned the gun toward himself, claiming that it was not loaded and shot himself.

- Parents who own guns should always store firearms unloaded and locked up, out of children’s reach. Use gun locks, load indicators, and other safety devices on all firearms.

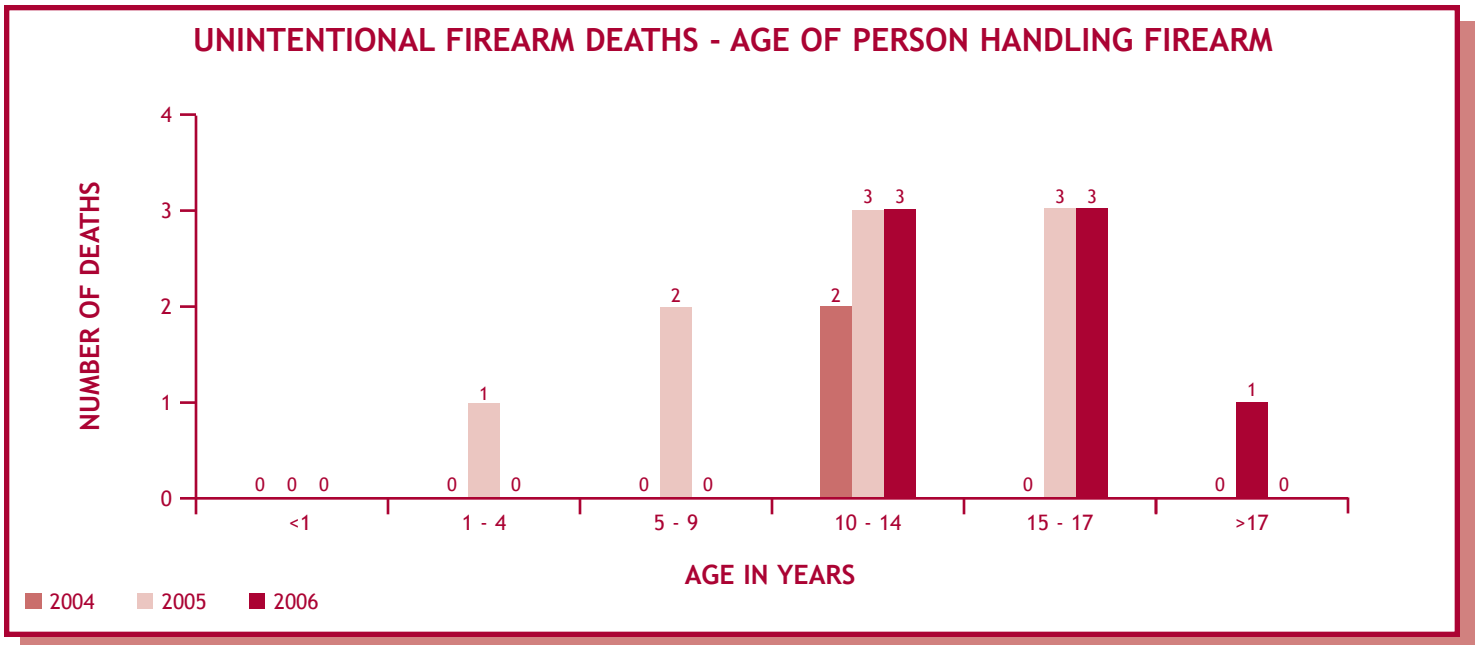
A 13-year-old and his friend were at home alone. They were playing with a loaded rifle and a loaded shotgun, when the shotgun went off, striking the 13-year-old in the head. He was pronounced dead at the scene.

A 16-year-old girl picked up a handgun that was lying on a table. When her mother told her to put it back on the table, the girl began twirling it around in a joking manner. The gun went off and struck her in the head. She died three days later.

In the United States, about 500 children die each year from unintentional shootings and at least five times as many, are wounded. In 2006, **six** Missouri children died of unintentional firearm injuries.







Certain groups of children are at higher risk for unintentional firearm-related injuries. In the United States, male children are far more likely to be injured and die from unintentional shootings than female children. Of those children age 14 and under who are killed by an unintentional shooting, 82% are male. In Missouri in 2006, **five** of the **six** child victims of unintentional shootings were male and **one** was female. Children living in the South and in rural areas have higher rates of unintentional firearm-related deaths than other areas.

Nationally, more than 70% of unintentional shootings involve handguns. In 2006, **four** of the **six** unintentional firearm deaths among children involved handguns. The other **two** involved a rifle and a shotgun.

Forty percent of gun owners keep firearms in the home for protection and crime prevention. Guns in the home for protection are more likely to be handguns, found in a home with children, stored loaded and unlocked. Of the **six** unintentional firearm deaths reviewed by CFRP panels in 2006, **three** involved a gun that was owned by a family member and **one** gun was owned by the decedent. All **six** of the Missouri children who died as a result of unintentional firearm injury in 2006 were killed with a gun that was stored in a location accessible to children or not locked and secured.

## UNINTENTIONAL FIREARM DEATHS AMONG CHILDREN

Unrealistic perceptions of children's capabilities and behavioral tendencies with regard to guns are common.

- Most unintentional childhood shooting deaths involve guns kept in the home, that have been left loaded and accessible to children and occur when children play with loaded guns. **Five** of the **six** Missouri children who died as a result of unintentional firearm injury in 2006, were reported to be playing with the gun.
- Unintentional shootings among children most often occur, when children are unsupervised and out of school.

- Nearly two-thirds of parents with school-age children, who keep a gun in the home, believe that the firearm is safe from their children. However, one study found that when a gun was in the home, 75-80% of first and second graders knew where the gun was kept.
- Generally, before age eight, few children can reliably distinguish between real and toy guns, or fully understand the consequences of their actions.
- Children as young as age three are strong enough to pull the trigger of many of the handguns available in the U.S.

Declines in child firearm and BB-pellet gun-related injury rates during the 1990's, coincided with increased prevention efforts, including legislation and education, aimed at reducing unsupervised access to guns by children.

- It is estimated that two safety devices - gun locks and load indicators - could prevent more than 30% of all unintentional firearm deaths.
- To distinguish them from real guns, toy guns must conform to marking requirements under the U.S. Department of Commerce "Marking of Toy Look Alike and Imitation Firearms" regulation.
- Eighteen states have enacted child access prevention laws, which may hold adults criminally liable for failure to either store loaded firearms in a place inaccessible to children, or use safety devices to lock guns.
- State safe-storage laws intended to prevent child access to guns, have reduced unintentional firearm-related deaths among children ages 14 and under, by an average of 23 percent. (*Safe Kids*)

One possible strategy to decrease firearm injury and deaths to children, is educational programs. These can be directed at the children themselves, or at parents and adults, to store guns more safely in the home (or out of the home). The National Rifle Association's "Eddie Eagle" program is an example of the former type of educational intervention. Unfortunately, few of these educational interventions have been evaluated. (*National Injury Prevention and Research Center*)

## **PREVENTION RECOMMENDATIONS:**

### *For Parents:*

- Parents who own guns should always store firearms unloaded and locked up, with ammunition locked in a separate location, out of children's reach, use gun locks, load indicators and other safety devices on all firearms.
- All parents should teach children never to touch a gun and tell an adult, if they find a gun.

### *For community leaders and policy makers:*

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