Arizona Child Fatality Review Program

NINETEENTH ANNUAL REPORT
NOVEMBER, 2012

November 15, 2012

Dear Friends of Arizona's Children:

The death of a child is a tragedy, not only for his or her family, but also for our communities. The child fatality review process provides a critical opportunity to learn about the causes and circumstances of children's deaths in order to prevent future deaths as well as disabilities and injuries. A multidisciplinary team from the child's community reviews each death to determine not only the cause of death but also its preventability. In 2011, a total of 837 children younger than 18 years of age died in Arizona and the teams determined that 35 percent of these deaths could have been prevented. The number of deaths in 2011 was less than in 2010, when 862 children died.

Deaths due to motor vehicle crashes and other types of transportation have steadily declined from 164 in 2007 to 70 in 2011. The rate of motor vehicle crash fatalities in 2011 was 3.7 deaths per 100,000 children, a slight increase from 2010 when the rate was 3.6 per 100,000 children. Lack of or improper use of vehicle restraint was identified as a preventable factor for 33 of the motor vehicle crash deaths and drugs and/or alcohol was a factor in 15 of the deaths.

In 2011, 122 of the child deaths occurred in or around the home. Thirteen of these deaths were due to drowning. More than half of the children who died in and around the home were less than one year old. Seventy-six percent of these deaths were deemed to have been preventable and the most common preventable factor was lack of supervision (56 percent).

The number of maltreatment deaths increased from 2010 to 2011. The Child Fatality Review Program determined that 71 children died as a result of maltreatment in 2011. By comparison, there were 70 children who died as a result of maltreatment in 2010. Over half of these children were less than one year old. Drugs and/or alcohol contributed to 72 percent of these deaths (n=49). Additionally, more than 1 in 4 children who died from maltreatment were known to have had a physical, mental, and/or sensory disability.

The Arizona Child Fatality Review Team includes in this report many recommendations to prevent future child deaths. We hope that families, communities and policy makers will adopt these recommendations in order to prevent future child deaths.

Sincerely,

Mary Ellen Rimsza, MD
Chair, Arizona Child Fatality Review Program
Arizona Chapter, American Academy of Pediatrics
University of Arizona College of Medicine

ARIZONA CHILD FATALITY REVIEW TEAM

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NOVEMBER, 2012

MISSION:

To reduce preventable child fatalities through systematic, multidisciplinary, multi-agency and multi-modality review of child fatalities in Arizona, through interdisciplinary training and community-based prevention education, and through data-driven recommendations for legislation and public policy.

Submitted to:

The Honorable Janice K. Brewer, Governor, State of Arizona
The Honorable Andy Biggs, President, Arizona State Senate
The Honorable Andy Tobin, Speaker, Arizona State House of Representatives

This report is provided as required by A.R.S. §36-3501(C) (3)

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This publication can be made available in alternative formats. Please contact the Child Fatality Review Program at (602) 364-1400 (voice) or call 1-800-367-8939 (TDD).

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ACKNOWLEDGMENTS

We wish to acknowledge the following individuals, businesses, and/or organizations for their efforts to reduce child deaths in our communities and their dedication to improving safety for all Arizona residents.

- The more than 300 volunteers who contributed more than 5,900 hours of their time to review child deaths which occurred during 2011. It is through their hard work that we were able to learn about the causes of child fatalities and what we, as individuals and as a society, can do to reduce the number of preventable deaths of children in Arizona.

- Carol Punske who has served children and her community through her work with Arizona Child Protective Services. Carol has served on the Pima County Fatality Review Team since its inception in 1993 and her knowledge has proven to be invaluable to the team. After a career of more than 20 years, she is moving on to a well-deserved retirement.

- Jean Oliver and her commitment to develop a better awareness of domestic violence. Additionally, Jean has been a driving force in the Child Fatality Review Process in Gila County. She has assembled volunteers and many professionals from all service organizations in Payson. Jean taught the committee how to conduct child death reviews and ensure quality data. Jean recently retired from Time Out, Inc, where she served as a volunteer, board member, advocate and education coordinator. In doing so, she also retires from her duties as the child fatality review coordinator. Her support, direction and dedication will be dearly missed.

- All individuals and entities who have responded promptly and efficiently to records requests. Adequate reviews are only possible if the teams have accurate and current information to review. This includes entities such as medical examiner's offices, local hospitals, law enforcement and private practice facilities.

EXECUTIVE SUMMARY

The Arizona Child Fatality Review Program was created in 1993 (A.R.S. § 36-342, 36-3501-4) and data collection began in 1994. Reviews of child deaths are completed by 12 local child fatality teams located throughout Arizona. The State Team provides oversight to the local teams, produces an annual statistical report summarizing review findings, and makes recommendations regarding the prevention of child deaths. These recommendations have been used to educate communities, initiate legislative action, and develop prevention programs. The Arizona Department of Health Services provides professional and administrative support to the state and local teams and analyzes review data.

In 2011, 837 children younger than 18 years of age died in Arizona. This was a three percent decline from 2010 when 862 children died. This is especially significant considering the population of children younger than 18 increased from 2010 to 2011 by 0.74 percent (1,629,014 in 2010 to 1,641,114) in 2011. It should also be noted that the statewide birth rate declined from 13.6 births per 1,000 population in 2010 to 13.2 births per 1,000 population in 2011.

Arizona Child Fatality Review Teams reviewed 100 percent of child deaths and determined that 35 percent of these deaths could have been prevented.

- 100 percent of homicides were preventable.
- 96 percent of maltreatment deaths were preventable.
- 96 percent of firearm-related deaths were preventable.
- 94 percent of drowning deaths were preventable.
- 91 percent of motor vehicle crash deaths were preventable.
- 89 percent of accidental deaths were preventable.
- 87 percent of suicides were preventable; and
- 79 percent of home and safety-related deaths were preventable.

In 2011, the number of deaths among all age groups either declined or remained the same from 2010 with the exception of children ages 10 through 14 years of age and 15 through 17 years of age. The number of child deaths of children ages 10 through 14 increased from 66 in 2010 to 72 in 2011. The number of child deaths of children ages 15 through 17 years of age increased from 93 in 2010 to 96 in 2011.

Deaths continued to be disproportionately high among most minority children in Arizona during 2011. African American children comprised five percent of the population in Arizona, but eight percent of the fatalities. American Indian children comprised five percent of the population and nine percent of deaths. Hispanic children accounted for 43 percent of the population and 45 percent of child fatalities.

The percentage of deaths associated with substance use (illegal drugs, prescription drugs, and/or alcohol) continued to increase in 2011. Twenty-six percent of all child deaths were associated with substance use (n=215), an increase

from 2010 when substance use was associated with 20 percent of all child deaths (n=175).

The rate of motor vehicle fatalities increased slightly from 2010 when 3.6 children per 100,000 children died. In 2011, 3.7 children per 100,000 children died. There were a total of 70 children in 2011 whose deaths were attributed to motor vehicle crashes and other transportation incidents. Motor vehicle crashes claimed the lives of 63 children in 2011, an increase from 2010 when 58 children died in motor vehicle crashes. Ninety-one percent of transportation-related deaths were determined to have been preventable (n=64). Lack of vehicle restraint was identified as a preventable factor for 46 percent of motor vehicle crash fatalities (n=33). This does not include 3 children who died during air transport or one incident involving a train.

The rate of drowning fatalities declined from 2.0 per 100,000 children in 2010 to 1.9 per 100,000 children in 2011. Thirty-two children died due to drowning during 2011, and 94 percent of these deaths were determined to have been preventable. The highest number of drowning deaths were among children one through four years of age.

The child suicide rate increased dramatically from 1.5 deaths per 100,000 children in 2010 to 2.6 deaths per 100,000 children in 2011. Thirty-nine children took their own lives during 2011, and 87 percent of these deaths were determined to have been preventable (n=34). The use of drugs and/or alcohol was the most commonly identified preventable factor in child suicides during 2011 (51 percent, n=20). The majority of suicides were among children ages 15 through 17 years (64 percent, n=25), and the youngest child to have completed suicide in 2011 was seven years old.

The number of deaths due to maltreatment increased from 70 in 2010, 8 percent of all child deaths to 71 in 2011, also 8 percent of all child deaths that year. Blunt force trauma was the leading cause of maltreatment-related deaths among children in Arizona during 2011. Ninety-six percent of maltreatment deaths were determined to have been preventable (n=68). Among the maltreatment deaths, 34 had prior involvement with Child Protective Services and 15 of these had open cases at the time of death.

Sixty-four infants died in unsafe sleep environments in 2011, including 42 infants who were placed to sleep in adult beds and two who were placed to sleep on couches. This was a decline from 2010 when 77 children died in unsafe sleep environments. Thirty-six infants were placed to sleep on their sides or stomachs. Thirty-six infants were bed sharing with adults and/or other children, and 6 of the adults who were sharing a bed with an infant were known to have been impaired by drugs and/or alcohol.

OUTCOMES RELATED TO PREVIOUS RECOMENDATIONS

Deaths due to substance abuse

The Division of Behavioral Health Services (DBHS) conducted a statewide needs assessment and key informant interviews to create an online training for Emergency Department medical staff. The training incorporates both screening and assessment for suicide and substance abuse. Additionally, DBHS created a decision tree regarding accessing and paying for behavioral health services, including the utilization of the Substance Abuse Prevention and Treatment block grant. DBHS has initiated statewide outreach to hospitals to incorporate these into their current practices.

The Governor's Office for Children, Youth, and Families and ADHS received a new $7.5 million federal grant which will allow Arizona to identify substance abuse problems and begin intervention in primary care offices and the emergency room. The Screening, Brief Intervention and Referral to Treatment (SBIRT) grant will help primary care providers identify patients who are at risk for or who have underlying substance abuse problems that might otherwise go unnoticed and untreated. The grant will help reduce the number of substance use related deaths and the prevalence of substance abuse disorders in the five northern Arizona counties: Apache, Coconino, Mohave, Navajo, and Yavapai using the SBIRT model. Integration of behavioral health services into primary care centers and the hospital emergency rooms provides opportunities for early intervention with at-risk substance users before more severe consequences occur.

Unexplained infant deaths, including unsafe sleep environments

Two of Arizona's Safe Kids Coalitions (Coconino County and Maricopa County) have included safe sleep information as part of their child passenger safety education materials distributed to families at all car seat safety check-up events.

The Arizona Perinatal Trust (APT) is a private-public partnership among hospitals, health care professionals, and state agencies throughout Arizona committed to an effective regionalized perinatal health care system. The APT has developed *Recommendations and Guidelines for Perinatal Care* and designates hospitals based on the maternal and neonatal care the facility is capable of delivering. Some of these guidelines include requirements for parent education on safe sleep environments and preventing sudden unexpected infant deaths.

The Arizona Perinatal Trust continues to monitor certified hospitals for safe sleep education during certification site visits. The APT shared recommendations from previous Child Fatality Review Program reports and its findings on the alarming number of child fatalities due to unsafe sleep environments and issued a call to action for safe sleep education program and modeling of safe sleep practices in the hospital. The APT provided safe sleep education information consistent with recommendations from the American Academy of Pediatrics and the Back to Sleep Campaign from the National Institute of Child Health and Human Development to all hospitals providing obstetrical services in Arizona.

Deaths due to prematurity

The Arizona Department of Health Services continues to serve on the Centers for Disease Control (CDC) Preconception Health Consumer Workgroup and screened preconception health materials designed for consumers prior to them being posted on the CDC Preconception Health Resource Center. In addition, Arizona Department of Health Services/Bureau of Women's and Children's Heath (ADHS/BWCH) has committed to distributing the preconception health social marketing campaign when it is launched in February 2013 and working with other partners across the state to assist with increasing the campaign's reach around the state.

Following completion of the Arizona Preconception Health Strategic Plan, the Bureau convened a Preconception Health Implementation Task Force which meets quarterly to ensure that selected strategies and activities contained in the strategic plan are being accomplished. One activity completed is a report on the health status of women in Arizona which will serve as a baseline for assessing whether various prevention efforts are having the desired impact over time. The Bureau provided community health grant funding to 7 county health departments and 6 of the agencies are working on preconception health activities that are unique to their local populations. These grant activities include working with schools on educating youth about healthy living, educating local health care providers on preconception health care and designing life plans for youth to complete and discuss with the school nurse.

The Arizona Perinatal Trust (APT) has worked with their member hospitals to eliminate non-medically indicated deliveries before 39 weeks. With the help of the local March of Dimes Chapter, the APT distributed the March of Dimes 39 week toolkit to each certified hospital (40 of Arizona's 46 birthing hospitals) in 2011 and then requested that each hospital develop a written policy of how they will eliminate elective inductions before 39 weeks. These plans are reviewed during site visits. To date, 90 percent of all certified hospitals have a hard stop in place. In addition, the March of Dimes launched a Healthy Babies are Worth the Wait campaign to help couples understand the potential complications of preterm births and the benefits of delivering at 39 weeks or later. ADHS, the APT, and March of Dimes pledged to work together on this prematurity awareness campaign and set a goal of reducing prematurity by 8 percent by 2014.

Deaths due to motor vehicle crashes

The Arizona Legislature enacted legislation that requires the use of booster seats for children who are between five and eight years of age and are less than four feet, nine inches in height.

The Arizona Game and Fish Department (AZGFD) provided public outreach, information, education, and enforcement efforts to the public statewide. Through multiple collaborative group efforts that promoted safe Off Highway Vehicle (OHV) riding, which included attending outreach events with the All-Terrain Vehicle Simulator and giving children and their families access to safe riding information. The AZGFD worked with all state and federal law enforcement agencies, Division of Motor Vehicles, natural resource agencies and the general public with the "OHV laws and places to ride"

brochure. The AZGFD issued 698 citations regarding off highway vehicle violations as well as an unrecorded amount of written and verbal warnings.

Motor vehicle safety courses including child seat safety with an emphasis on booster seats was provided by the Navajo County Public Health Services District. Adolescent education in the school setting was provided regarding seatbelt use and motor vehicle safety, specifically addressing the dangers of alcohol and driving under the influence.

The American Automobile Association (AAA) Arizona began a new safety program entitled *Permit Prep 101* that prepares teens for their written permit test and educates families on what they need to know before their new driver takes the wheel. *Safe Ways to School* workshops were completed covering the basics regarding pedestrian, school bus and bike safety for elementary-aged children. AAA recognized school Crossing Guards of the Year in Pima and Maricopa Counties and donated hundreds of safety vests to be worn by school crossing guards.

Deaths due to injuries

The Arizona Injury Prevention Program provided local child death and injury data to First Things First Regional Councils so they could utilize this information to develop regional grants targeting injury prevention.

Coconino County Public Health Services District Injury Prevention Programs started a Cribs 4 Kids program in Coconino County and made a video on safe sleep for the local healthcare centers. They assisted the Hualapai and Supai Nations with child passenger safety check-ups and distribution events. More than twenty Child Passenger Safety Technicians were certified in Northern Arizona. Input and guidance was given to the City of Flagstaff regarding two ordinances recently passed regarding helmet laws as they pertain to minors and no consumption of alcohol in two public parks without a permit. Two hundred and ninety five car seats and 365 helmets were distributed in Coconino County and 321 seats were checked for proper installation.

The Injury Prevention Program at Cardon Children's Medical Center provided health and safety programs and education to schools, community groups, parents, health fairs and safety fairs. The events have primarily been based in the East Valley though portions of the programs reached throughout the state. One of the most important community programs has been the Annual Walk for Water Safety a drowning prevention program that provides lifeguard wrist tags and safety information to thousands of families throughout the state. This program continues to operate in collaboration with the community fire departments, businesses and coalitions throughout the state. During 2011, the Injury Prevention Program at Cardon Children's Medical Center educated over 1800 children on various injury prevention topics. Sixty thousand individuals were impacted by water safety information provided to children and their families. Four hundred and ninety seven helmets were distributed throughout the school year and education on helmet safety was taught to over 2,000 children. Twenty-four car seat classes were taught and 68 seats were distributed during these classes. In partnership with Safe Kids and the Governor's Office for Highway Safety, an additional 100 seats were checked for safety and 71 were distributed to families in need.

The Injury Prevention Center at Phoenix Children's Hospital (PCH) provided varied interventions aimed at reducing childhood injuries and deaths by promoting safe and healthy children, families and communities. Five key areas were addressed during 2011: 1) child passenger safety; 2) bike and pedestrian safety; 3) child abuse prevention; 4) home safety; and 5) water safety. The Injury Prevention Center distributed 1,200 car seats and performed 395 car seat checks. Six thousand clings and safety information were distributed promoting safety in and around cars. The application titled *Car Seat Helper* was created for iPhone, iPad and Android mobile devices with over 5,000 downloads. Darkness to Light – Stewards of Children, Child Sexual Abuse Prevention provided training to over 400 individuals. Phoenix Children's Hospital distributed over 2,000 helmets and presented information on safety while walking to school to 45 schools. One thousand and fifteen parents were educated on home safety and PCH distributed 115 cribs to parents to promote safe sleeping environments for infants.

Many of the First Things First Regional Councils throughout the state have chosen to support Child Care Health Consultants (CCHC). Consultants have used a strengths-based approach with 497 child care centers and homes to achieve best practice goals in all areas of early childhood development. Areas of focus included health and safety issues related to growth and development, caregiving and parenting, physical activity, nutrition, medication, oral health, abuse and neglect, and mental health. Child Care Health Consultants provide training based on the curriculum from the National Training Institute, University of North Carolina at Chapel Hill. CCHCs provide health and safety education and support based on the individual needs of a child care provider. Training topics include: playground safety, safe sleep, medication administration, and emergency preparedness.

The Arizona Adverse Childhood Experiences (ACE) Consortium has worked to enhance public awareness of the impact childhood trauma can have on adult disease and early death. The ACE Consortium is a collaboration among community leaders to promote safe, stable and nurturing communities and thereby reduce incidents of childhood trauma. The ACE Study suggests that traumatic experiences in childhood are major risk factors for the leading causes of illness and death as well as poor quality of life. To combat childhood trauma the ACE Consortium brings together partners from health care, public health, behavioral health, education, media, child welfare, community service providers, child advocacy organizations and others. With the collaboration of these diverse individuals and agencies, the ACE Consortium is helping Arizona strengthen families and communities by getting the word out so that "Strong Communities Raise Strong Kids". By promoting healing from the effects of abuse and ways to prevent it from occurring in the first place, the ACE Consortium is helping Arizona create safe, stable and nurturing families and communities.

During 2011, the Never Shake a Baby Arizona education project educated 34,709 parents out of the 39,085 births at participating facilities for an overall education rate of 88 percent, statewide. This grant funded parent education program reaches across

Arizona to provide information on coping with crying and prevention of accidental head trauma for our state's most vulnerable children.

Deaths due to suicide

The Central Arizona Suicide Prevention Project has changed the mindset about suicide prevention in Arizona and around the country. The Arizona Department of Health Services and The Department of Behavioral Health Services partnered with Magellan Health of Arizona to train over 2,400 behavioral health employees in an innovative and successful approach to suicide prevention and intervention. The heart of this approach is to train any and all staff who may encounter a suicidal individual on how to engage the individual in a sincere and caring conversation rather than simply referring them on to an “expert” as quickly as possible. The project has also created survivor support groups, family engagement groups and the opportunity for survivors to actively assist others to make it through a painful time in their lives. There have been substantial drops in the suicide rates for all behavioral health members including children (67%) between FY2007 and FY2012.

The Arizona Department of Health Services Division of Behavioral Health developed a taskforce and has continued to explore the development and implementation of a Suicide Investigation Checklist for use by law enforcement when investigating child suicides. They have also included suicide prevention in the Children and Adult System of Care Strategic Plan, provided gatekeeper trainings and online early identification training for emergency department personnel.

Deaths due to drowning

Since 2002, the Drowning Prevention Coalition of Arizona has promoted a three-pronged approach to water safety. This includes: 1) promoting barriers; 2) supervision; and 3) classes in CPR and swim lessons at the appropriate age. With the approval of the American Academy of Pediatrics, DPCA included water safety classes as a layer of protection for drowning prevention. DPCA has increasingly stressed the importance of both children and their caregivers knowing how to swim. This has led to the introduction of the Water SMART Babies program that involves the healthcare provider in prescribing water safety classes for their patient’s families.

RECOMMENDATIONS

Based on its review of child deaths that occurred in 2011 and in previous years, the State Child Fatality Review Team recommends specific actions to prevent future child deaths in Arizona:

To Prevent Deaths due to Suicide

In 2011, 39 children took their own lives. This was a dramatic increase from 2010 when 24 children died by suicide. The primary mechanism by which a child completed suicide was by hanging (n=24). Identification of children at risk for suicide can be difficult, and warning signs are not always recognized or taken seriously. Improvements in the investigations of child suicides may increase review teams' abilities to identify risk factors which may lead to improved methods for addressing a child's despondency prior to suicide, giving family members, schools, caregivers and the community opportunities for intervention.

Recommendation to the Governor's Office of Children, Youth and Families: Support the Department of Health Services in examining methods to strengthen the investigation of the circumstances surrounding child suicides in order to enhance statewide suicide prevention strategies.

Recommendation to the Department of Health Services: Develop a Suicide Investigation Checklist for use by law enforcement when investigating child suicides.

Recommendation to the Arizona Department of Health Services Division of Behavioral Health Services: Incorporate guidance regarding the flow of information between the Regional Behavioral Health Authorities, providers and local child fatality review teams within existing contracts or policies to ensure timely coordination of information.

Recommendation to Parents: Become informed of the risk factors for suicide of your children and their friends. Treat all suicidal talk and threats as if they are real. The National Suicide Prevention Lifeline phone number is 1-800-273-8255. Program this number into your mobile device and call for help if you have questions about suicidal ideation.

Recommendation to Schools: Educate students on the signs of suicidal ideation, including information where students may go for help either for themselves or a friend thought to have displayed these signs. Educate students on bullying, cyber-bullying, and other circumstances at school that may be risk factors for suicide.

To Prevent Deaths due to Substance Use

Substance use (including illegal drugs, prescription drugs, and/or alcohol) was associated with 215 child deaths during 2011, accounting for 26 percent of all child deaths.

Findings from the Center for Substance Abuse Treatment demonstrated that the implementation of a Screening, Brief Intervention, and Referral to Treatment (SBIRT) model in Washington State Emergency Departments resulted in Medicare savings of $185 per member, per month, primarily due to decreased costs associated with inpatient hospital admissions. Utilization of SBIRT model has been shown in both adults and adolescents to reduce substance abuse in various health care settings, including primary care, emergency department and trauma centers.

Recommendation to the Arizona Department of Health Services: Continue to work with the Arizona Home Visiting Taskforce to integrate standards for screening of substance abuse for families participating in home visiting programs.

Recommendation to the Arizona Department of Health Services: Continue outreach to hospitals and emergency departments across the state in an effort to incorporate the SBIRT model into policy and protocol and educate about the availability of the Substance Abuse Prevention and Treatment (SAPT) Block Grant funds, under which women and children are priority populations for substance abuse treatment. Additionally, expand education and outreach regarding the availability of the SAPT Block Grant Funds to federally qualified community health centers, educators, health care providers, Indian Health Service, and the Veteran's Administration.

Recommendation to Parents: Any kind of medicine and vitamin, even ones bought without a prescription, can cause harm including death to children. All medicines, vitamins and household cleaning supplies should always be kept up and away and out of your child's reach and sight.

Recommendation to Clinicians: Screen adults, including young adults and pregnant women, for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce alcohol misuse.

To Prevent Deaths due to Infectious Diseases

Outbreaks of vaccine preventable diseases are increasingly common due to decreased immunization rates. In 2011, pneumonia and influenza claimed the lives of 20 children in Arizona.

Recommendation to Parents and Caregivers: Obtain appropriate age-related immunizations for all family members in order to protect children from vaccine preventable diseases and the community from outbreaks of vaccine preventable diseases. Encourage others who have contact with children such as home care providers, child care center staff, and baby sitters to obtain appropriate immunizations.

Recommendation to Health Care Providers: Adopt and enforce policies and procedures for health care staff to receive proper immunizations.

To Prevent Unexplained Infant Deaths

Sudden infant death syndrome (SIDS) is the sudden death of an infant younger than one year of age that cannot be explained after a thorough investigation has been conducted, including a complete autopsy, an examination of the death scene, and a review of the clinical history. SIDS is a type of sudden unexpected infant death (SUID). Other types of SUID include infant deaths due to suffocation, asphyxia, poisoning, undetected metabolic or cardiac disorders, hypothermia and hyperthermia, as well as some abuse and neglect cases. This is the case definition that local review teams use to determine if an infant's death occurred suddenly and unexpectedly in children younger than one year of age while not in the care of a medical professional. For these deaths, manner and cause of death may not be immediately obvious prior to investigation.

The American Academy of Pediatrics recommendations ensuring safe sleep environments for infants include:

1. Encouraging mothers to breastfeed their infant at least until the infant is 6 months old, which may lower the risk of unexpected infant deaths.
2. Ensure that baby receives all recommended vaccines, which evidence suggests reduces the risk of sudden unexpected infant deaths.
3. Keep soft objects or loose bedding out of the crib, including bumper pads, pillows and toys.
4. Have baby sleep in the same room as the parents, but not in the same bed.
5. Always place baby to sleep on his/her back for sleep. Additional information regarding the updated recommendations can be found at http://HealthyChildren.org.

Recommendation to the Arizona Perinatal Trust: Continue to evaluate the safe sleep practices and safe sleep education programs for parents in reviews and site visits of all Arizona birthing hospitals.

Recommendation to Professionals Who Have Contact With Infants: During health care visits, ask parents about their infant's sleep environment, and provide information on American Academy of Pediatrics' recommendations for safe sleep practices.

Recommendation to Parents and Caregivers: Parents and caregivers of infants should follow the recommendations on safe sleep from the American Academy of Pediatrics as listed above.

Recommendation to Safe Kids Coalitions: Provide information to families on safe-sleep recommendations at all car seat safety checks and other community events where parents of infants may be available.

Recommendation to Arizona Hospitals Caring for Infants: Model safe-sleep practices, using the recommendations from the American Academy of Pediatrics including placing infants on their back to sleep and having cribs free of soft objects and loose bedding.

To Prevent Deaths due to Motor Vehicle Crashes

Primary seatbelt laws are important not only for raising adult safety belt use, but also for increasing the number of children who are protected by occupant restraints. Research shows that when adults buckle up, 87 percent of children buckle up too. Arizona's secondary seat belt law does not allow law enforcement officers to stop and cite a driver for non-use of a seat belt unless the driver has committed another offense. Fifty-one percent of the child deaths involved in motor vehicle crashes in 2011 involved a driver or passenger old enough to have been wearing a seat belt and was known to have been improperly or not restrained (when seating position of the child was known).

Recommendation to the Arizona Legislature: Enact a primary seat belt law to allow law enforcement officers to cite a driver and occupants for not wearing a seat belt in the absence of other traffic violations. This has already been enacted in four Arizona Tribal Nations.

Recommendation to County and City Governments: Strengthen distracted driving laws to include prohibition of mobile device usage while driving, as the cities of Phoenix and Tucson have done.

Recommendation to Community Agencies: Educate parents, caregivers, schools and child care providers on proper child safety seat installation, including education on new booster seat law. Provide available safety seats to families in need.

Recommendation to Tribal Entities/Communities That Do Not Have Child Passenger Safety Laws: Adopt Arizona Revised Statutes regarding the usage of child safety seats.

To Prevent Home Safety-Related Deaths

In 2011, 122 children died in or around the home. Lack of supervision was a preventable factor that was identified in 56 percent of the deaths. Supervision may be direct and constant, intermittent or focused on an area of play space. The type of supervision is dependent upon the activity and location as well as the age and skill of the child. As an example, proper supervision of a young non-swimmer requires the supervising adult to be within an arm's length to provide "touch supervision."

Recommendation to Arizona Drowning Prevention Programs: Drowning prevention programs should emphasize "touch supervision" to prevent child drowning.

Pool fencing is an important prevention strategy for decreasing the risk of drowning in swimming pools when children are not supposed to have access to the water. Compared with no fencing, installation of 4-sided fencing that isolates the pool from the house and yard has been shown to decrease the number of pool-immersion injuries among young children by more than 50 percent.

Recommendation to the Arizona Legislature: Strengthen current legislation regarding pool fencing to require four-sided fencing with self-closing and self-latching gates for all backyard pools where children live or play.

Recommendation City and County Governments: Strengthen and/or develop ordinances regarding pool fencing to require four-sided fencing with self-closing and self-latching gates for all backyard pools where children live or play.

In 2011, there were several drowning deaths during celebrations where family and friends gathered near an outside pool area. These drowning deaths can happen when an adult is distracted by preparing meals or otherwise leaves the pool area.

Recommendation to Parents: During celebrations where family and friends are gathered, at least one responsible adult should be designated to monitor the pool area. If a child is a non-swimmer and is in the pool, an adult must be in the pool with the child. Do not rely upon floaties or inner tubes, as these are toys, not life-saving devices. Always utilize “touch supervision.”

Storing firearms locked and unloaded, with ammunition locked separately, can reduce the risk of injuries and deaths including suicides involving children and teens. There were 23 firearm-related child deaths in 2011 (78 percent of these deaths were among children 10 years of age or older). Only one death involved a gun that was in a locked safe, however, the child did have access to the key. According to a study by researchers from the Harborview Injury Prevention and Research Center at the University of Washington, safe storage of firearms is associated with a significant decrease in firearm injuries in home with children and teenagers.

Recommendation to Firearm Owners: Families with children should store all firearms unloaded, in a secure locked location. Firearms should be removed from homes where children, adolescents or caregivers have exhibited or are exhibiting signs or symptoms of substance abuse or mental illness, including depression.

Recommendation to Health Care Providers: Continue to educate parents about gun safety by asking whether or not there are firearms in the home, how those guns are stored and the presence or absence of signs or symptoms of substance abuse or mental illness, including depression, among children, adolescents and other family members.

Recommendation to Parents: Ask how friends, neighbors and caregivers use and store their firearms and ammunition where your children may play or be cared for.

To Prevent Deaths due to Maltreatment

Communities and families have a duty to report suspected child abuse or neglect. The responsibility to protect Arizona’s most vulnerable population, our children, lies not only with the immediate family of the child, social service agencies, or even medical professionals, but with the community at large as well. Twenty percent of child

maltreatment deaths in 2011 were not reported to Arizona Child Protective Services, even after a complete investigation, that there was suspected abuse or neglect. Prior to the death event there were no reports by the child's extended family, family friends or community members. It is unlikely that abuse or neglect was present in a child's life and went unnoticed or suspected. When a community member, family member or family friend has reason to believe that a child is being or has been abused or neglected, he/she has a responsibility to report that suspicion.

Recommendation to Community Members: When abuse or neglect of a child is suspected, report suspicions to Arizona's Child Protective Services at 1-888-767-2445.

Numerous child abuse deaths were in families who had histories with child protective service agencies in other states. In some deaths the abuse history was extensive. It can be difficult for Arizona Child Protective Services to identify previous states of residence.

Recommendation to Arizona Lawmakers, Child Advocates and State Agencies: Advocate for the development of a national child abuse registry which would provide critical information when assessing a child's safety.

Reviews have concluded that deaths of children due to abuse or neglect are not consistently reported to Child Protective Services (CPS). Failure to report often occurs when there were no other children in the home at the time of the death. Child Protective Services' investigations of all child deaths in which there are suspicions of abuse or neglect provide critical information in the event of future reports involving the family.

Arizona Revised Statute13-3620 requires a duty to report abuse, physical injury, neglect and denial or deprivation of medical or surgical care or nourishment of minors. This statute outlines responsibilities for mandated reporters. Section A states: Any person who reasonably believes that a minor is or has been the victim of physical injury, abuse, child abuse, a reportable offense or neglect that appears to have been inflicted on the minor by other than accidental means or that is not explained by the available medical history as being accidental in nature or who reasonably believes there has been a denial or deprivation of necessary medical treatment or surgical care or nourishment with the intent to cause or allow the death of an infant who is protected under section 36-2281 shall immediately report or cause reports to be made of this information to a peace officer or to Child Protective Services in the Department of Economic Security, except if the report concerns a person who does not have care, custody or control of the minor, the report shall be made to a peace officer only.

Recommendation to all Arizona Law Enforcement Officers, Physicians and other Mandated Reporters: Promptly report every child death where child abuse or neglect is suspected to the Child Protective Services' Child Abuse Hotline (1-888-SOS-CHILD).

Children with special health care needs are at increased risk for maltreatment. In 2011, 17 percent of maltreated children had special health care needs (n=12), this was an increase from 2010 when 16 percent of maltreatment children had special health care needs (n=11).

Recommendation to Those Caring for Vulnerable Children, Especially Those With Special Health Care Needs: Promptly notify Child Protective Services' Child Abuse Hotline (1-888-SOS-CHILD) whenever there is suspicion of neglect of a child with a chronic medical, developmental, physical, emotional or behavioral condition.

Recommendation to the Arizona Legislature: Ensure adequate funding to the Arizona Department of Economic Security Division of Children, Youth and Families to support the needs of Arizona's vulnerable children in order to reduce the number of child deaths due to maltreatment.

Recommendation to the Arizona Legislature: Increase funding to the Arizona Department of Economic Security Division of Children, Youth and Families in order to reinstate child maltreatment prevention programs and reduce the caseload of Child Protective Services Specialists to meet the existing Arizona Caseload Standards.

Recommendation to the Arizona Department of Economic Security, Division of Children, Youth and Families: Continue to explore methods of increased communication between ADES and local child fatality review teams and its subcommittees.

INTRODUCTION

The Arizona Child Fatality Review Program was created in 1993 (A.R.S. § 36-342, 36-3501-4) and data collection began in 1994. The state team is mandated by statute to produce an annual report summarizing the findings. The state team is also authorized to study the adequacy of existing statutes, ordinances, rules, training, and services to determine what changes are needed to decrease the number of preventable child fatalities. Further, the state team is charged with educating the public regarding the number and causes of child fatalities. By statute, the state team includes representatives from:

- Attorney General's Office
- Bureau of Women's and Children's Health in the Department of Health Services
- Division of Behavioral Health in the Department of Health Services
- Division of Developmental Disabilities in the Department of Economic Security
- Division of Children, Youth and Families in the Department of Economic Security
- Governor's Office for Children, Youth and Families
- Administrative Office of the Courts
- Arizona Chapter of the American Academy of Pediatrics
- Medical Examiner's Office
- Maternal Child Health Specialist who works with members of Tribal Nations
- Private nonprofit organization of Tribal Governments
- The Navajo Nation
- United States Military Family Advocacy Program
- Prosecuting Attorney's Advisory Council
- Law Enforcement Officer's Advisory Council with experience in child homicide
- Association of County Health Officers
- Child Advocate not employed by the state or a political subdivision of the state
- A member of the public

Reviews of individual child deaths are conducted by 12 local child fatality review teams. These teams are located throughout the state and must include local representatives from Child Protective Services, a county medical examiner's office, a county health department, law enforcement, and a county prosecuting attorney's office. Membership also includes a pediatrician or family physician, a psychiatrist or psychologist, a domestic violence specialist, and a parent.

Child Fatality Review Process

When a child younger than 18 years of age dies in Arizona, a copy of the death certificate is sent to the appropriate Local Child Fatality Review Team. The local team coordinator or chairperson then requests relevant documents which may include the child's autopsy report, hospital records, Child Protective Services' records, law enforcement reports, and any other information that may provide insight into the death. If the child was younger than one year of age at the time of death, the birth certificate is also reviewed. Legislation requires that hospitals and state agencies release this information to the Arizona Child Fatality Review Program's local teams. Team members

are required to maintain confidentiality and are prohibited from contacting the child's family.

According to the National Center for Child Death Review (www.childdeathreview.org), there are six steps to a quality review of a child's death:

1. Share, question, and clarify all case information.
2. Discuss the investigation that occurred.
3. Discuss the delivery of services (to family, friends, schoolmates, community).
4. Identify risk factors (preventable factors or contributing factors).
5. Recommend systems improvements (based on any identified gaps in policy or procedure).
6. Identify and take action to implement prevention recommendations.

Next, the local team completes a standardized Child Death Review Case Report (version 2.2) that includes extensive information regarding the circumstances surrounding the death. The case report was created by the National Center for Child Death Review.

Local Child Fatality Review Teams review deaths throughout the year and submit all reviews to the Child Fatality Review Program for inclusion in the annual report published each November. Local team coordinators as well as staff members within the Arizona Department of Health Services Bureau of Women's and Children's Health enter all submitted case reports into a confidential database created by the National Center for Child Death Review. The Arizona Department of Health Services provides professional and administrative support for the teams, and analyses of the data are completed by staff within the Bureau of Women's and Children's Health.

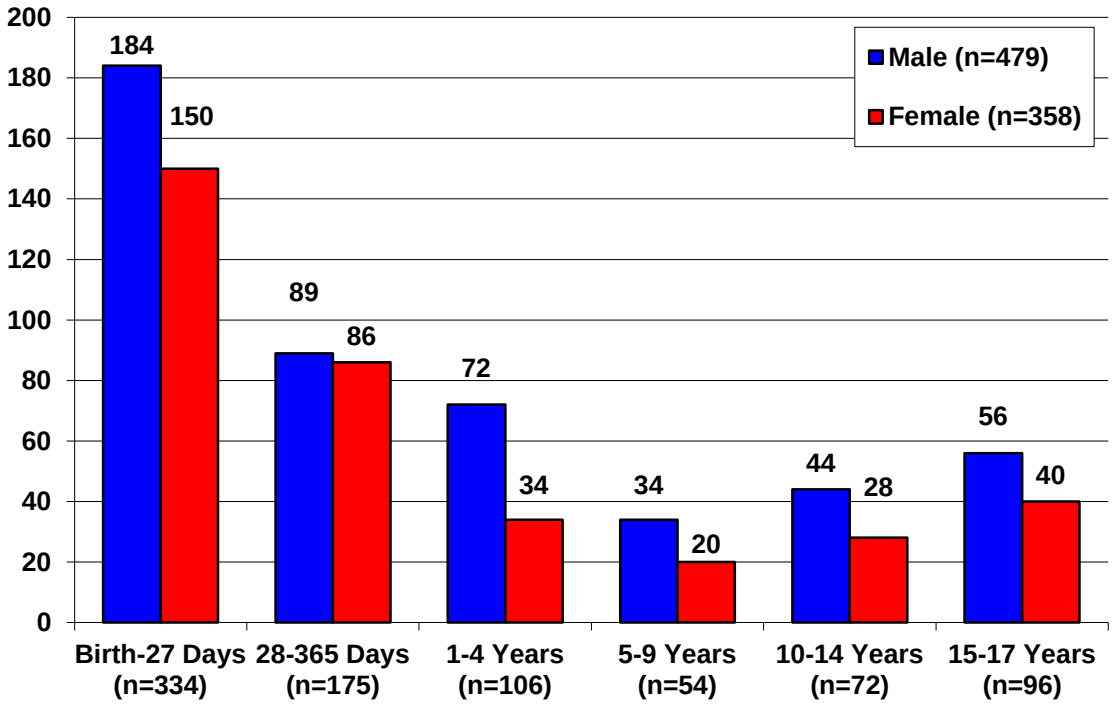
Since 2005, the Arizona Child Fatality Review Program has reviewed the death of every child who died in the state. By completing 100 percent of child death reviews, data can be compared from year to year, and trends can be identified. Where possible throughout this report, multiple years of data are presented. In cases where comparable data were not available for a given year, that year has been omitted from the chart or table.

This is the nineteenth annual report issued by the Arizona Child Fatality Review Program. Each year, the state team makes recommendations regarding the prevention of child deaths. These recommendations have been used to educate communities, initiate legislative action, and develop prevention programs. Because these reviews are completed by a multidisciplinary team of well-respected professionals, the team's recommendations are often adopted.

2011 DEMOGRAPHICS

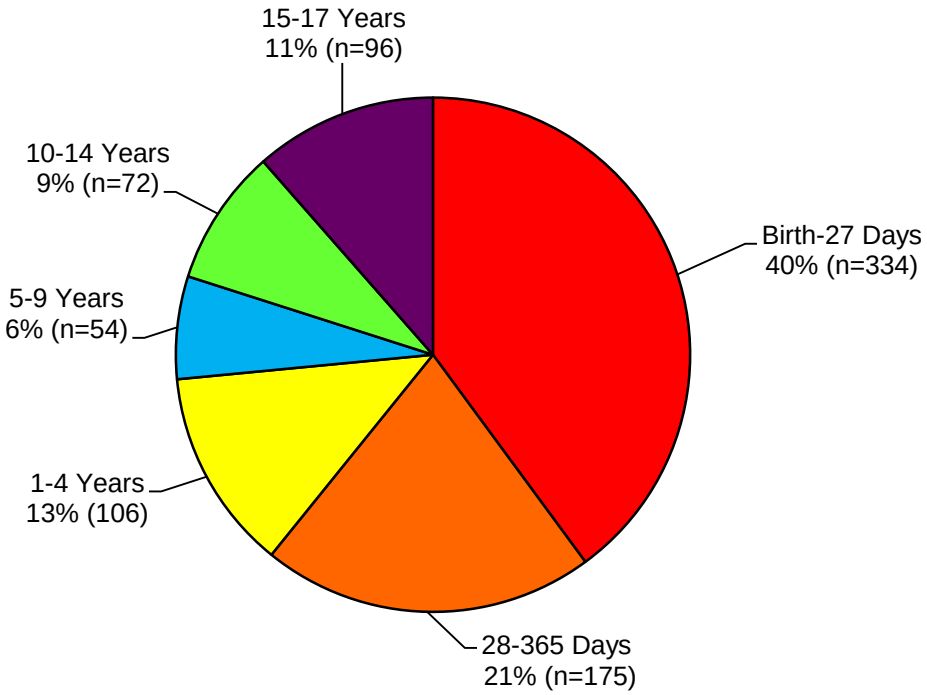
During 2011, there were 837 fatalities among children younger than 18 years of age in Arizona. This was a three percent decrease from 2010 when 862 children died. Males accounted for 57 percent of deaths (n=479) and females accounted for 43 percent (n=358). More males died in each age group, a trend that has been observed in previous years. Figure 1 shows deaths among children by age group and sex.

Figure 1. Deaths Among Children by Age Group and Sex, Arizona, 2011 (n=837)



The largest percentage of deaths was among infants younger than 28 days (40 percent, n=334). Figure 2 shows deaths among children by age group.

Figure 2. Deaths Among Children by Age Group, Arizona, 2011 (n=837)



Compared to 2010, there was an increase in the percentage of deaths among children ages 0 through 27 days and 10 through 14 years. Each of the other age groups declined or remained at the same percentage of total deaths. Table 1 shows deaths among children by age group for 2007 through 2011.

Table 1. Deaths Among Children by Age Group, Arizona, 2007-2011

Age Group	2007		2008		2009		2010		2011	
0-27 Days	485	42%	423	42%	366	39%	334	38%	334	40%
28-365 Days	225	20%	211	20%	183	19%	192	22%	175	21%
1-4 Years	113	10%	126	12%	130	14%	119	14%	106	13%
5-9 Years	67	6%	67	6%	67	7%	58	7%	54	6%
10-14 Years	92	8%	74	7%	73	8%	66	8%	72	9%
15-17 Years	161	14%	137	13%	128	14%	93	11%	96	11%
Total	**1,143**		**1,038**		**947**		**862**		**837**	

Mortality rates among all children declined 26.8 percent from 2007 through 2011, but rate decreases varied by age group. The declining mortality rate was largest among children 15-17 years of age (70.0 deaths per 100,000 population in 2006 to 35.2 deaths per 100,000 population in 2011). Table 2 shows the mortality rate among children in Arizona per 100,000 population by age group from 2007 through 2011.

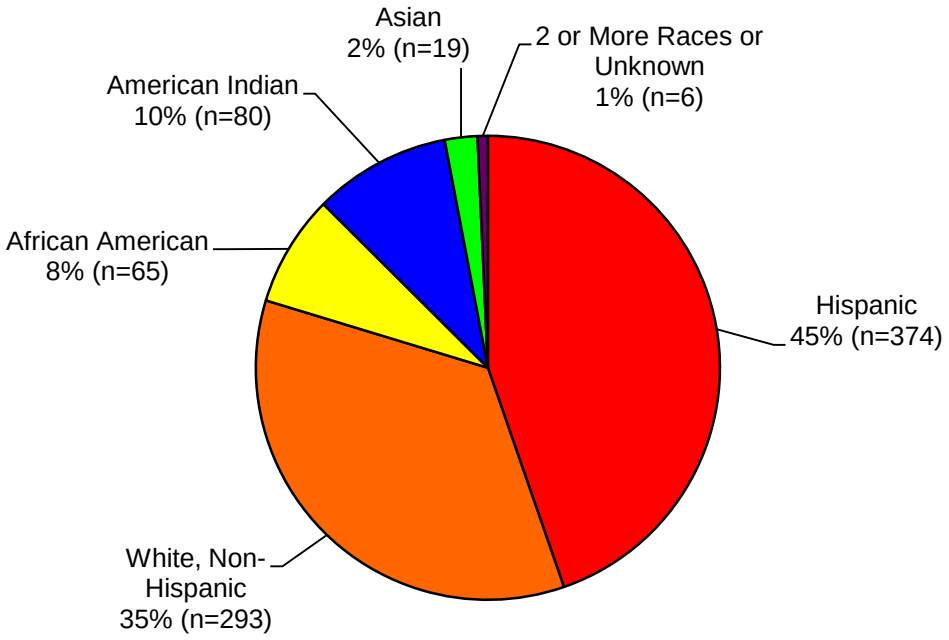
Table 2. Mortality Rates per 100,000 Population Among Children by Age Group, Arizona, 2007-2011

Age Group	2007	2008	2009	2010	2011
<1 Year*	692.1	640.0	595.0	600.8	577.0
1-4 Years	28.5	31.0	32.0	32.3	28.6
5-9 Years	14.6	14.4	14.3	12.8	11.8
10-14 Years	20.2	16.0	15.6	14.7	15.9
15-17 Years	58.0	48.6	45.0	34.3	35.2
Total	**67.6**	**60.7**	**55.1**	**52.9**	**51.0**

*As population denominators are only available for children younger than one year of age, deaths in the neonatal and post-natal periods have been combined.

Forty-five percent of child deaths in 2011 were among Hispanics (n=374), 35 percent were among White, non-Hispanics (n=293), ten percent were among American Indians (n=80), eight percent were among African Americans (n=65), two percent were among Asians (n=19), and 1 percent were among children with 2 or more races or their race was unknown. Figure 3 shows deaths among children by race/ethnicity.

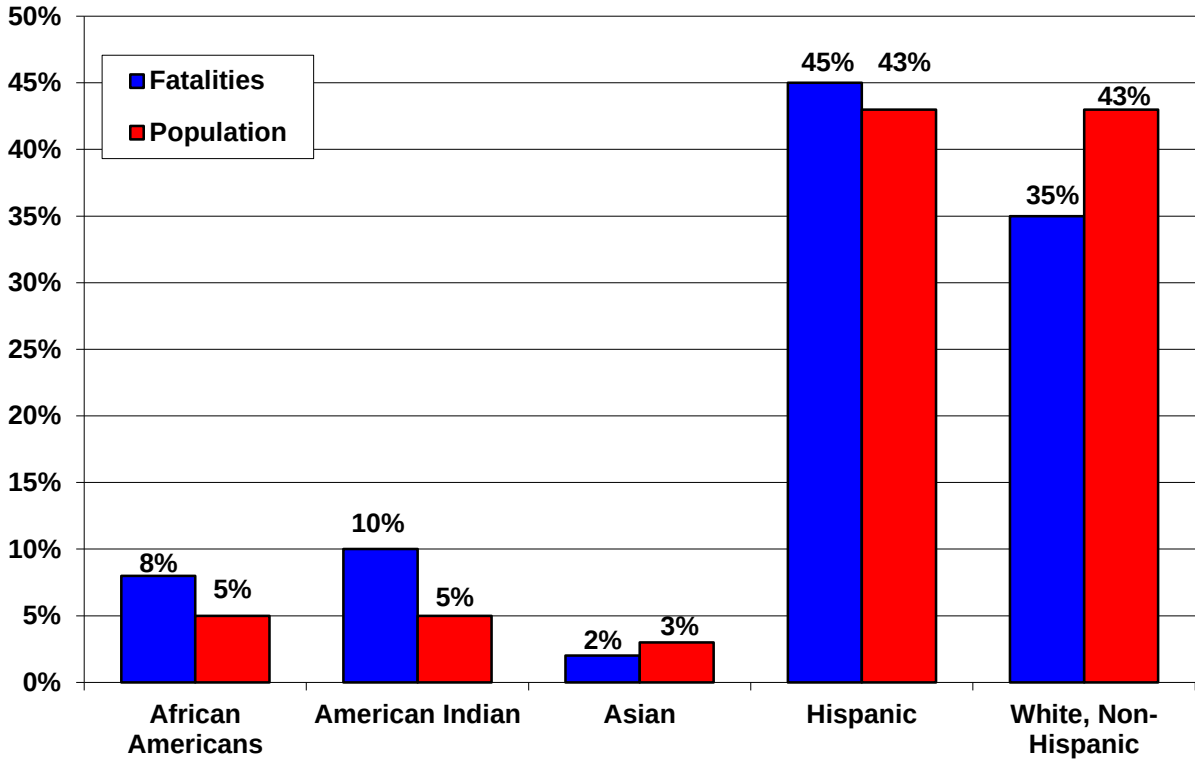
Figure 3. Deaths Among Children by Race/Ethnicity, Arizona, 2011 (n=862)



Deaths were over-represented among three of the four racial/ethnic groups in 2011 which is a similar distribution as in previous years. African American children comprised five percent of the population in Arizona, but eight percent of fatalities. American Indian children comprised five percent of the population and nine percent of deaths. Asian

children comprised three percent of the population and two percent of deaths. Hispanic children accounted for 43 percent of the population and 45 percent of child fatalities in 2011. Figure 4 shows deaths among children by race/ethnicity compared to population percentages.

Figure 4. Deaths Among Children by Race/Ethnicity Compared to Population, Arizona, 2011 (n=831*)



*Does not include categories for Unknown or 2 or more races

Compared to 2010, the percentages of child fatalities among American Indian and White, non-Hispanic children increased during 2011. For all other races/ethnicities, the percentage of child deaths by race/ethnicity declined or remained the same compared to 2010. Table 3 shows deaths among children by race/ethnicity for 2007 through 2011.

Table 3. Deaths Among Children by Race/Ethnicity, Arizona, 2007-2011

Race/Ethnicity	2007		2008		2009		2010		2011	
African American	75	7%	102	10%	93	10%	68	8%	65	8%
American Indian	104	9%	86	8%	85	9%	74	9%	80	10%
Asian	26	2%	41	4%	22	2%	32	4%	19	2%
Hispanic	529	46%	456	44%	420	44%	393	45%	374	45%
White, Non-Hispanic	409	36%	353	34%	327	35%	289	33%	293	35%
Total	**1,143**		**1,038**		**947**		**856***		**831***	

*Does not include category for 2 or more races.

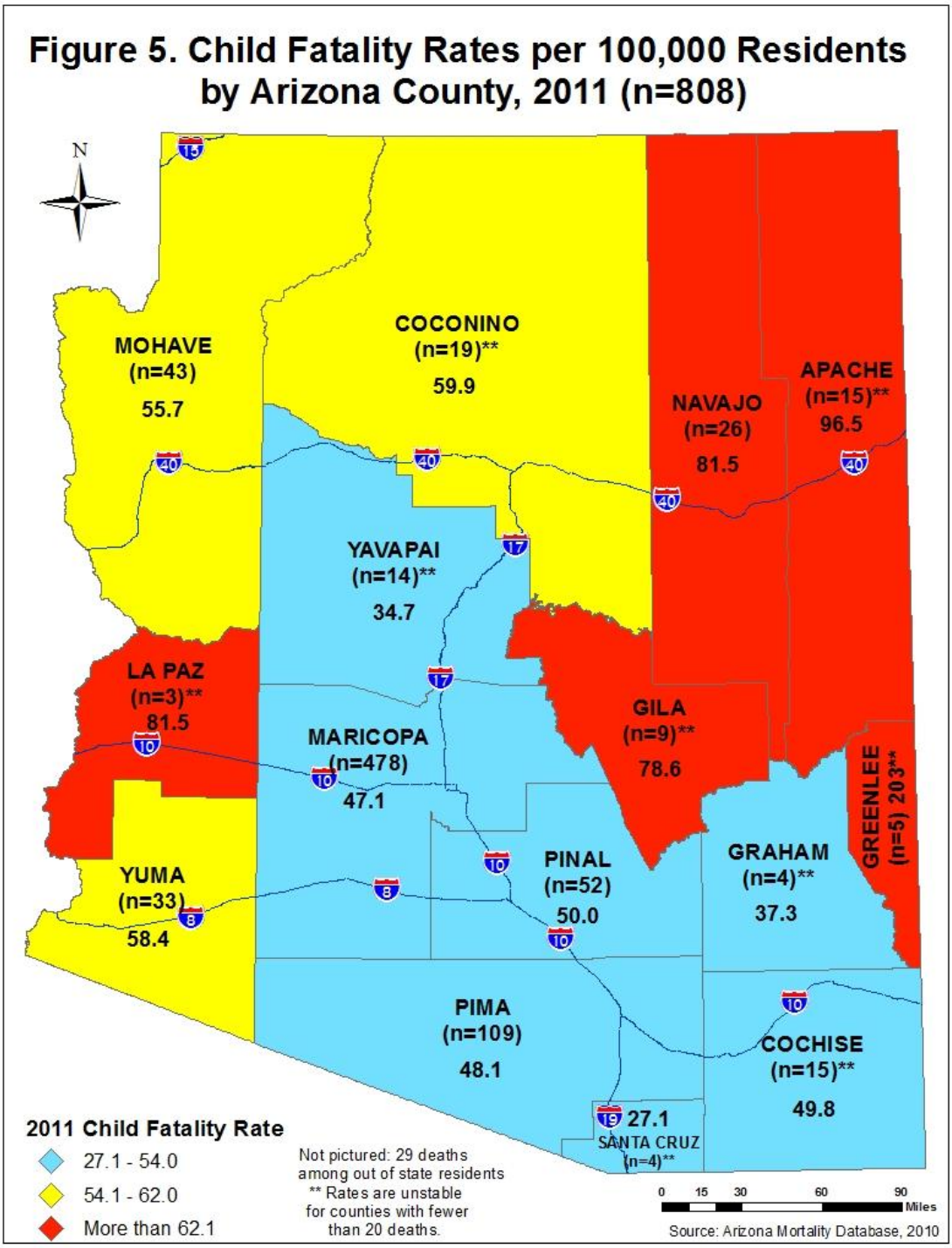
Table 4 shows deaths among children by county of residence. There were increases in the percentages of deaths among children who resided in Maricopa and Pinal counties and those children who resided outside of Arizona in 2011. The percentages of children who died in 2011 declined in Coconino and Pima Counties.

Table 4. Deaths Among Children by County of Residence, Arizona, 2007-2011

	2007		2008		2009		2010		2011	
County	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Apache	13	1%	20	2%	26	3%	12	1%	15	2%
Cochise	27	2%	24	2%	21	2%	20	2%	15	2%
Coconino	25	2%	21	2%	18	2%	26	3%	19	2%
Gila	17	1%	15	1%	9	1%	12	1%	9	1%
Graham	12	1%	11	1%	5	<1%	6	<1%	4	<1%
Greenlee	0	--	1	<1%	0	--	2	<1%	5	<1%
La Paz	1	<1%	5	<1%	5	<1%	2	<1%	3	<1%
Maricopa	648	57%	577	56%	542	57%	486	56%	478	57%
Mohave	27	2%	11	1%	21	2%	22	3%	23	3%
Navajo	39	3%	30	3%	22	2%	23	3%	26	3%
Pima	148	13%	165	16%	130	14%	130	15%	109	13%
Pinal	64	6%	52	5%	60	6%	40	5%	51	6%
Santa Cruz	6	<1%	6	<1%	7	1%	9	1%	4	<1%
Yavapai	28	2%	17	2%	20	2%	20	2%	14	2%
Yuma	35	3%	39	4%	28	3%	31	4%	33	4%
Outside Arizona	53	5%	44	4%	33	3%	21	2%	29	3%
Total	**1,143**		**1,038**		**947**		**862**		**837**	

Though Arizona's more populous southern counties had the highest numbers of child deaths in 2011, Arizona's northern counties had the highest stable rates of child fatalities. Coconino County had 59.9 deaths per 100,000 residents and Navajo County had 81.5 deaths per 100,000 residents. Pinal County had the lowest stable rate of child fatalities, with 50.0 deaths per 100,000 residents. Figure 5 shows child fatality rates per 100,000 residents by county; rates are unstable for counties with fewer than 20 deaths.

Figure 5. Child Fatality Rates per 100,000 Residents by Arizona County, 2011 (n=808)



CHILD FATALITY REVIEW FINDINGS

Cause and Manner of Child Fatalities

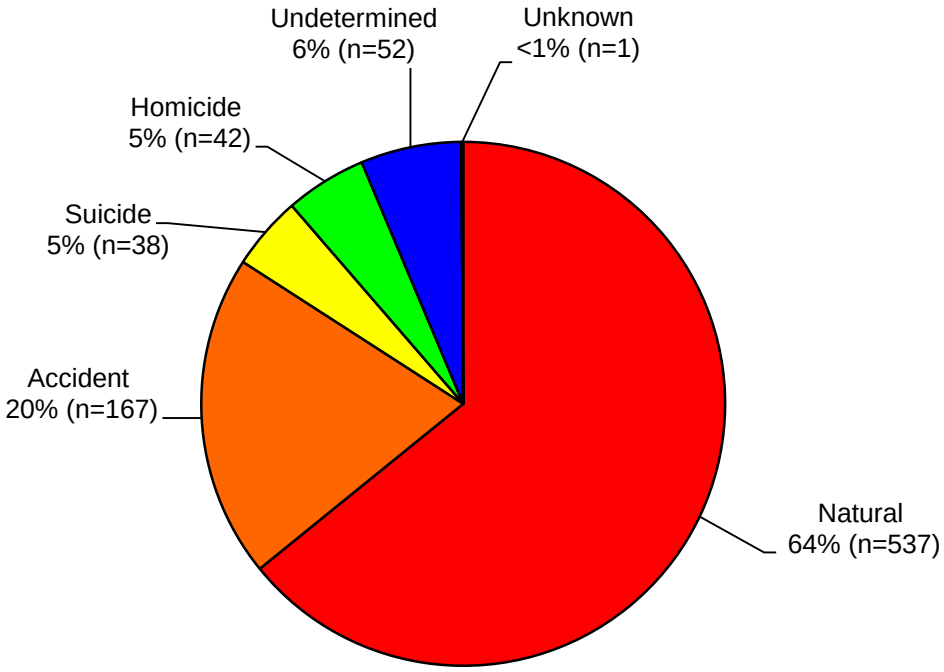
Cause of death refers to the injury or medical condition that resulted in death (e.g. firearm-related injury, pneumonia, cancer). Manner of death is not the same as cause of death, but specifically refers to the intentionality of the cause. For example, if the cause of death was a firearm-related injury, then the manner of death may have been intentional or unintentional. If it was intentional, then the manner of death was suicide or homicide. If it was unintentional, then the manner of death was an accident. In some cases, there was insufficient information to determine the manner of death, even though the cause was known. It may not have been clear that a firearm death was due to an accident, suicide, or homicide, and in these cases, the manner of death was listed as undetermined. Manners of death include:

- natural (e.g., cancer)
- accident (e.g., unintentional car crash)
- homicide (e.g., assault)
- suicide (e.g., self-inflicted intentional firearm injury)
- undetermined

In addition to reviewing medical examiner reports, Child Fatality Review Teams also review records from hospitals, emergency departments, law enforcement, Child Protective Services, and other sources. As a result of this comprehensive, multidisciplinary approach, the teams' determinations of cause and manner sometimes differ from those recorded on the death certificates. In the sections that follow, deaths are counted once for each applicable section based upon the teams' determination of the cause and manner of death. For example, a homicide involving a firearm injury perpetrated by an intoxicated caregiver would be counted in the sections addressing firearm injuries, homicides, substance use, and maltreatment fatalities.

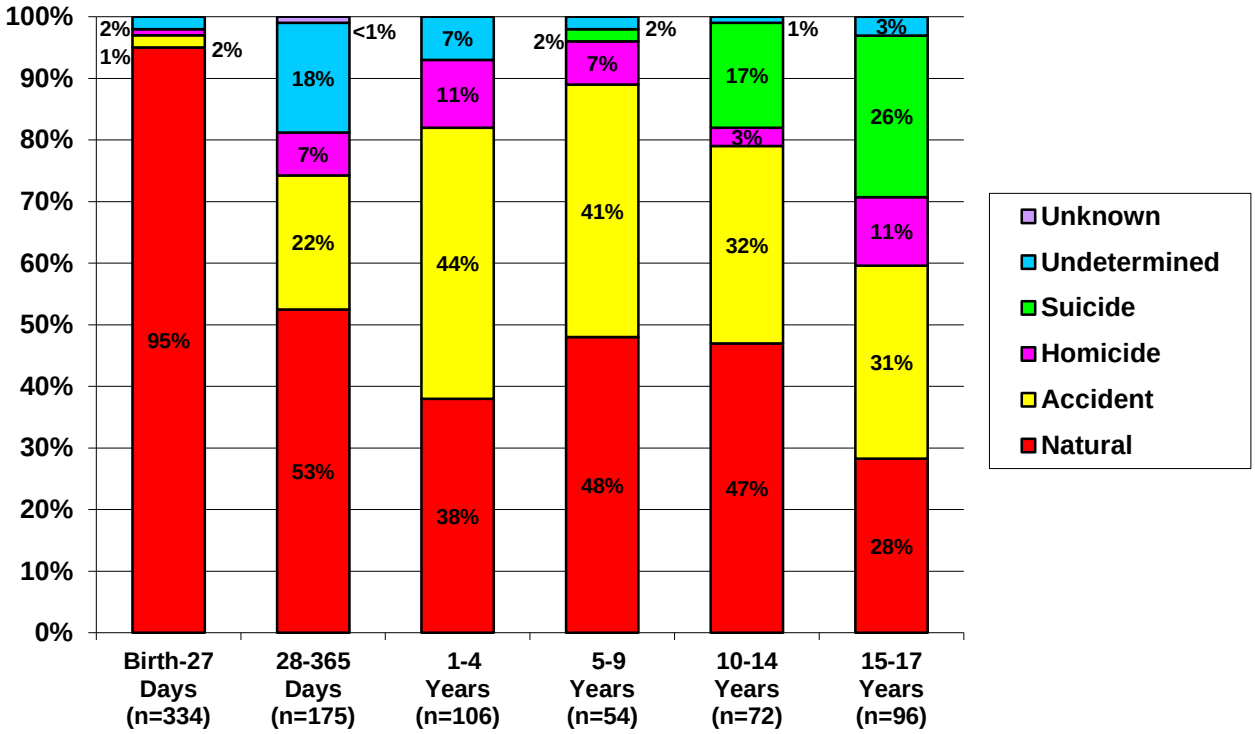
Natural deaths accounted for 64 percent of all child deaths during 2011 (n=537); 20 percent of child deaths were accidents (n=167); five percent were homicides (n=42); five percent were suicides (n=38); and six percent were of undetermined manner (n=52). There was one death of an unknown manner in 2011. Deaths are listed as having an undetermined manner or cause of death if a definitive manner or cause cannot be determined by the review team following review of all available information pertaining to the death. Deaths are listed as having an unknown manner if review information was not available to the review team. Figure 6 shows deaths among children by manner.

Figure 6. Deaths Among Children by Manner, Arizona, 2011 (n=837)



The distribution of deaths by manner varied by age group, with the percentage of natural deaths in each age group decreasing over the course of childhood. Deaths among infants were due primarily to natural causes, while accidental deaths were more common among older children. Suicides occurred only among the three older age groups, and homicides occurred in all age groups. Figure 7 shows manner of child deaths by age group.

Figure 7. Percentage of Child Deaths by Age Group and Manner, Arizona, 2011 (n=837)



The most common causes of death in most age groups were medical causes. Accidental death was the leading cause, however, for 15 through 17 year olds and 1 through 4 year olds. Table 5 shows the four most common causes of death for each age group.

Table 5. Leading Causes of Death by Age Group, Arizona, 2011

Rank	0-27 Days 40%, n=334	28-365 Days 21%, n=175	1-4 Years 13%, n=106	5-9 Years 6%, n=54	10-14 Years 9%, n=72	15-17 Years 11%, n=96	All Deaths 100%, n=837
1	Prematurity n=181, 22%	Other Medical Condition n=49, 6%	Other Medical Condition n=37, 4%	Other Medical Condition n=25, 3%	Other Medical Condition n=30, 4%	Other Medical Condition n=25, 3%	Other Medical Condition n=243, 29%
2	Congenital Anomaly n=65, 8%	Suffocation n=34, 4%	Drowning n=18, 2%	Transport n=13, 2%	Transport n=17, 2%	Transport n=21, 3%	Prematurity n=199, 24%
3	Other Medical Condition n=77, 9%	Undetermined n=30, 4%	Transport n=15, 2%	Drowning n=7, <1%	Hanging n=10,1%	Firearm n=15, 2%	Congenital Anomaly n=99, 12%
4	Suffocation n=5, <1%	Congenital Anomaly n=26, 3%	Blunt Force Trauma n=10, 1%	Firearm n=3, <1%	Firearm n=3, <1%	Hanging n=13, 2%	Transport n=70, 8%

The percentage of deaths due to accidents, homicides and suicides increased during 2011, and the percentages of natural and undetermined deaths decreased. Table 6 shows deaths among children by manner for 2007 through 2011.

Table 6. Deaths Among Children Birth Through 17 Years by Manner, Arizona, 2007-2011

Manner	2007		2008		2009		2010		2011	
Natural	769	67%	702	68%	641	68%	565	66%	537	64%
Accident	227	20%	168	16%	165	17%	160	19%	167	20%
Undetermined	53	5%	73	7%	63	7%	74	9%	52	6%
Homicide	66	6%	60	6%	51	5%	36	4%	42	5%
Suicide	28	2%	35	3%	27	3%	24	3%	38	5%
Total	**1,143**		**1,038**		**947**		**859***		**836***	

*Does not include deaths of unknown manner.

In 2011, there were 342 deaths due to medical conditions, 199 deaths due to prematurity and 70 deaths due to motor vehicle crashes and other types of transportation. There were 23 firearm-related deaths and 50 deaths due to suffocation. There were 32 drowning deaths in 2011. There were no deaths due to exposure, and no deaths of children died while crossing the Mexico-United States border. Improvements in data collection in 2011, and positive changes made to the data collection tool used by review teams has enabled the child fatality review program to classify deaths that were previously placed in “other” categories. Table 7 shows deaths among children by cause and manner.

Table 7. Deaths among Children Birth Through 17 Years by Cause and Manner, Arizona, 2011 (n=837)

Cause	Natural	Accident	Suicide	Homicide	Undetermined	Unknown	Total
Medical*	337	2	0	0	3	0	**342**
Prematurity	196	0	0	0	2	1	**199**
Transport	0	68	2	0	0	0	**70**
Firearm	0	1	9	12	1	0	**23**
Suffocation	0	45	0	3	2	0	**50**
Drowning	0	31	1	0	0	0	**32**
SIDS	1	0	0	0	1	0	**2**
Blunt Force Trauma	0	2	0	24	0	0	**26**
Hanging	0	3	24	0	0	0	**27**
Undetermined	3	0	0	2	41	0	**46**
Poisoning	0	7	3	0	0	0	**10**
Fire/Burn	0	5	0	0	1	0	**6**
Exposure	0	0	0	0	0	0	**0**
Fall/Crush	0	3	0	1	0	0	**4**
Total	**537**	**167**	**39**	**42**	**51**	**1**	**837**

*Excluding SIDS and prematurity.
** Other includes other medical and other non-medical causes of death.

The percentages of deaths due to prematurity, transportation-related deaths, suffocation, hanging and blunt force trauma increased in 2011, and the percentages of child deaths due to medical causes, exposure and undetermined deaths declined. Table 8 shows deaths among children by cause for 2007 through 2011.

Table 8. Deaths Among Children Birth Through 17 Years by Cause, Arizona, 2007-2011

Cause	2007		2008		2009		2010		2011	
Medical*	420	37%	420	40%	372	39%	359	42%	342	41%
Prematurity	321	28%	271	26%	241	25%	197	23%	199	24%
Transport	122	11%	82	8%	82	9%	61	7%	70	8%
Undetermined	34	3%	59	6%	57	6%	74	9%	46	6%
Firearm	48	4%	49	5%	32	3%	22	3%	23	3%
Drowning	23	2%	29	3%	35	4%	33	4%	32	4%
SIDS	37	3%	20	2%	28	3%	1	<1%	2	<1%
Suffocation	27	2%	21	2%	17	2%	25	3%	50	6%
Hanging	13	1%	21	2%	20	2%	19	2%	27	3%
Other	33	3%	14	1%	16	2%	21	2%	0	0%
Poisoning	24	2%	14	1%	17	2%	18	2%	10	1%
Blunt Force Trauma	18	1%	16	1%	13	1%	11	1%	26	3%
Fall/crush	9	1%	9	1%	7	1%	4	<1%	4	<1%
Exposure	8	1%	9	1%	7	1%	11	1%	0	0%
Fire/burn	6	1%	4	1%	3	<1%	6	<1%	6	1%
Total	**1,143**		**1,038**		**947**		**862**		**837**	

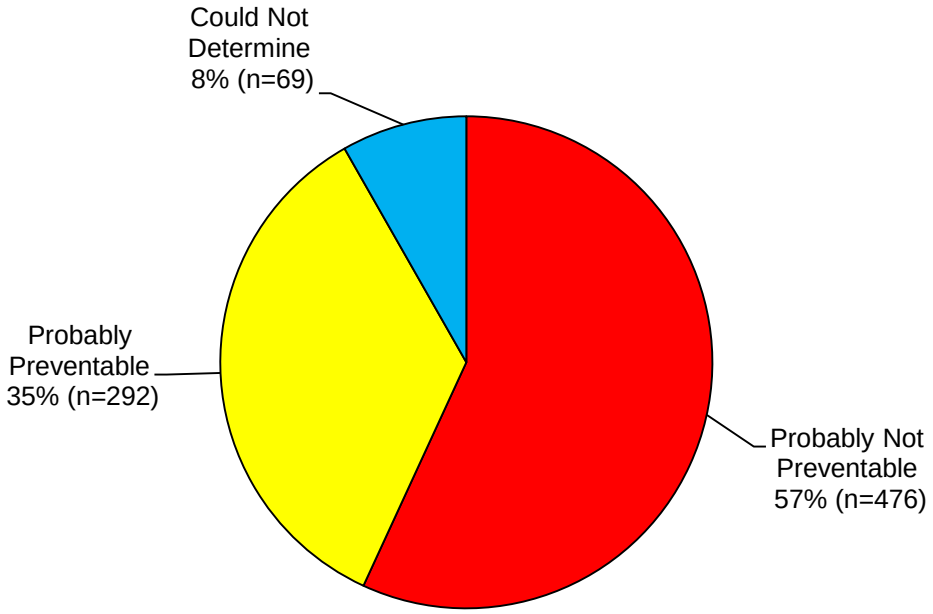
*Excluding SIDS and prematurity.

PREVENTABILITY

The child fatality review process in Arizona is grounded in the principles of public health and is focused on the prevention of all child deaths. Child Fatality Review Teams consider a child's death preventable if something could have reasonably been done by an individual, or by the community as a whole to prevent the death. The determination of preventability for an individual case is a consensus decision by the local team made after discussing and reviewing all available data regarding the circumstances of a child's death. In some cases, there is insufficient information available to determine preventability or the team cannot reach consensus on preventability. In 2011, Child Fatality Review Teams determined that 292 child deaths were probably preventable (35 percent), 476 child deaths (57 percent) were probably not preventable, and in 8 percent of the child deaths, the teams could not determine preventability (n=69).

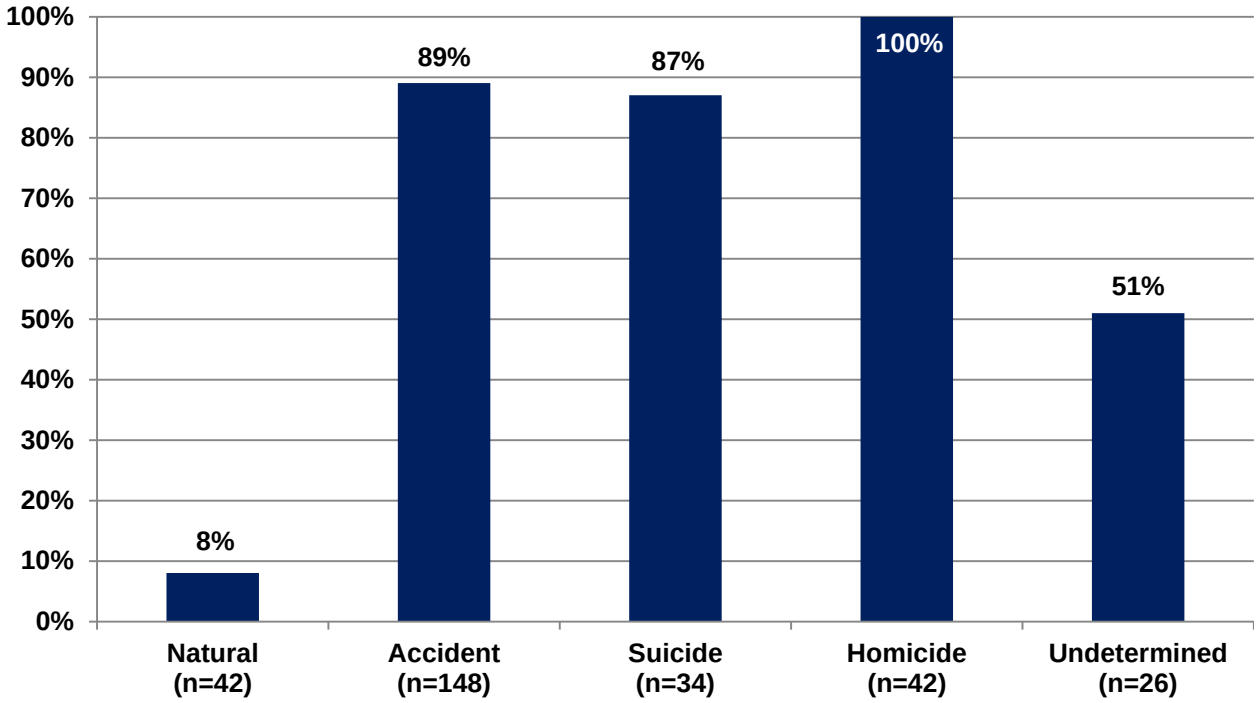
During the review of each child's death, teams identify factors believed to have contributed to the death. Although the presence of a contributing factor typically led to the determination that a death was preventable, this was not always the case. For example, the team may have concluded that an unsafe sleep environment (e.g., infant sleeping on an adult bed) was a contributing factor in an unexpected infant death. However, the team may not have had sufficient information (e.g., the child's autopsy report or an adequate death scene investigation) to determine that the death could have been prevented. Figure 8 shows deaths among children in Arizona by preventability.

Figure 8. Deaths Among Children by Preventability, Arizona, 2011 (n=837)



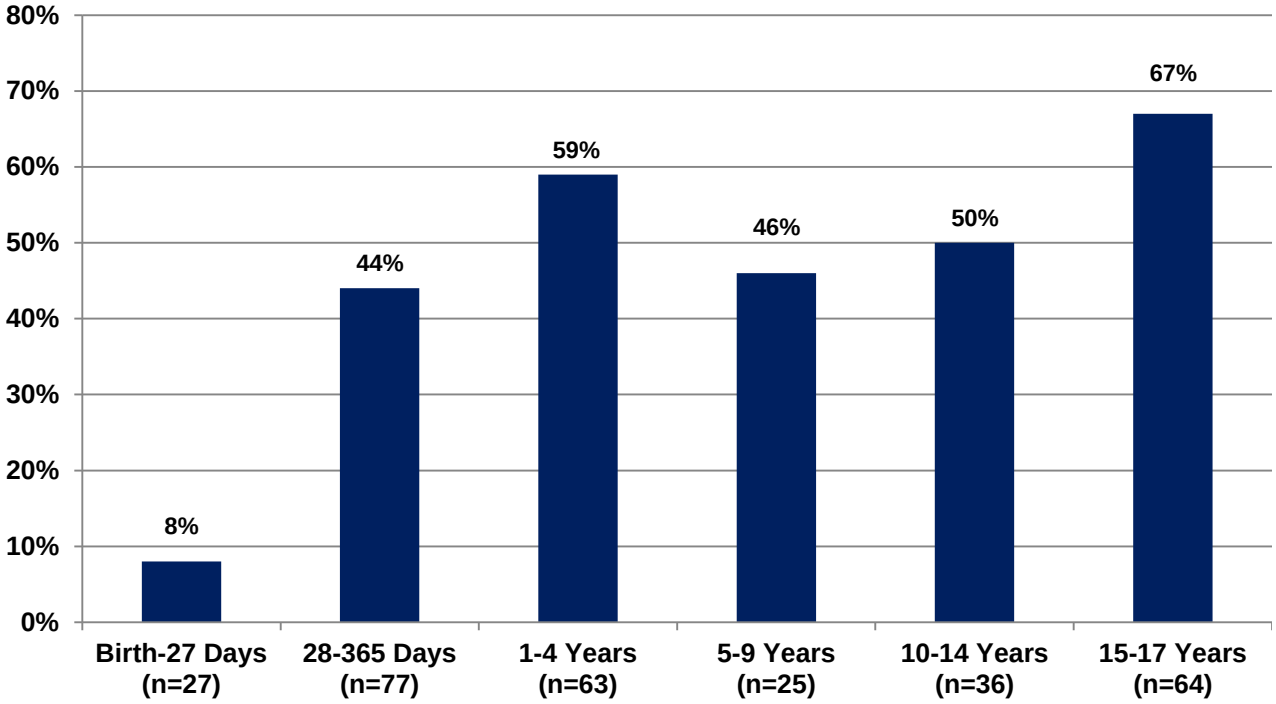
Child Fatality Review Teams deemed that 89 percent of accidents were preventable (n=148), 100 percent of homicides were preventable (n=42), and 87 percent of suicides were preventable (n=34). Eight percent of natural deaths were determined to have been preventable (n=42). Figure 9 shows preventable deaths by manner.

Figure 9. Percentage of Preventable Deaths Among Children by Manner, Arizona, 2011 (n=292)



Preventability also varied by age group. Children younger than one year of age had the lowest percentage of preventable deaths (8 percent, n=27). The highest percentage of preventable deaths was among children ages 15 through 17 years of age (67 percent, n=64). Figure 10 shows preventable deaths among children by age group.

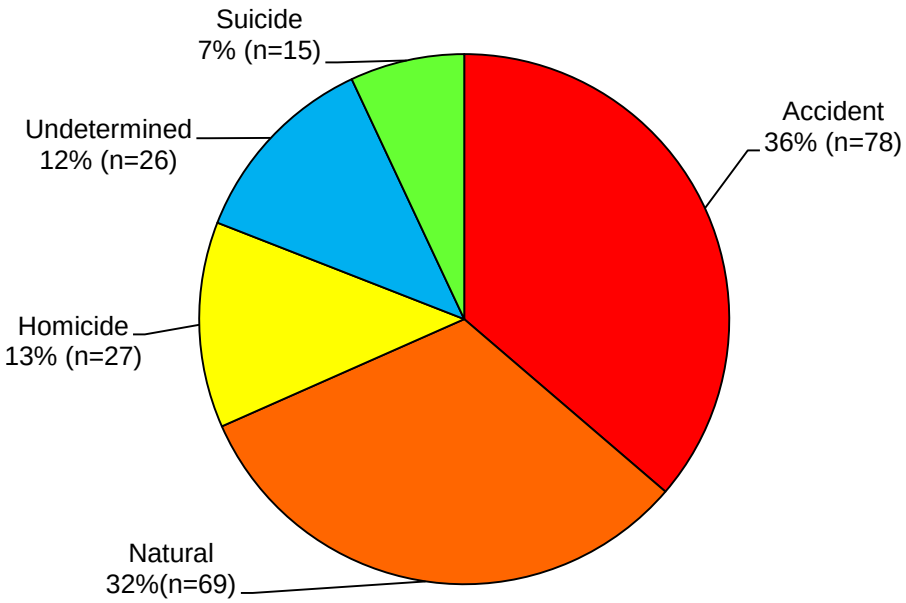
Figure 10. Percentage of Preventable Deaths Among Children by Age Group, Arizona, 2011 (n=837)



SUBSTANCE ABUSE

A child's death would be considered "associated with substance use" if the child, the child's parent or caretaker, or the person responsible for the incident leading to the death had abused substances at the time of the incident or had a history of substance abuse including illegal substances, prescription drugs and/or alcohol. This could mean that a child's death may be associated with drugs and/or alcohol, even when the use of the substance did not cause the death. Substance abuse (including illegal drugs, prescription drugs, and/or alcohol) was associated with 215 child deaths in Arizona during 2011, which accounted for 26 percent of all child deaths. In 2010, substance use was associated with 20 percent of all child deaths (n=175). Among the 215 child deaths associated with drugs and/or alcohol, 36 percent were determined to be of an accidental manner (n=78) and 32 percent were due to a natural manner (n=69). Figure 11 shows the distribution of child deaths involving drugs and/or alcohol by manner of death.

Figure 11. Deaths Among Children Associated with Drugs and/or Alcohol by Manner Arizona, 2011 (n=215)



While 32 percent of deaths associated with substance use were determined to be natural deaths, only 13 percent of all natural deaths involved substance use (n=69). Similarly, substance use was associated with 47 percent of total accidents (n=78), 50 percent of deaths of undetermined manner (n=26), 64 percent of homicides (n=27), and 38 percent of suicides (n=15).

Eleven percent of prematurity deaths were associated with the use of drugs and/or alcohol (n=23). Among transport deaths, 40 percent were associated with the use of alcohol and/or drugs (n=28). Of the 10 poisoning deaths, 100 percent involved the use of alcohol and/or drugs. Table 9 shows child deaths associated with drugs and/or alcohol by cause and manner in 2011.

Table 9. Child Deaths Associated with Drugs and/or Alcohol by Cause and Manner, Arizona, 2011 (n=215)

Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Medical*	2	0	0	45	1	**48**
Prematurity	0	0	0	22	1	**23**
Transport	28	0	0	0	0	**28**
Firearm Injury	0	8	4	0	1	**13**
Suffocation	22	2	0	0	1	**25**
Drowning	14	0	1	0	0	**15**
Blunt/Sharp force trauma	1	15	0	0	0	**16**
Hanging	0	0	7	0	0	**7**
Undetermined	0	1	0	2	22	**25**
Poisoning	7	0	3	0	0	**10**
Fire/Burn	3	0	0	0	0	**3**
Fall/Crush	1	1	0	0	0	**2**
Total	**78**	**27**	**15**	**69**	**26**	**215**

*Excluding SIDS and prematurity

Alcohol was associated with 81 child deaths in 2011, which is an increase from 2010 at which time alcohol was associated with 65 child deaths. Marijuana was associated with 95 child fatalities in 2011, an increase from 2010 when marijuana was associated with 70 deaths. Methamphetamine was associated with 33 deaths, 15 fatalities were associated with cocaine and 22 associated with opiates. Table 10 shows substances associated with child deaths for 2007 through 2011.

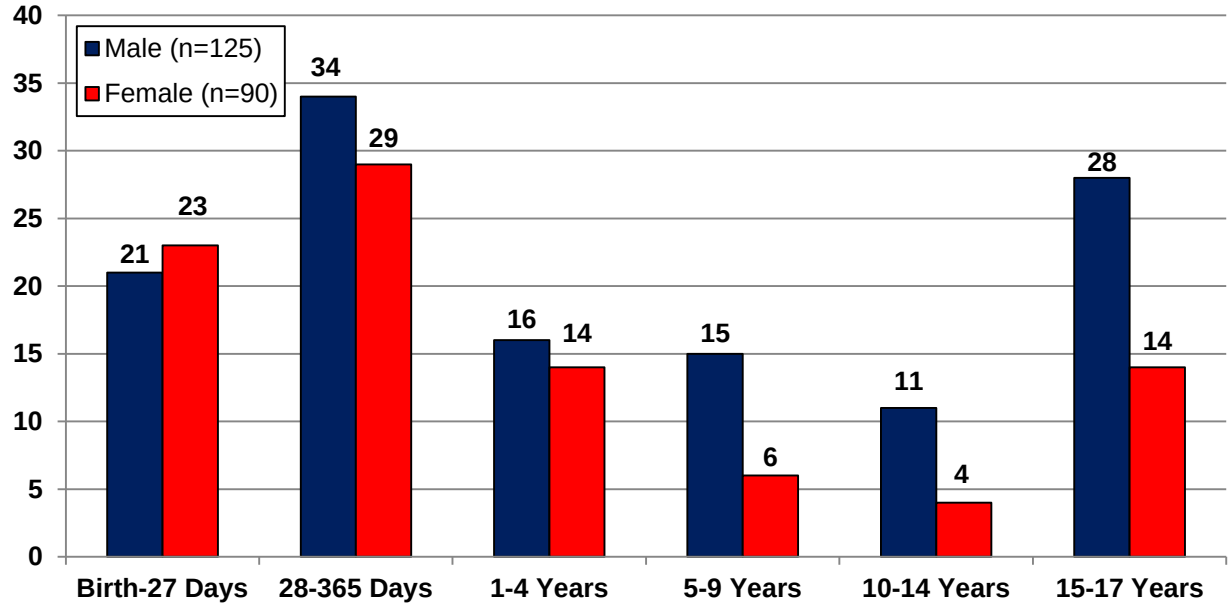
Table 10. Substances Involved in Deaths Among Children, Arizona, 2007-2011

Substance*	2007		2008		2009		2010		2011	
Alcohol	80	7%	76	7%	51	5%	65	7%	81	10%
Marijuana	76	7%	57	5%	67	7%	70	8%	95	11%
Methamphetamine	48	4%	39	4%	53	6%	33	4%	34	4%
Cocaine	31	3%	21	2%	17	2%	15	2%	24	3%
Opiates	16	1%	18	2%	24	3%	22	3%	17	2%

*More than one substance may have been associated with a single death

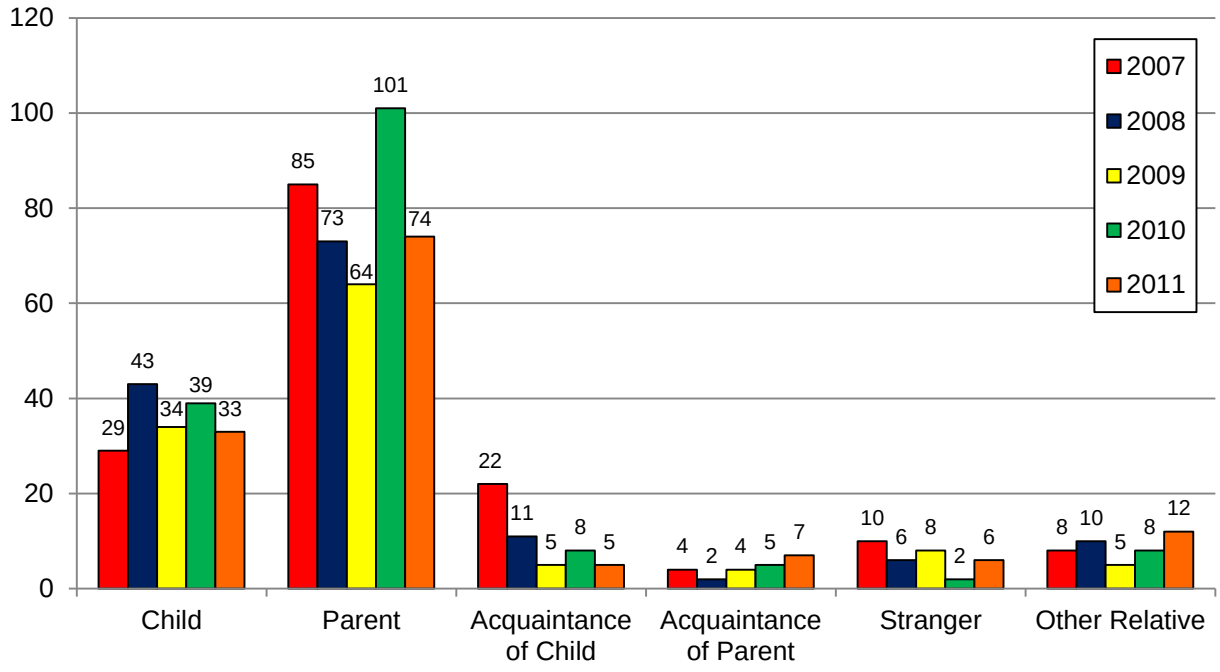
Drugs and/or alcohol were determined to have been associated with child deaths among males and females in all age groups, with males being disproportionately higher in ages greater than 27 days. Males of all ages accounted for 58 percent of all substance use-related deaths (n=125). Figure 12 shows child deaths associated with substance use by sex and age group.

Figure 12. Child Deaths Involving Substance Use by Sex and Age Group, Arizona, 2011 (n=215)



For each child death associated with substance use, the individual who used the substance may have been the parent, child, an acquaintance of the child or family, a relative, or a stranger. For example, if the child was a passenger in a car hit by an intoxicated driver of another car, then the individual who used the substance was classified as “stranger.” In some deaths, more than one individual may have been using drugs and/or alcohol. For 74 deaths in 2011, the user was the parent, and for 33 deaths, the user was the child. In some deaths, more than one individual may have been using drugs and/or alcohol. Figure 13 shows child deaths associated with drugs and/or alcohol by substance user for 2007 through 2011.

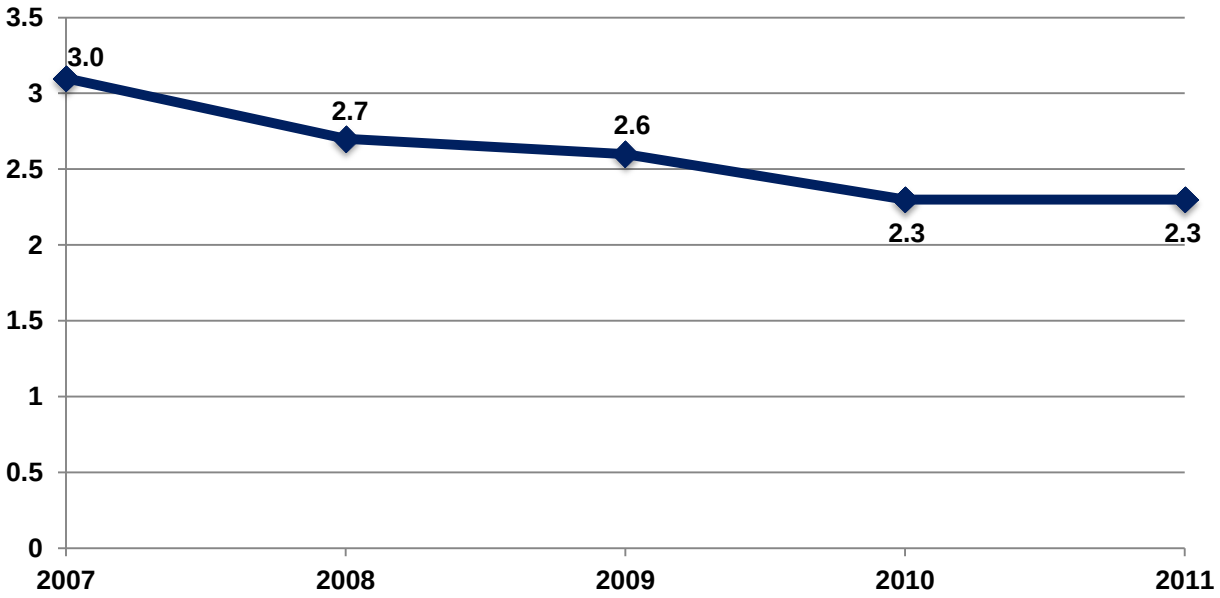
Figure 13. Child Deaths Involving Drugs and/or Alcohol by Substance User, Arizona, 2007-2011



PREMATURITY

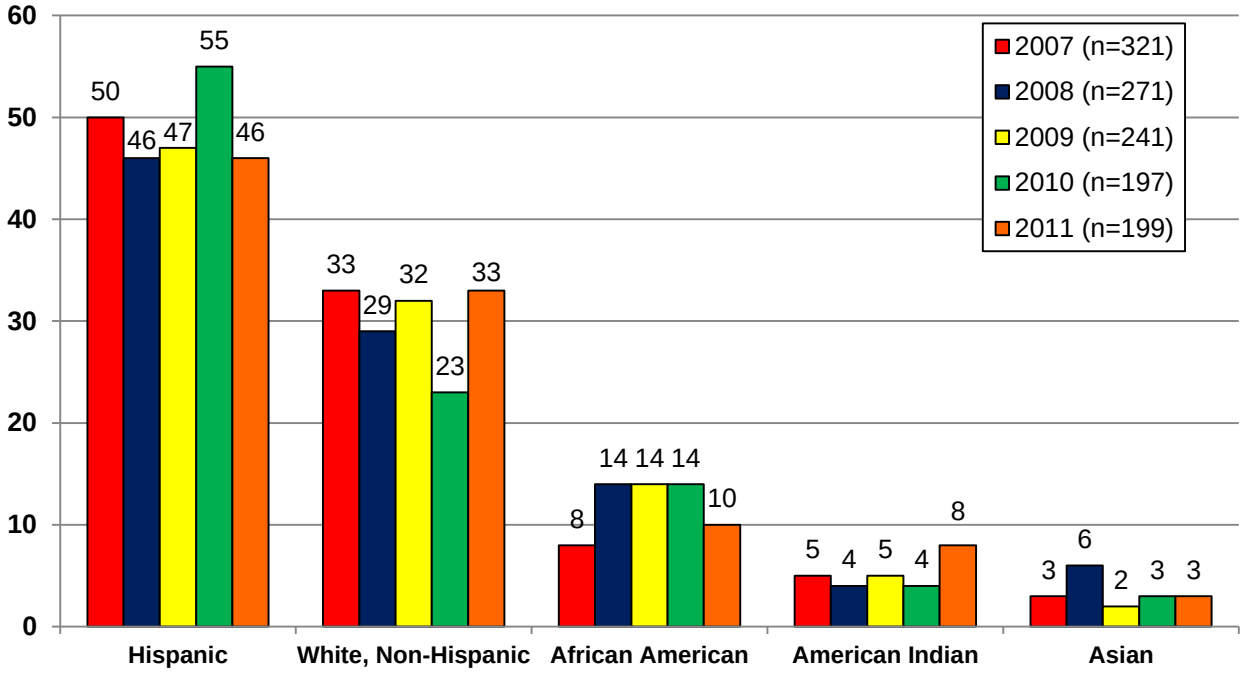
Local teams consider a child's cause of death to be prematurity if the infant was born prior to 37 weeks gestation and had no other underlying cause of death. Infants born prior to 37 weeks gestation whose death was attributed to congenital anomalies or other medical conditions were not included in the prematurity category. In 2011, there were 199 deaths due to prematurity, which accounted for 24 percent of all child deaths. There were 197 deaths due to prematurity in 2010 (23 percent of all child deaths). The rate of deaths due to prematurity in 2011 was 2.3 deaths per 1,000 live births. This was the same rate as in 2010. Figure 14 shows the rates of child deaths due to prematurity from 2007 through 2011.

Figure 14. Rate of Child Deaths due to Prematurity (per 1,000 live births), Arizona, 2007-2011



In 2011, 57 percent of the premature infants who died were males (n=114) and 43 percent were females (n=85). Nearly half of the premature infants who died were Hispanic (46 percent, n=92), 33 percent were White, non-Hispanic (n=65), 10 percent were African American (n=19) and eight percent were American Indian (n=16). In 52 cases, at least one of the parents was known to have been a first generation immigrant, including six families from Asian countries, three from African countries and two from Canada. The majority of infants who died whose parents were known to be first generation immigrants were Hispanic (75 percent, n=39). Figure 15 shows deaths due to prematurity by race/ethnicity for 2007 through 2011.

Figure 15. Percentage of Child Deaths due to Prematurity by Race/Ethnicity, Arizona, 2007-2011



In 2011, the majority of prematurity-related deaths were among infants who were 21 through 24 weeks gestational age (60 percent, n=119), followed by infants who were 25 through 36 weeks gestational age (23 percent, n=46). There were 34 infants who were 20 weeks or less (17 percent). For one infant, gestational age was unknown. There were 52 deaths due to prematurity among infants in multiple births, 48 of those were twins and 4 were triplets.

For 13 percent of the deaths, the mother reported that she did not receive any prenatal care (n=25). Seventy-six percent of mothers started prenatal care within the first trimester (n=152). For almost half of the prematurity deaths, the mother was 20 through 29 years of age at the time of the birth (48 percent, n=96). Thirteen percent of the mothers were 19 years of age and younger (n=26), 31 percent were 30 through 39 years of age (n=62), and three percent of mothers were 40 years of age and older (n=5). In 10 cases, the age of the mother at the time of death was unknown (5 percent).

Fifty-one percent of mothers whose infants died of prematurity were insured by the Arizona Health Care Cost Containment System (AHCCCS) (n=100). Eleven percent of mothers had less than a high school education (n=22), 40 percent completed high school (n=80), and 38 percent completed at least some college (n=76). For eleven percent of mothers, educational status was unknown (n=21). Mothers of multiple births in which more than one child died in 2011, may be counted more than once.

For 82 percent of deaths due to prematurity, the mothers experienced pregnancy or birth-related complications which may have contributed to the death (n=163), including 96 mothers who experienced preterm labor. Three percent of mothers were known to have had non-gestational diabetes (n=6). In four percent of prematurity-related deaths, mothers reported using illegal drugs during pregnancy (n=7), and two percent reported heavy alcohol use (n=3). Ten percent of mothers reported smoking during pregnancy (n=20). Table 11 shows risk factors for prematurity deaths.

Table 11. Risk Factors for Prematurity Deaths, Arizona, 2011

Factor*	Number	Percent
Mother had preterm labor	96	48%
Mother had chorioamnionitis (bacterial infection)	22	11%
Mother had incompetent cervix	13	7%
Mother used drugs and/or alcohol	13	7%
Mother smoked tobacco	20	10%
*More than one factor may have been identified for each death		

SUDDEN UNEXPECTED INFANT DEATHS

Sudden infant death syndrome (SIDS) is the sudden death of an infant under age 1 that cannot be explained after a thorough investigation has been conducted, including a complete autopsy, an examination of the death scene, and a review of the clinical history. SIDS is a type of sudden unexpected infant death (SUID). Other types of SUID include infant deaths due to suffocation, asphyxia, poisoning, undetected metabolic or cardiac disorders, hypothermia and hyperthermia, as well as some abuse and neglect cases. It is this case definition that local review teams use to determine if an infant's death occurred suddenly and unexpectedly in children younger than one year of age while not in the care of a medical professional. For these deaths, manner and cause of death may not be immediately obvious prior to investigation.

Although the number of sudden unexpected infant deaths remained the same in 2011 (n=114), these deaths comprised a higher percentage of total deaths than in 2010. There were 114 unexpected infant deaths in Arizona in 2011, 14 percent of all child deaths that year, compared to 13 percent of all child deaths in 2010. Fifty-seven percent of unexpected infant deaths in 2011 were among males (n=65) and 43 percent were among females (n=49).

Hispanic infants accounted for 44 percent of sudden unexpected infant deaths (n=51), non-Hispanic Whites accounted for 33 percent (n=38), African Americans and American Indian children accounted for 11 percent each (n=13 each).

Fifty-eight percent of the deaths were among infants younger than three months of age (n=66). Thirty-three deaths were among infants between 3 and 5 months of age (29 percent), and 15 infants who died unexpectedly were 6 months of age or older (13 percent).

For 35 deaths, teams were unable to determine the cause of death (31 percent). Thirty-eight deaths were due to suffocation (33 percent). Thirty-eight were also determined to have been caused by a medical condition (33 percent percent). Only two deaths were due to SIDS (two percent). Table 12 shows sudden unexpected infant deaths by cause.

Table 12. Sudden Unexpected Infant Deaths by Cause, Arizona, 2011 (n=114)

Cause	Number	Percent
Suffocation	38	33%
Medical Condition	38	33%
Undetermined	35	31%
SIDS	2	2%
Other injury	1	<1%
Total	**114**	

Investigation

Law enforcement conducted scene investigations in 77 percent of sudden unexpected infant deaths (n=88). Seventy-six percent of sudden unexpected infant deaths were referred to medical examiners' offices (n=87). Ninety-two cases received an autopsy. Of the 19 deaths that were not known to have been referred to medical examiners, all were due to a natural manner.

Seventy-nine children were known to have had toxicology tests performed. Sixty-six of those children tested negative for substances. Eight children had positive toxicology results. Of the eight children with positive toxicology results, three tested positive for acetaminophen, two children tested positive for methamphetamine, one for dextromethorphan, one for doxylamine and one for acetone. A child may have tested positive for more than one substance. The toxicology results on five children were unknown to the review team at the time of the review. Eighty-nine children were known to have had x-rays.

Fifty-five percent of the 114 sudden unexpected infant deaths were determined by the local review teams to have been preventable (n=63). For 20 deaths, local review teams were unable to determine if the death could have been prevented. Thirty-one of the deaths were determined to probably not have been preventable (27 percent). Unsafe sleep environment was a contributing factor in 64 sudden unexpected infant deaths (56 percent), followed by lack of supervision (46 percent, n=52). Table 13 shows preventable factors for sudden unexpected infant deaths.

Table 13. Preventable Factors for Sudden Unexpected Infant Deaths, Arizona, 2011

Factor*	Number	Percent
Unsafe sleep environment	64	56%
Lack of supervision	52	46%
Drugs and/or alcohol	49	43%
Infant exposure to smoking	18	16%
*More than one factor may have been identified for each death		

Unsafe Sleep Environments

Of the 114 sudden unexpected infant deaths, 69 percent occurred in sleep environments (n=79). Sixty-four of these environments were determined to have been unsafe. Suffocation was the cause of 31 unsafe sleep-related deaths. Only two deaths met all of the criteria to have been classified as a SIDS death. For 24 deaths that occurred in unsafe sleep environments, the cause of death was undetermined.

Thirty-six infants were bed sharing with adults and/or other children. Six of the adults who were bed sharing with infants were known to have been impaired by alcohol and/or drugs. Additionally, two of those infants were known to have had a crib or bassinet in the home.

Among the 64 unsafe sleep-related deaths, forty-two infants were sleeping in adult beds, three were sleeping on the floor, two were sleeping on a couch and one was sleeping on a waterbed. Thirty-six infants were put to sleep on their sides or stomachs.

Improvements in the investigations of all sudden unexpected infant deaths, including consistent completion of the Infant Death Investigation Checklist, may increase review teams' abilities to identify risk factors (such as the lack of safety approved cribs in homes).

Sudden Infant Death Syndrome (SIDS)

SIDS is the diagnosis given to the sudden death of an infant younger than one year of age that remains unexplained after a complete postmortem investigation, including autopsy, death scene investigation, and review of the child's medical history. There were two deaths identified as SIDS in 2011, compared to one in 2010, and 28 deaths in 2009.

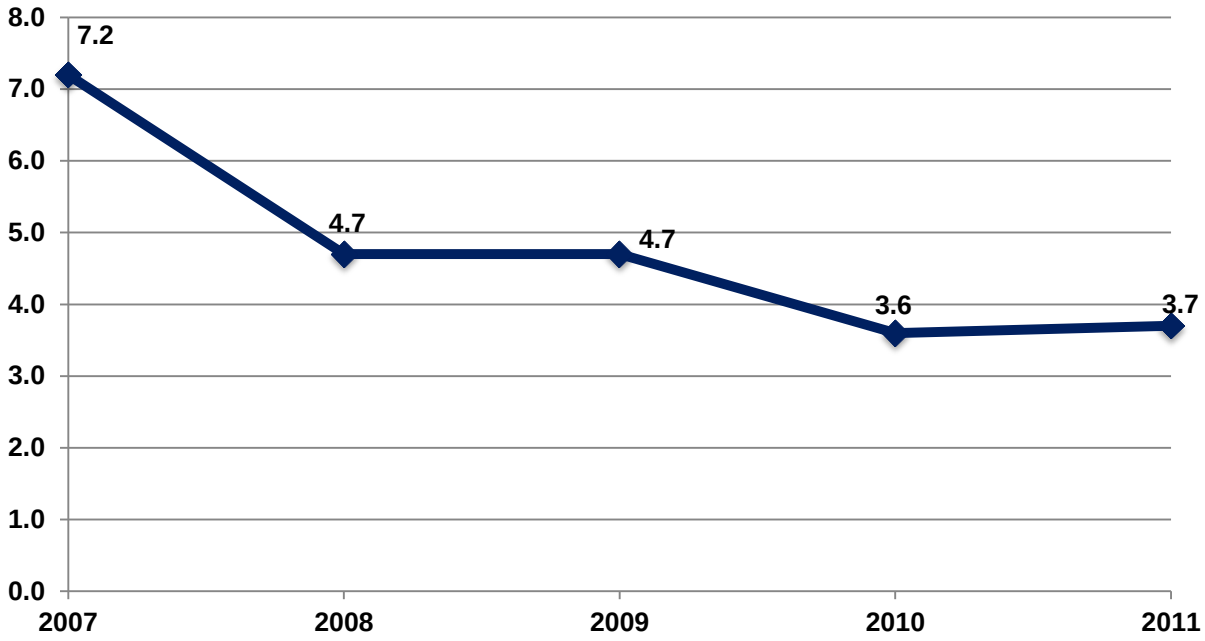
This does not mean there has been a rapid decline in the number of infants who died suddenly or unexpectedly. Among the child deaths reviewed in 2010 and 2011, local teams were asked to use more stringent guidelines when classifying a death as SIDS. Therefore, there was a decrease in the number of fatalities classified as SIDS, while at the same time; there was a significant increase in the number of deaths classified as having an undetermined cause of death as well as an increase in infant deaths due to suffocation.

MOTOR VEHICLE CRASHES AND OTHER TRANSPORT FATALITIES

In 2011, 70 children died as the result of motor vehicle crashes (MVC) and other types of transportation in Arizona (eight percent of child fatalities). Sixty-three deaths resulted from motor vehicle-related crashes, 3 deaths resulted from an air transport crash, 2 deaths were due to off-highway vehicle crashes, 1 death was due to a train incident and 1 death was the result of a boat crash.

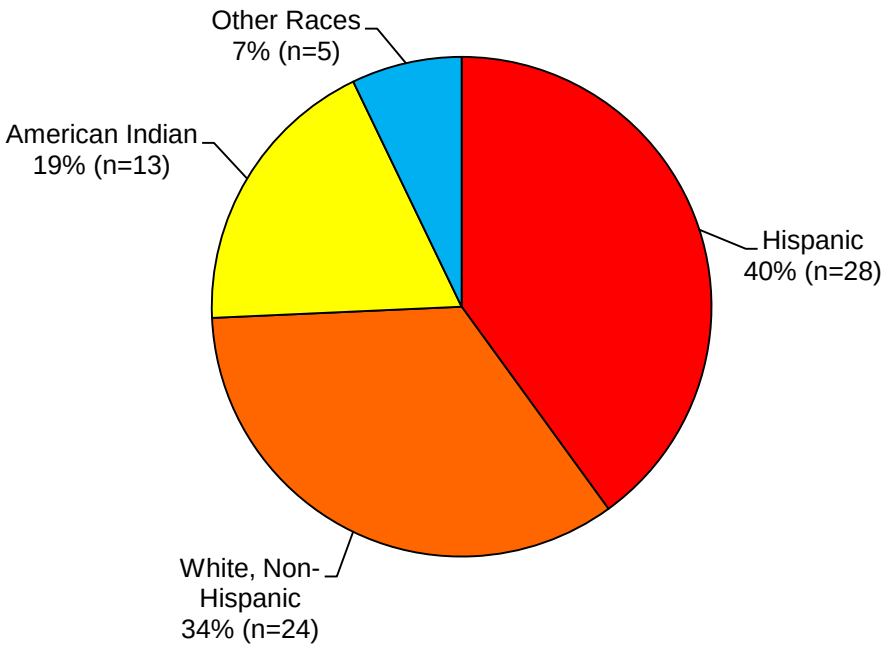
The rate of MVC/transport fatalities in 2011 was 3.7 deaths per 100,000 children, a slight increase from 2010 when the deaths per 100,000 children was 3.6. Figure 16 shows the rates of child deaths due to MVC/transport from 2007 through 2011.

Figure 16. Rate of Child Deaths due to Motor Vehicle Crashes and Transport (per 100,000 children), Arizona, 2007-2011



The majority of transportation-related deaths in 2011 were among males (73 percent, n=51) and 27 percent were among females (n=19). Forty percent of the children who died were Hispanic (n=28); 34 percent were White, non-Hispanic (n=24); 19 percent were American Indian (n=13); and seven percent were other races/ethnicities (n=5). Figure 17 shows motor vehicle and other transport deaths by race/ethnicity.

Figure 17. Motor Vehicle and Other Transport Deaths by Race/Ethnicity, Arizona, 2011 (n=70)



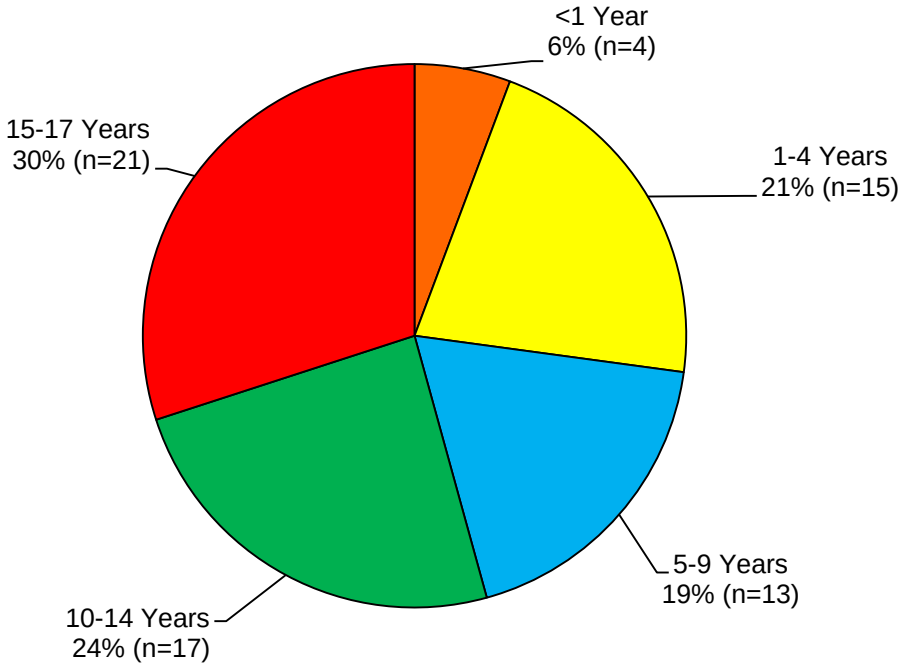
The distribution of MVC/transport deaths by race/ethnicity was similar to the distribution in 2010. Table 14 shows motor vehicle and other transport deaths among children by race/ethnicity for 2007 through 2011.

Table 14. Motor Vehicle and Other Transport Deaths Among Children by Race/Ethnicity, Arizona, 2007-2011

Race/Ethnicity	2007		2008		2009		2010		2011	
American Indian	20	12%	15	18%	10	12%	11	18%	13	19%
Hispanic	69	42%	36	44%	37	45%	26	43%	28	40%
White, non-Hispanic	66	40%	26	32%	31	38%	20	33%	24	34%
Other	9	5%	5	6%	4	5%	4	6%	5	7%
Total	**164**		**82**		**82**		**61**		**70**	

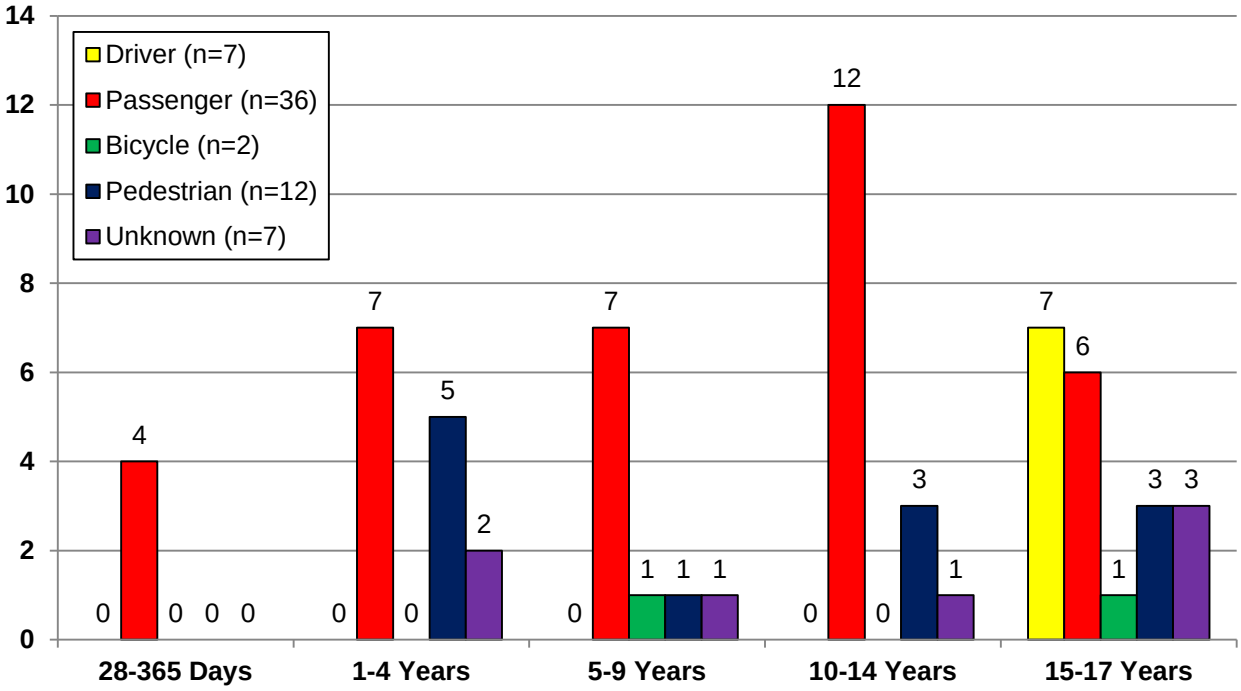
The largest percentage of MVC/transport deaths were among children ages 15 through 17 years of age (30 percent, n=21), followed by children 10 through 14 years of age (24 percent, n=17). Figure 18 shows MVC/transport deaths by age group.

Figure 18. Motor Vehicle and Other Transport Deaths by Age Group, Arizona, 2011 (n=70)



Of the 70 children who died in motor vehicles and other types of transportation, 43 were vehicle occupants, 12 were pedestrians, three were air transport passengers, and two children were riding bicycles. Among the 43 motor vehicle occupants, seven children were drivers and 36 were passengers. Among the pedestrian deaths, three children were killed due to vehicle backovers, all three children were three years of age or younger. For the six children who died in motor vehicle crashes and other types of transportation, their seating position in the vehicle was unknown. Figure 19 shows motor vehicle crashes (excluding other types of transportation-related deaths) by age group and location of the child.

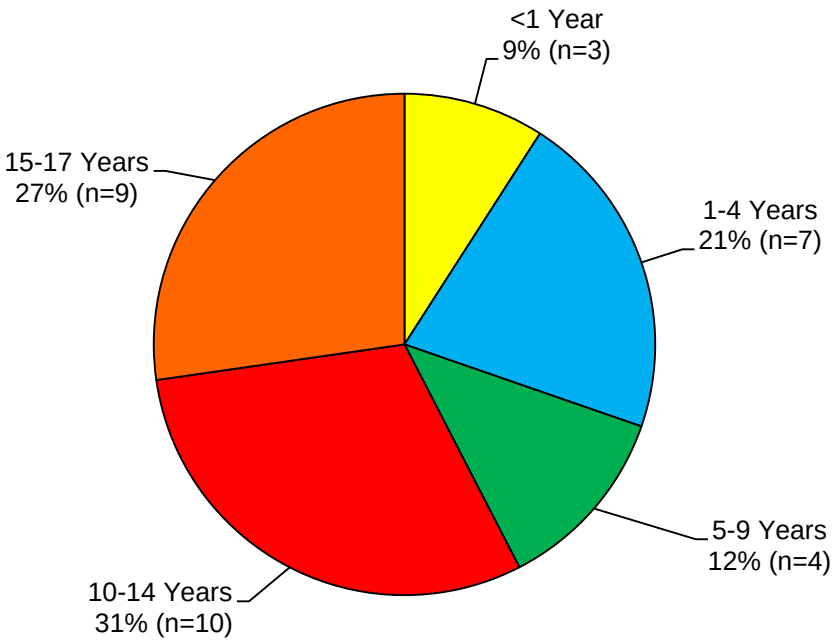
Figure 19. Motor Vehicle Crash Deaths by Age Group, Arizona, 2011 (n=64)



Among the 36 motor vehicle passengers (not including one tractor death), 18 were located in the back seat; nine were in the front seat; three were riding in a truck bed; and six were in other or unknown locations. There were three additional deaths among child passengers in air transit: all three were riding in a private plane. There were two deaths of children riding off-highway vehicles. Both children were passengers and neither was wearing helmets. One pedestrian child death involved a train and an additional death involved a boat crash. It was unknown to the review team if the child who died in the boat crash was wearing a life jacket. The two children who died while riding bicycles were not wearing helmets.

Forty-seven percent of children were known to have been improperly or not restrained in vehicles (n=33). Almost one-third all children who were not properly restrained were ages 10 through 14 years (30 percent, n=10). Figure 20 shows improper or unknown restraint by age group.

Figure 20. Motor Vehicle and Other Transport Deaths Improper or Unknown Restraint by Age Group, Arizona, 2011 (n=33)



Among the MVC/transport deaths in 2011 as well as in 2010, there were zero deaths resulting from in utero injuries or dirt bikes.

Ninety-one percent of all MVC/transport fatalities during 2011 were determined to have been preventable (n=64). Lack of or improper use of vehicle restraints was identified as a preventable factor for 33 transportation-related deaths among children (46 percent). Fifteen children died in crashes in which drugs and/or alcohol was a factor (21 percent). For 26 deaths, excessive speed was a contributing factor (37 percent). Twelve crashes in which children died involved a driver who was distracted (17 percent). Table 15 shows preventable factors for MVC/transport deaths among children. This table does not include factors identified for the three deaths involving air transportation or the one incident involving a train, but does include the two off-highway vehicle deaths.

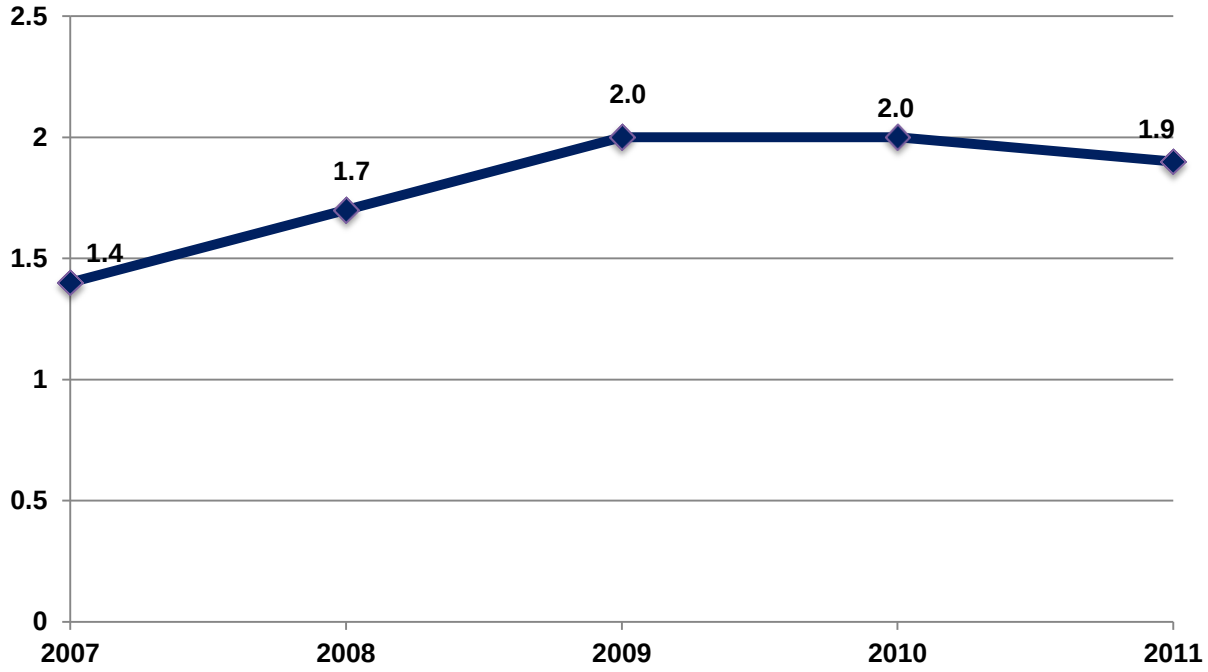
Table 15. Preventable Factors for Transportation-Related Deaths Among Children, Arizona, 2011

Factor*	Number	Percent
Lack of vehicle restraint	33	46%
Excessive driving speed	26	37%
Reckless driving	24	34%
Drugs and/or alcohol	15	21%
Driver inexperience	12	17%
Driver distraction	12	17%
Red light running	5	7%
Lack of helmet	2	3%
Hazardous road conditions	2	3%
*More than one factor may have been identified for each death		

DROWNING

In 2011, there were 32 child deaths due to drowning, which accounted for four percent of all child deaths. In 2010, there were 33 deaths among children due to drowning, also accounting for four percent of all child deaths in that year. The rate of drowning fatalities in 2011 was 1.9 deaths per 100,000 children. This was a decline from 2010 when the drowning rate was 2.0 per 100,000 children. Figure 21 shows the rates of child deaths due to drowning from 2007 through 2011.

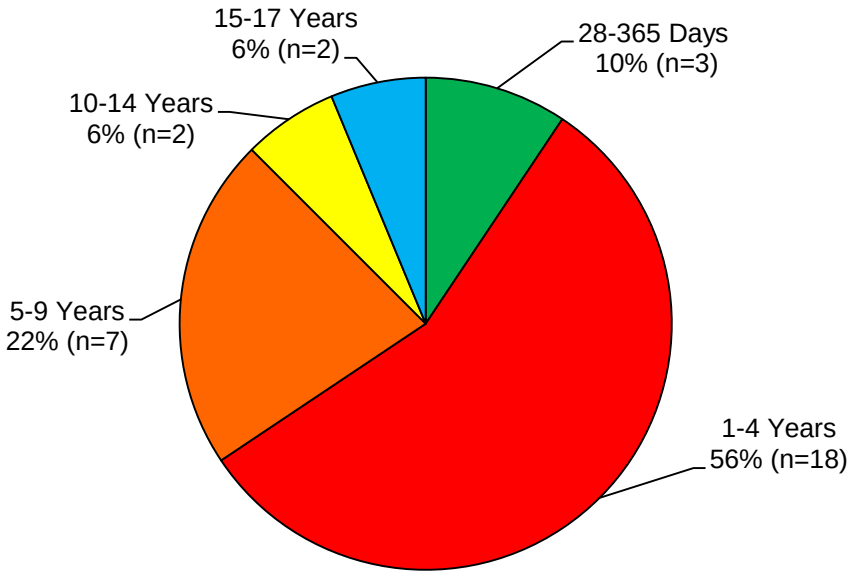
Figure 21. Rate of Drowning Deaths per 100,000 Children, Arizona, 2007-2011



Sixty-six percent of drowning deaths in 2011 were among males (n=21), and 34 percent were among females (n=11). Forty-seven percent of children who drowned were White, non-Hispanic (n=15), 34 percent were Hispanic (n=11), nine percent were Asian (n=3), six percent were African American (n=2), and 3 percent were American Indian (n=1).

Fifty-six percent of the drowning deaths were among children ages one through four years (n=18), 22 percent were among children ages five through nine years (n=7), six percent were among children ages 15 through 17 years (n=2), six percent were among children ages 10 through 14 years (n=2), and 10 percent were among infants younger than one year of age (n=3). Figure 22 shows drowning deaths by age group.

Figure 22. Drowning Deaths by Age Group Among Children, Arizona, 2011 (n=32)



The largest percentage of drowning deaths has been among children ages one through four years. The percentage of deaths in this age group decreased from 66 percent in 2010 (n=22) to 56 percent in 2011 (n=18). There was an increase seen in children ages 5 through 9 years old. Of the seven 5 through 9 year-olds, three children were five years old. Table 16 shows drowning deaths among children by age group for 2007 through 2011.

Table 16. Drowning Deaths Among Children by Age Group, Arizona, 2007-2011

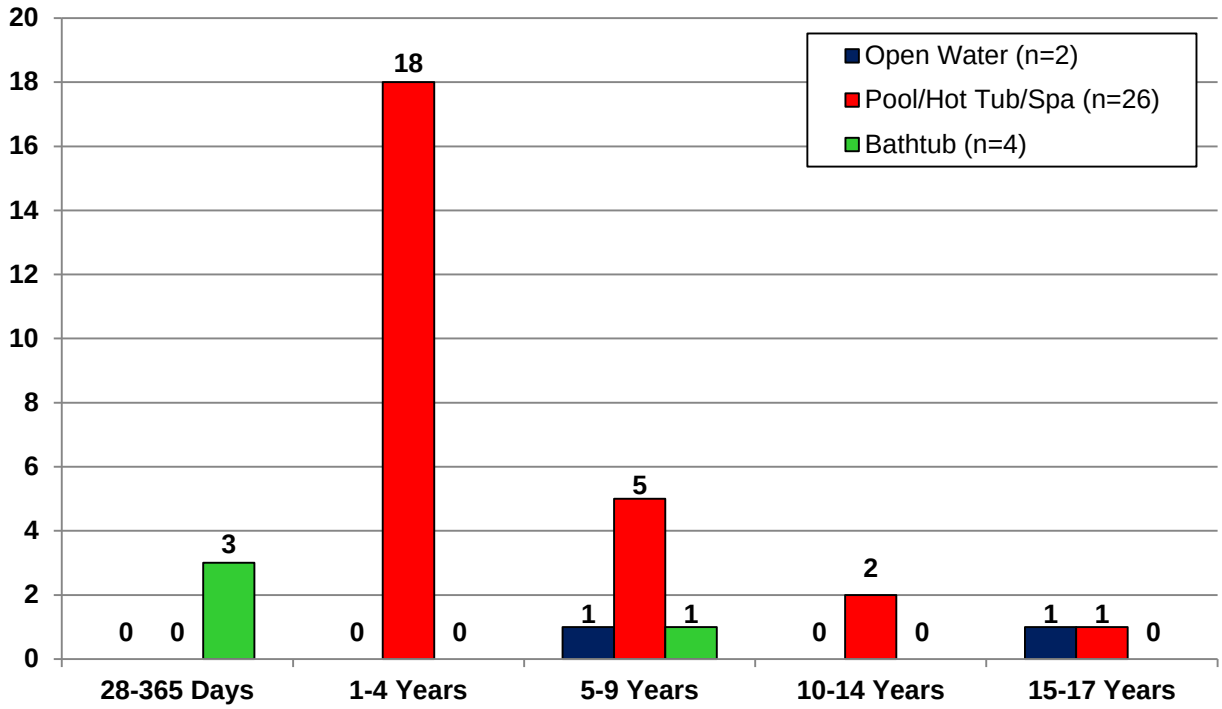
Age Group	2007		2008		2009		2010		2011	
0-27 Days	1	4%	0	0%	0	0%	0	0%	0	0%
28-365 Days	5	22%	1	3%	3	9%	2	6%	3	9%
1-4 Years	12	53%	25	87%	24	68%	22	67%	18	56%
5-9 Years	4	17%	2	7%	3	9%	4	12%	7	22%
10-14 Years	1	4%	0	0%	1	3%	2	6%	2	6%
15-17 Years	0	0%	1	3%	4	11%	3	9%	2	6%
Total	**23**		**29**		**35**		**33**		**32**	

In 2011, 26 drowning fatalities occurred in pools, 24 pools were in-ground and 2 pools were above ground. The other drowning deaths included two in open water and four which occurred in bathtubs. Among the 26 drowning deaths which occurred in pools, sixteen were known to have a pool fence. Among the two open water drowning deaths, one was in a river and one was in a canal. Table 17 shows drowning fatalities by location.

Table 17. Location of Child Drowning Fatalities, Arizona, 2011 (n=32)		
Location	**Number**	**Percent**
In ground pool	24	75%
Bathtub	4	13%
Above ground pool	2	6%
Canal	1	3%
River	1	3%
Total	**32**	

The highest number of pool drowning deaths were among children ages one through four years (69 percent, n=18). Figure 23 shows drowning location by age group.

Figure 23. Drowning Deaths by Age Group and Location Among Children, Arizona, 2011 (n=32)



Ninety-four percent of child drowning fatalities were identified as preventable (n=30). Lack of supervision was the most commonly identified preventable factor in child drowning fatalities (84 percent, n=27), followed by access to water (63 percent, n=20). Table 18 shows preventable factors for child drowning deaths in Arizona during 2011.

Table 18. Preventable Factors for Child Drownings, Arizona, 2011

Factor*	Number	Percent
Lack of supervision	27	84%
Access to water	20	63%
Drugs and/or alcohol	4	13%
*More than one factor may have been identified for each death		

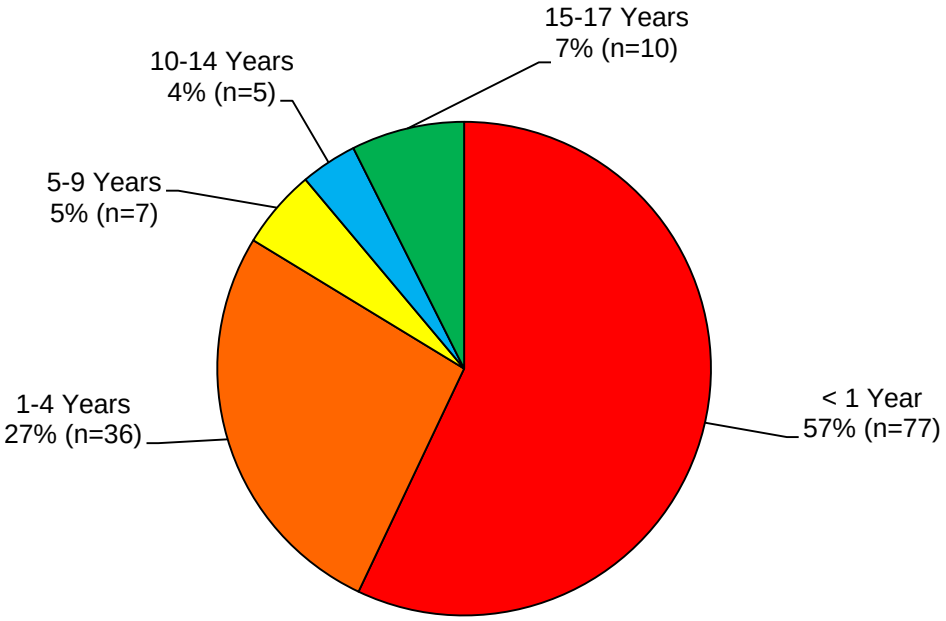
HOME SAFETY-RELATED DEATHS

Deaths included in this section occurred in or around home environments (e.g. bedroom, driveway, or yard) and were due to accidents or were of undetermined manners. Suicides, homicides, and natural deaths were excluded. In 2011, 135 children died in or around the home (16 percent of all deaths that year). The majority of these deaths occurred among males (65 percent, n=88) and 35 percent were among females (n=47).

Forty-one percent of deaths that occurred in or around the home were among Hispanic children (n=56), 39 percent were among White, non-Hispanic children (n=53), nine percent were among American Indians (n=12), eight percent were among African American children (n=11), and two percent were among Asian children (n=3).

Over half of the deaths that occurred in or around the home during 2011 were among infants younger than one year of age (57 percent, n=77). Twenty-seven percent were among children ages one through four years (n=36). Figure 24 shows home safety-related deaths by age group.

Figure 24. Home Safety-Related Deaths Among Children by Age Group, Arizona, 2011 (n=135)



The most common cause of death in an around the home was suffocation (31 percent, n=42). Five of the six children who died by choking on food or small objects, did so in or around the home environment. The second most common were deaths of an undetermined cause (30 percent, n=40). Twenty-two children drowned in family pools and four in bathtubs. Six children died as a result of poisoning and 100 percent of those were children 15 through 17 years old. Motor vehicle collisions occurring in garages, driveways, or home parking areas were included among the home safety-related

deaths, accounting for eight child deaths in 2011. Table 19 shows child deaths that occurred in or around the home by cause.

Table 19. Child Deaths In or Around the Home by Cause, Arizona, 2011 (n=135)		
Cause	**Number**	**Percent**
Suffocation	42	31%
Undetermined	40	30%
Drowning	26	19%
Motor Vehicle Crash	8	6%
Poisoning	6	4%
Fire/Burn	5	4%
Fall/Crush	2	2%
Firearm	2	2%
Hanging	2	2%
SIDS	2	2%
Total	**135**	

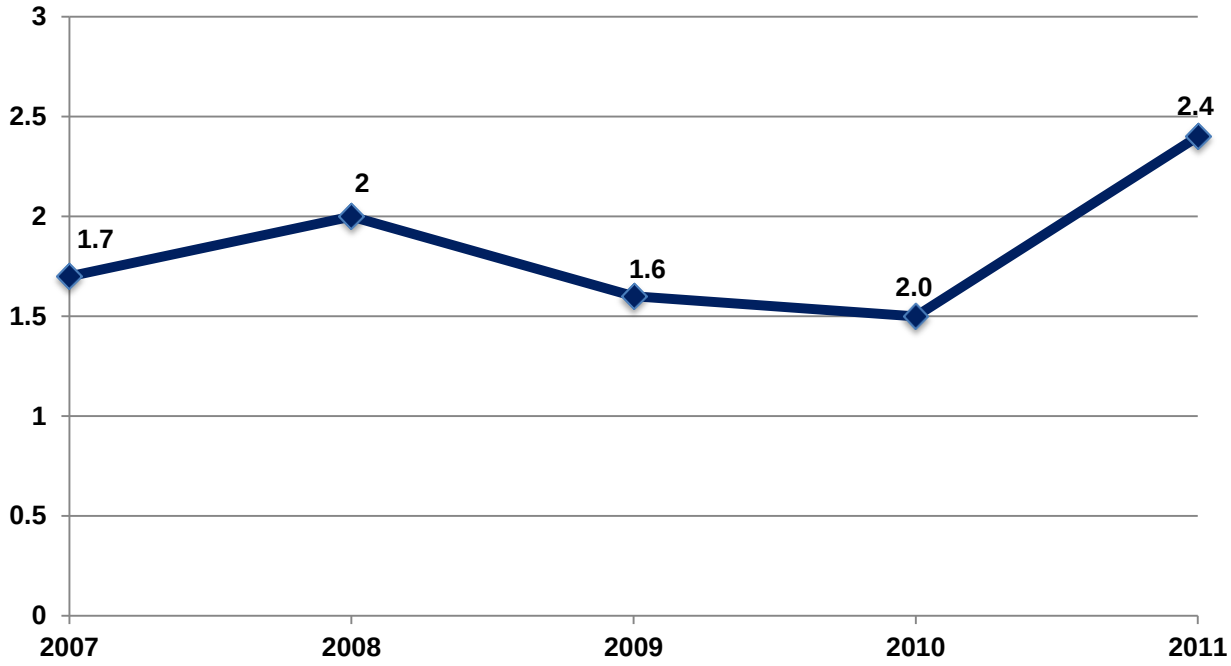
Seventy-nine percent of home safety-related deaths were determined to have been preventable (n=106), and for sixteen percent, teams were not able to determine preventability (n=21). The most commonly listed contributing factors were lack of supervision (60 percent, n=80) and substance use (51 percent, n=69). Table 20 shows preventable factors for home safety-related deaths.

Table 20. Preventable Factors for Child Deaths In or Around the Home, Arizona, 2011		
Factor*	**Number**	**Percent**
Lack of supervision	80	59%
Substance use	69	51%
Unsafe sleep environment	54	40%
Access to water	16	12%
*More than one factor may have been identified for each death		

SUICIDES

In 2011, there were 39 suicides among children in Arizona, which accounted for five percent of all child deaths. In 2010, suicides accounted for three percent of all child deaths (n=24). The child suicide rate in 2011 was 2.4 deaths per 100,000 children. This was an increase from 2010 when the suicide rate was 1.5 deaths per 100,000 children. Figure 25 shows the rates of child suicides from 2007 through 2011.

Figure 25. Rate of Suicides (per 100,000 children), Arizona, 2007-2011



Sixty-two percent of the children who died by suicide during 2011 were males (n=24) and 38 percent were females (n=15). Forty-nine percent were White, non-Hispanic (n=19), 26 percent were Hispanic (n=10), 18 percent were American Indian (n=7), and seven percent were other races (n=3).

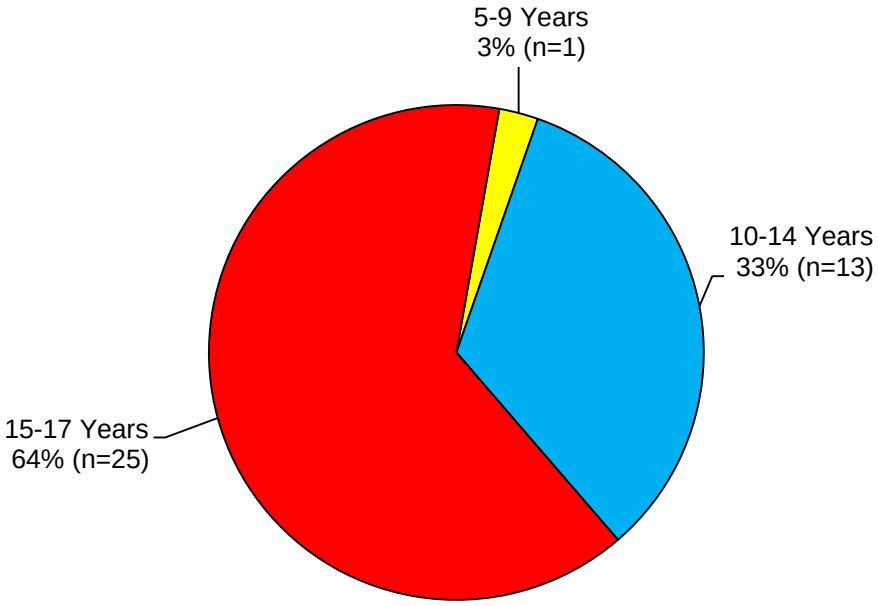
The distribution of suicides by race/ethnicity varies by year. White, non-Hispanic children comprised almost half of all child suicides in 2010 (49 percent, n=19). Table 21 shows suicides among children by race/ethnicity for 2007 through 2011.

Table 21. Suicides Among Children by Race/Ethnicity, Arizona, 2007-2010

Race/Ethnicity	2007		2008		2009		2010		2011	
American Indian	4	14%	6	17%	5	19%	6	25%	7	18%
Hispanic	15	54%	9	26%	12	44%	8	33%	10	26%
White, non-Hispanic	8	29%	18	51%	9	33%	9	38%	19	49%
Other	1	3%	2	6%	1	4%	1	4%	3	7%
Total	**28**		**35**		**27**		**24**		**39**	

In 2011, the majority of suicides were among children ages 15 through 17 years (64 percent, n=25), 33 percent were among children 10 through 14 years of age (n=13), and 3 percent were between 5 and 9 years of age (n=1). The youngest child who completed suicide in 2011 was 7 years old. Figure 26 shows suicides among children by age group.

Figure 26. Suicides Among Children by Age Group, Arizona, 2011 (n=39)



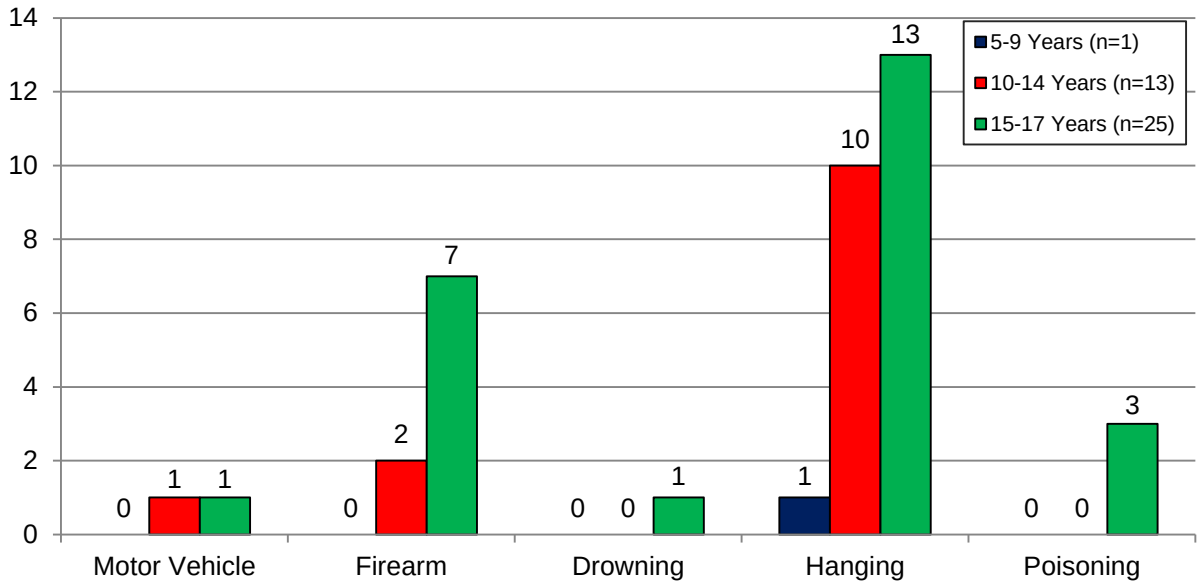
The distribution of suicides by age group has remained consistent since 2005, with a larger proportion of child suicides among children 15 through 17 years of age. Table 22 shows suicides among children by age group for 2007 through 2011.

Table 22. Suicides Among Children by Age Group, Arizona, 2007-2011

Age Group	2007		2008		2009		2010		2011	
<10 Years	0	0%	0	0%	0	0%	0	0%	1	3%
10-14 Years	7	25%	9	26%	3	11%	9	37%	13	33%
15-17 Years	21	75%	26	74%	24	89%	15	63%	25	64%
Total	**28**		**35**		**27**		**24**		**39**	

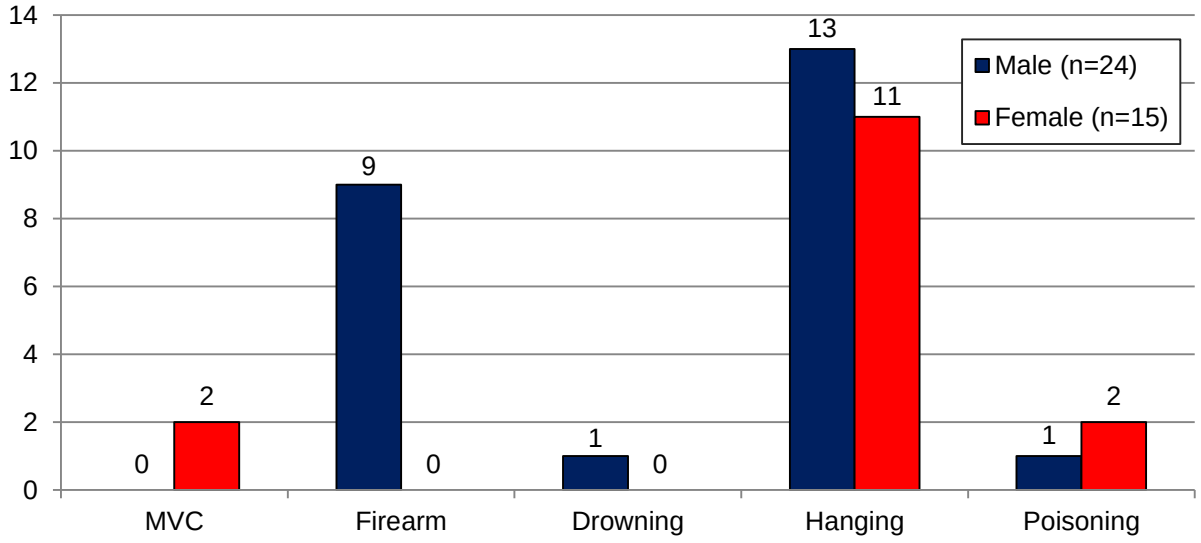
Hangings accounted for 62 percent of child suicides in Arizona during 2011 (n=24) and firearm injuries accounted for 23 percent (n=9). The objects used in hanging suicides were belts, ropes, strings and electrical cords. Figure 27 shows suicides among children by cause of death and age group.

Figure 27. Suicides Among Children by Age Group and Cause of Death, Arizona, 2011 (n=39)



In 2011, the distribution of cause of death varied by the sex of the child. As has been observed in previous years, females were less likely to have used firearms to complete suicide. Figure 28 shows suicides among children by cause of death and sex.

Figure 28. Suicides Among Children by Cause of Death and Sex, Arizona, 2011 (n=39)



Identification of children at risk for suicide can be difficult, and warning signs are not always recognized or taken seriously. Eighteen children who took their own lives in 2011 were known to have talked about suicide to others (46 percent), 16 children were known to have made prior suicide threats (41 percent), and nine children had made prior suicide attempts (23 percent). Only five children were known to have been on medication for mental illness at the time of their deaths (13 percent). Fifteen children who completed suicide were known to have received prior mental health services (38 percent), but only seven children were known to have been receiving mental health services at the time of their deaths (18 percent).

Review teams were able to identify several factors that may have contributed to the children's despondency prior to the suicides. The most commonly identified factor was family discord, which was identified in ten suicides (26 percent). Table 23 shows factors that may have contributed to the child's despondency prior to suicide.

Table 23. Factors That May Have Contributed to the Child's Despondency Prior to Suicide, Arizona, 2011

Factor*	Number	Percent
Family discord	10	26%
History of problems with the law	9	23%
History of drug and/or alcohol use	8	21%
Recent breakup with boyfriend or girlfriend	4	10%
Failure at school	4	10%
Recent argument with boyfriend or girlfriend	3	8%
Victim of bullying	2	5%
*More than one factor may have been identified for each death		

For nearly half of all suicides, important information regarding risk factors was unknown to review teams, even after review of available law enforcement records. For example, in 46 percent of child suicides, prior mental health services provided to the child were unknown to the local review team (n=18). Improvements in the investigations of child suicides may increase review teams' abilities to identify risk factors.

Eighty-seven percent of child suicides were determined by the local team to have been probably preventable (n=34). Thirteen percent (n=5) of child suicides were determined by the teams to probably not have been preventable. The use of drugs and/or alcohol was the most commonly identified preventable factor (51 percent, n=20), followed by lack of supervision (21 percent, n=8), then access to firearms (18 percent, n=7). Table 20 shows preventable factors for child suicides.

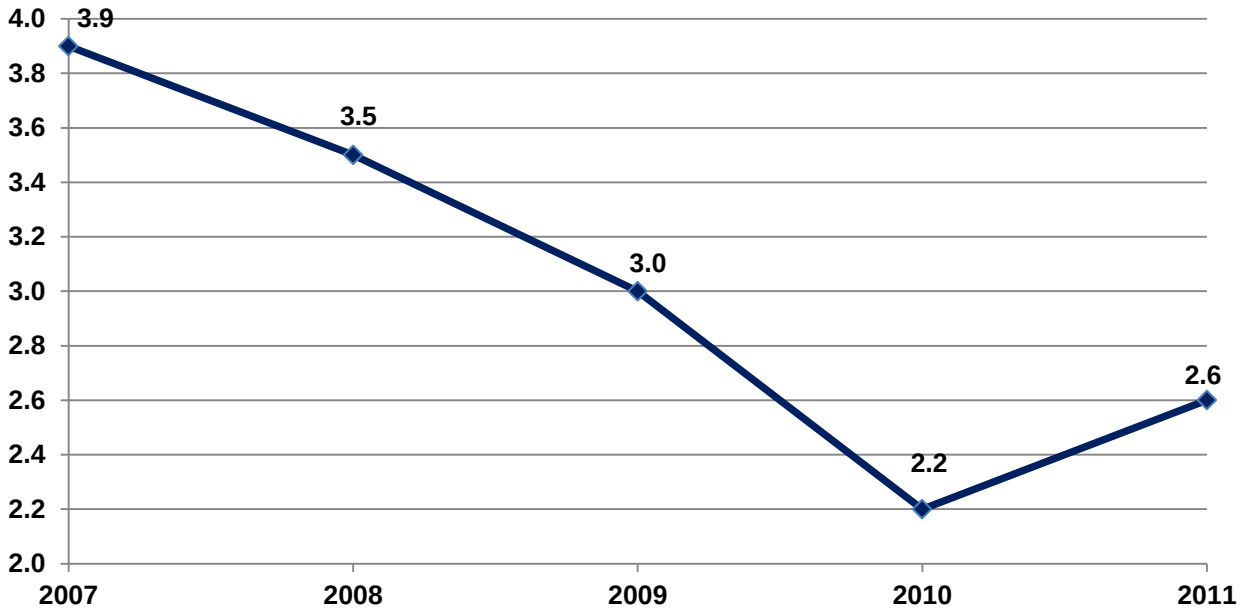
Table 24. Preventable Factors for Child Suicides, Arizona, 2011

Factor*	Number	Percent
Use of drugs and/or alcohol	20	51%
Lack of supervision	8	21%
Access to firearms	7	18%
*More than one factor may have been identified for each death.		

HOMICIDES

Forty-two children were victims of homicide in Arizona during 2011, compared to 36 in 2010. Homicides accounted for five percent of all child deaths in Arizona during 2011. The child homicide rate in 2011 was 2.6 deaths per 100,000 children. This was an increase from a rate of 2.2 homicides per 100,000 children in 2010. Figure 29 shows the rates of child homicides from 2007 through 2011.

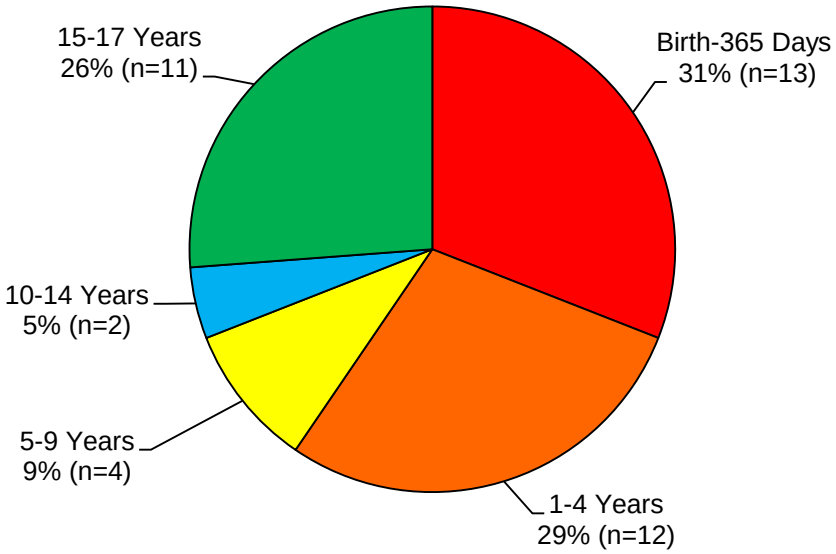
Figure 29. Rate of Homicides (per 100,000 Children), Arizona, 2007-2011



Fifty-two percent of homicide victims in 2011 were males (n=22) and 48 percent were females (n=20). More than half of child homicides were among Hispanics 52 percent, n=22), 21 percent were among White, non-Hispanics (n=9), and 14 percent were among American Indians (n=6), the remainder of children were among other races.

Thirty-one percent of homicides were among children ages birth to 365 days (n=13). Children ages 15 through 17 years accounted for 26 percent of homicides (n=11). Figure 30 shows homicides among children by age group.

Figure 30. Homicides Among Children by Age Group, Arizona, 2011 (n=42)



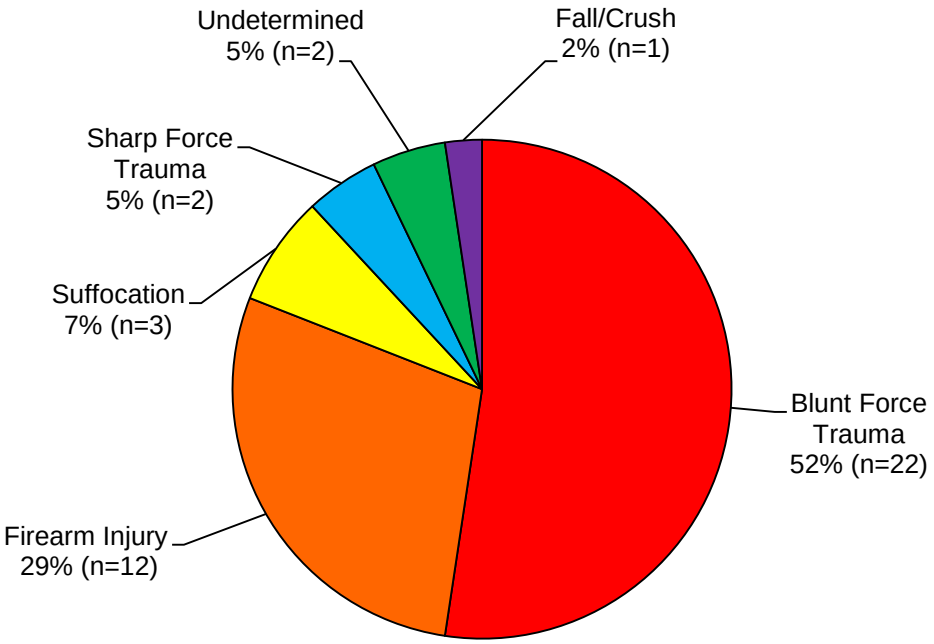
Compared to 2010, the greatest increase in homicides was observed among children ages birth to 365 days (from 22 percent in 2010 to 29 percent in 2010) and children 1 through 4 years of age (from 16 percent in 2010 to 29 percent in 2011). Table 25 shows homicides among children by age group for 2007 through 2011.

Table 25. Homicides Among Children by Age Group, Arizona, 2007-2011

Age Group	2007		2008		2009		2010		2011	
0-27 Days	3	4%	1	2%	3	6%	1	3%	1	2%
28-365 Days	13	20%	14	23%	7	14%	8	22%	12	29%
1-4 Years	12	18%	7	12%	12	24%	6	16%	12	29%
5-9 Years	7	11%	2	3%	5	10%	6	16%	4	9%
10-14 Years	5	8%	6	10%	4	8%	4	11%	2	5%
15-17 Years	26	39%	30	50%	20	39%	11	31%	11	26%
Total	**66**		**60**		**51**		**36**		**42**	

In 2011, blunt force trauma was the leading cause of death among child homicides (52 percent, n=22), followed by firearm injuries (29 percent, n=12). Figure 31 shows homicides among children by cause of death.

Figure 31. Homicides Among Children by Cause of Death, Arizona, 2011 (n=42)



For 36 percent of the homicides, the perpetrator was the biological father of the child (n=15). In 17 percent of cases the review teams were unable to determine the nature of the relationship between the perpetrator and the child. Mothers' partners were responsible for five child homicides in 2011 (12 percent) and the child's friend/acquaintance was the perpetrator in five child deaths (12 percent). Strangers accounted for seven percent of the homicides (n=3) and gang members were responsible for two homicides. Table 26 shows homicides among children by perpetrator.

Table 26. Homicides Among Children by Perpetrator, Arizona, 2011 (n=42)

Perpetrator*	Number	Percent
Biological Father	15	36%
Unknown	7	17%
Mother's partner	5	12%
Child's friend/acquaintance	5	12%
Stranger	3	7%
Other relative	2	5%
Gang member	2	5%
Child's boy/girlfriend	1	2%
Biological Mother	1	2%
Step-father/mother	1	2%

*Perpetrator may fall into more than one category for each death.

One hundred percent of child homicides were determined to have been preventable (n=42). Drugs and/or alcohol was the most commonly identified preventable factor in child homicides (79 percent, n=33), followed by lack of supervision (21 percent, n=9). Involvement in a gang was a factor in two homicides. Table 27 shows preventable factors for child homicides in Arizona during 2011.

Table 27. Preventable Factors for Child Homicides, Arizona, 2011

Factor*	Number	Percent
Drugs and/or alcohol	33	79%
Lack of supervision	9	21%
Involvement in gang	2	5%
*More than one factor may have been identified for each death		

FIREARM-RELATED FATALITIES

There were 23 firearm-related fatalities in 2011, compared to 22 in 2010. Firearms accounted for three percent of all child deaths in 2010 and 2011. Eighty-three percent of the firearm-related deaths in 2011 were among males (n=19) and 17 percent were among females (n=4). Sixty-one percent were among Hispanic children (n=14) and 30 percent were among White, non-Hispanic children (n=7).

The most significant increase in firearm-related deaths was among children ages 15 through 17 years. In 2010, children ages 15 through 17 years accounted for 32 percent of firearm-related deaths (n=7). In 2011, children ages 15 through 17 years accounted for 65 percent of firearm-related deaths (n=15). There were three firearm-related deaths among children ages 10 through 14 years (13 percent), compared to 8 deaths among this age group in 2010 (36 percent). Figure 32 shows firearm-related fatalities among children by age group, and Table 28 shows the distribution of firearm-related child fatalities by year from 2007 through 2011.

Figure 32. Firearm-Related Deaths Among Children by Age Group, Arizona, 2011 (n=23)

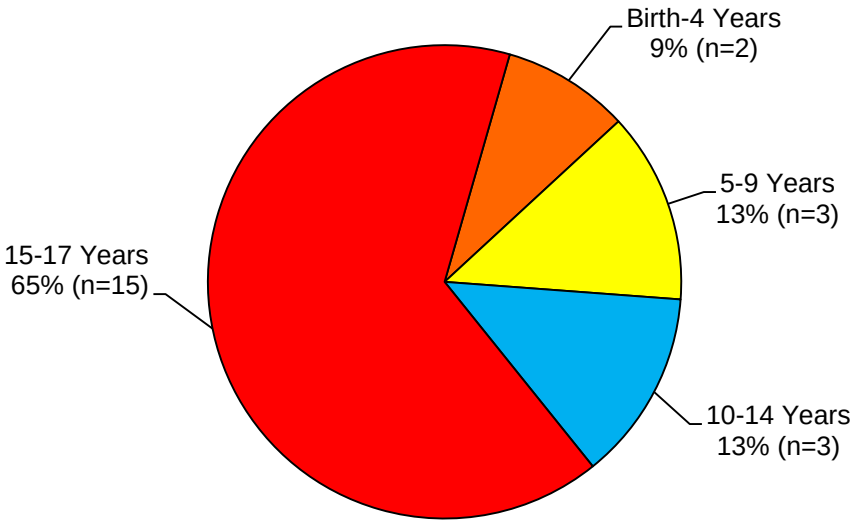
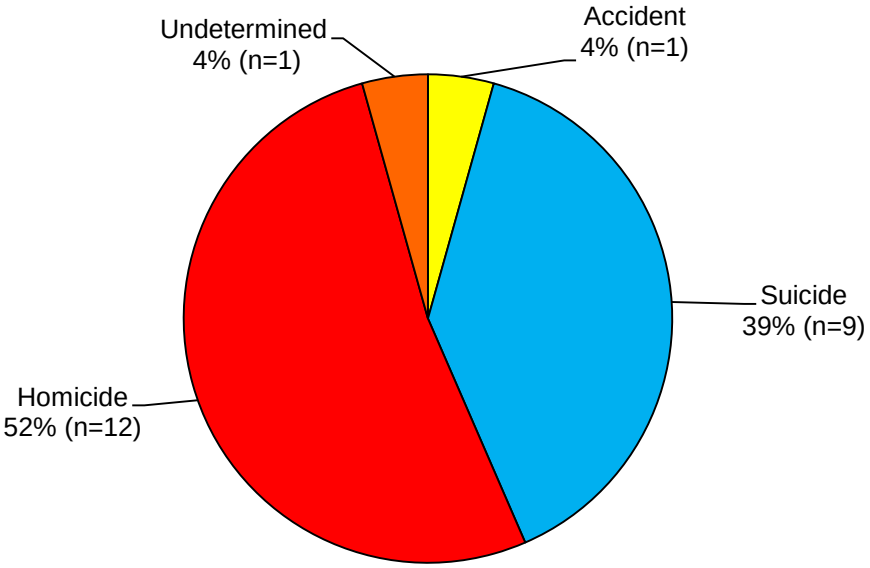


Table 28. Firearm-Related Deaths Among Children by Age Group, Arizona 2007-2011

Age Group	2007		2008		2009		2010		2011	
<10 Years	5	10%	5	10%	8	25%	7	32%	5	22%
10-14 Years	7	15%	7	14%	1	3%	8	36%	3	13%
15-17 Years	36	75%	37	76%	23	72%	7	32%	15	65%
Total	**48**		**49**		**32**		**22**		**23**	

In 2011, 52 percent of firearm-related deaths were homicides (n=12), 39 percent were suicides (n=9), and four percent were accidents (n=1). Figure 33 shows firearm-related deaths among children by manner.

Figure 33. Firearm-Related Deaths Among Children by Manner, Arizona, 2011 (n=23)



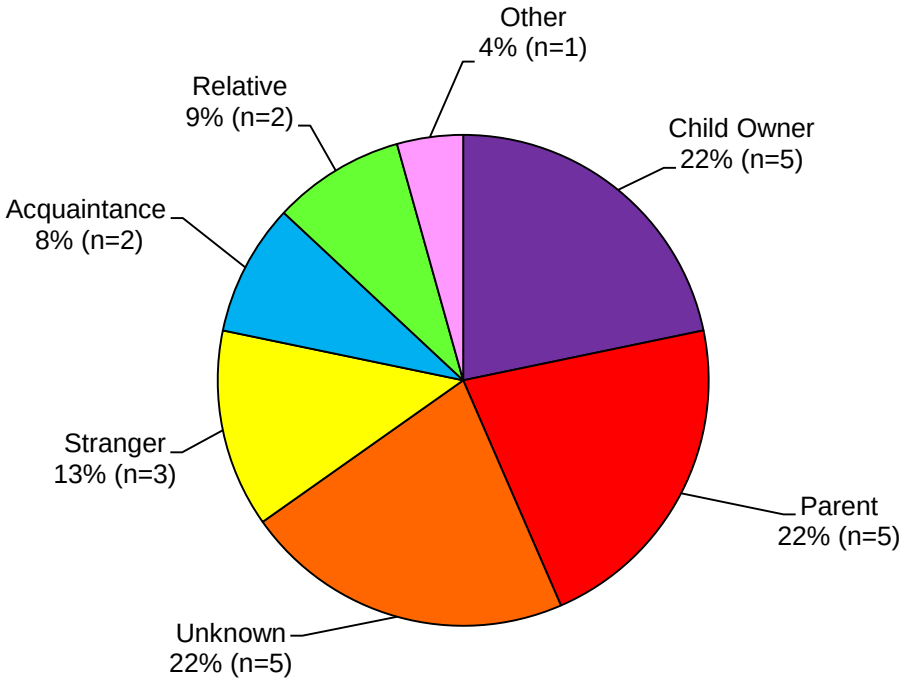
Handguns accounted for the majority of firearm-related fatalities among children in 2011 (79 percent, n=18), followed by shotguns (13 percent, n=3). Table 29 shows types of firearms involved in child deaths during 2011.

Table 29. Types of Firearms Involved in Child Deaths, Arizona, 2011 (n=23)

Type	Number	Percent
Handgun	18	79%
Shotgun	3	13%
Hunting rifle	1	4%
Unknown	1	4%
Total	**23**	

Among the 23 firearm-related deaths, 39 percent of firearms were stored loaded (n=9). In 22 percent of the cases, the child was the owner of the fatal firearm (n=5). Figure 34 shows the owners of the firearms used in child fatalities.

Figure 34. Owners of Firearms Involved in Child Deaths, Arizona, 2011 (n=23)



In almost half of firearm-related child deaths, the firearm's storage location was unknown to the review teams (48 percent, n=11). It is important to note that among the child deaths where the storage location is unknown, sixty-four percent were being carried on a person (n=7). In five cases, there was no attempt to conceal the fatal firearm. One firearm was stored in a locked safe, but the child had access to the key. The remaining firearms were not stored in secured locations. Table 30 summarizes the locations of the firearms involved in child deaths during 2011.

Table 30. Locations of Firearms Involved in Child Deaths, Arizona, 2011 (n=23)

Location	Number	Percent
Unknown	11	48%
No attempt to conceal	5	22%
Drawer/cabinet	4	17%
Under a mattress or pillow	2	9%
Safe	1	4%
Total	**23**	

Ninety-six percent of the firearm-related deaths in 2011 were determined to have been preventable (n=20). Drugs and/or alcohol were known to have been involved in 70 percent of firearm-related deaths (n=16). Lack of supervision was a factor in 17 percent of the deaths (n=4), and involvement in a gang was a factor in four percent of firearm-related child deaths (n=1). Table 31 shows preventable factors for firearm-related fatalities in Arizona during 2011.

Table 31. Preventable Factors for Firearm-Related Deaths Among Children, Arizona, 2011

Factor*	Number	Percent
Drugs and/or alcohol	16	70%
Lack of supervision	4	17%
Involvement in gang	1	4%
*More than one factor may have been identified for each death		

MALTREATMENT FATALITIES

The number of child maltreatment deaths presented in this report is not comparable to child maltreatment deaths reported by the Arizona Department of Economic Security (ADES) for the National Child Abuse and Neglect Data System (NCANDS). NCANDS includes maltreatment deaths identified through Child Protective Services investigations, and because some maltreatment deaths identified by Local Child Fatality Review Teams may not have been reported to Child Protective Services or were within the jurisdiction of Tribal Nations or other states, these deaths would not be included in ADES's annual report to NCANDS. However, when a Local Child Fatality Review team identifies a death due to maltreatment that has not been previously reported to Child Protective Services, the Local Child Fatality Review Program notifies Child Protective Services of the team's assessment so that an investigation can be initiated.

It is important to note the differences in reporting of maltreatment numbers in this report compared to the number of maltreatment fatalities reported by ADES. ADES may report a fatality that the maltreatment subcommittee does not. Similarly, some maltreatment fatalities in this report are not posted by ADES. There are several cases where Arizona Child Protective Services would not have had information based on prior reports or open cases at the time of a child's death. For instance, the maltreatment subcommittee may determine a death to be maltreatment when a death occurred because vehicle restraints were available and not used.

Per A.R.S. § 8-807. ADES is required to post information on child fatalities due to abuse or neglect by the child's parent, custodian or caregiver. This information is posted when the information comes to ADES' attention and a final determination of the fatality due to abuse or neglect has been made. The determination is made by either a substantiated finding or specific criminal charges filed against a parent, guardian or caregiver for causing the fatality or near fatality. The prior CPS reports are related to the child victim and the alleged perpetrator.

To gain greater understanding of the contribution of abuse and neglect to child mortality, the Arizona Child Fatality Review Teams answered several questions regarding maltreatment. In order for a death to be classified as a result of maltreatment, the following four conditions must be met:

1. Was there "An act or failure to act by a parent, caregiver, or other person as defined under State law which results in physical abuse, neglect, medical neglect, sexual abuse, emotional abuse, or an act or failure to act which presents an imminent risk of serious harm to a child" as it applied to the circumstances surrounding the death? (From the U.S. Department of Health and Human Services definition of maltreatment).
2. The relationship of the individual accused of committing the maltreatment to the child must be the child's parent, guardian, or caretaker.
3. A team member, who is a mandated reporter, would be obligated to report a similar incident to Child Protective Services.

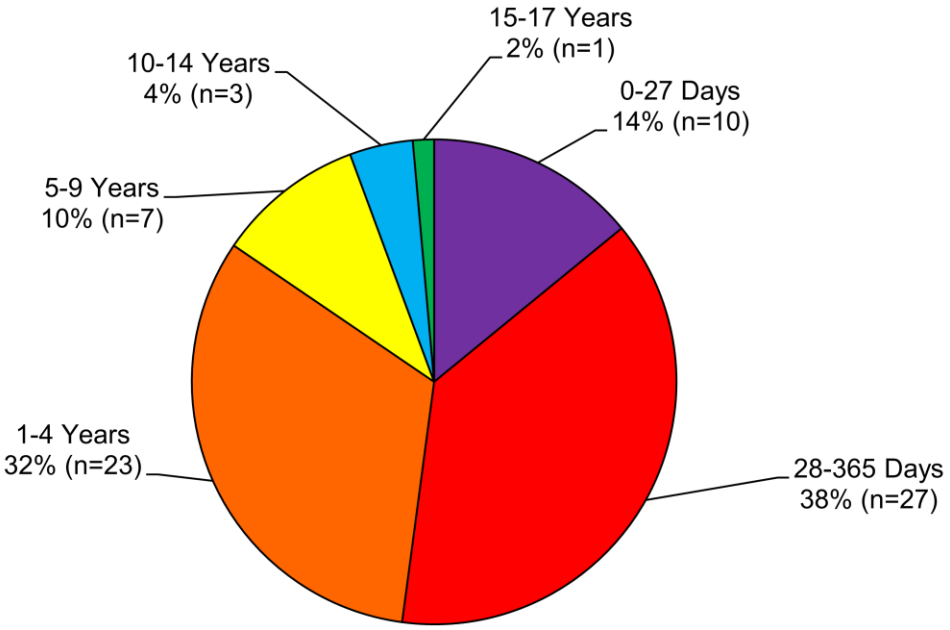
4. An act or failure to act during critical moments in which the child, left without adequate supervision, food, shelter or medical care dies by a suddenly arising danger.

Deaths classified as maltreatment are also reported in other categories by manner and cause of death. For example, a death due to abusive head trauma would be classified as a manner of homicide with a cause of blunt force trauma, and a maltreatment death. An accidental or natural death might also be classified as a maltreatment death if, in the opinion of the team, a caretaker's negligence or actions contributed to or caused the death. For example, a child who died in a motor vehicle crash due to the parent driving while intoxicated would be considered a maltreatment death.

In 2011, there were 71 deaths classified as maltreatment, which was eight percent of all child deaths that year. This was an increase from 70 child maltreatment deaths in 2010 (also eight percent of all child deaths). In 2011, 52 percent of maltreatment deaths were among males (n=37) and 48 percent were among females (n=34). Forty-two percent of the children who died due to maltreatment were Hispanic (n=30), 34 percent were White, non-Hispanic (n=24), 13 percent were American Indian (n=9), eight percent were African American (n=6), one percent were Asian (n=1) and one percent were 2 or more races (n=1).

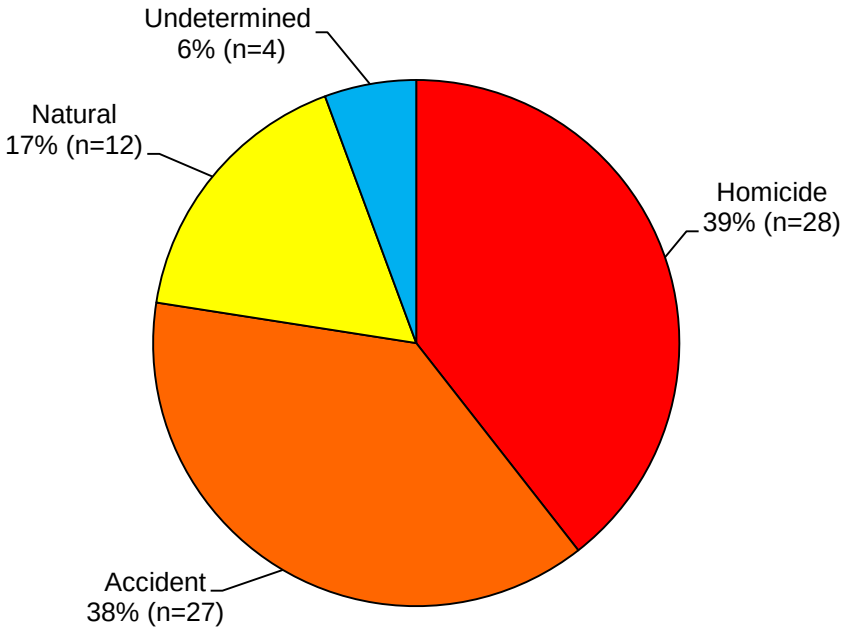
More than half of all maltreatment deaths were among children younger than one year of age (52 percent, n=37). Figure 35 shows maltreatment deaths among children by age group.

Figure 35. Maltreatment Deaths Among Children by Age Group, Arizona, 2011 (n=71)



Homicide was the leading manner of maltreatment deaths for Arizona children in 2011 (39 percent, n=28). For six percent of the maltreatment deaths, the manner of death was unable to be determined by the review team after review of all available information (n=4). Seventeen percent of maltreatment deaths were due to natural manners (n=12). Examples of maltreatment deaths due to natural manners of death included prenatal substance use resulting in premature birth, or failure to obtain medical care. Thirty-eight percent of the maltreatment deaths were due to accidents (n=27). Maltreatment-related accidental deaths included unintentional injuries caused by significant negligence or substance abuse by a parent or guardian. Figure 36 shows maltreatment deaths by manner.

Figure 36. Maltreatment Deaths Among Children by Manner, Arizona, 2011 (n=71)



Blunt/sharp force trauma, drowning and suffocation were the leading causes of maltreatment-related deaths among children in Arizona in 2011. Table 32 shows maltreatment deaths among children by cause and manner.

Table 32. Maltreatment Deaths Among Children by Cause and Manner, Arizona, 2011 (n=71)					
Cause	**Natural**	**Accident**	**Homicide**	**Undetermined**	**Total**
Medical	6	0	0	0	**6**
Prematurity	5	0	0	0	**5**
Motor vehicle crash	0	8	0	0	**8**
Firearm	0	0	3	0	**3**
Suffocation	0	6	3	0	**9**
Drowning	0	12	0	0	**12**
Blunt/sharp force trauma	0	0	21	0	**21**
Hanging	0	1	0	0	**1**
Undetermined	1	0	1	4	**6**
Total	**12**	**27**	**28**	**4**	**71**

Seventeen percent of the maltreated children in Arizona during 2011 were known to have had physical, mental, and/or sensory disabilities (n=12), including one child with autism.

For 48 percent of maltreatment deaths, the perpetrator was the child's biological mother (n=34). In 28 percent, the perpetrator was the child's biological father (n=20). In ten percent of the maltreatment deaths, the perpetrator was the mother's partner (n=7), for six percent of maltreatment fatalities the review team was unable to determine which caretaker was responsible (n=4), and for the remainder of the maltreatment fatalities the perpetrator was a relative or foster parent (eight percent, n=6). Table 33 shows maltreatment deaths among children by perpetrator.

Table 33. Maltreatment Deaths Among Children by Perpetrator, Arizona, 2011 (n=71)		
Perpetrator*	**Number**	**Percent**
Mother	34	48%
Father	20	28%
Mother's partner	7	10%
Unable to determine	4	6%
Other relative	4	6%
Foster parent	2	2%
Total	**71**	
*May not have been under the jurisdiction of Arizona Child Protective Services		

There were 12 fatalities among children two years of age or younger due to abusive head trauma during 2011. Seven of these children were known to have been shaken. This was an increase from 2010, when eight children two years of age and younger died as a result of abusive head trauma.

Ninety-six percent of the child maltreatment deaths in 2011 were determined to have been preventable (n=68). For three percent of maltreatment deaths, local review teams were not able to determine preventability (n=2). Drugs and/or alcohol contributed to 69 percent of the deaths (n=49). Lack of supervision contributed to 45 percent of maltreatment deaths (n=32). Table 34 shows preventable factors for child maltreatment deaths.

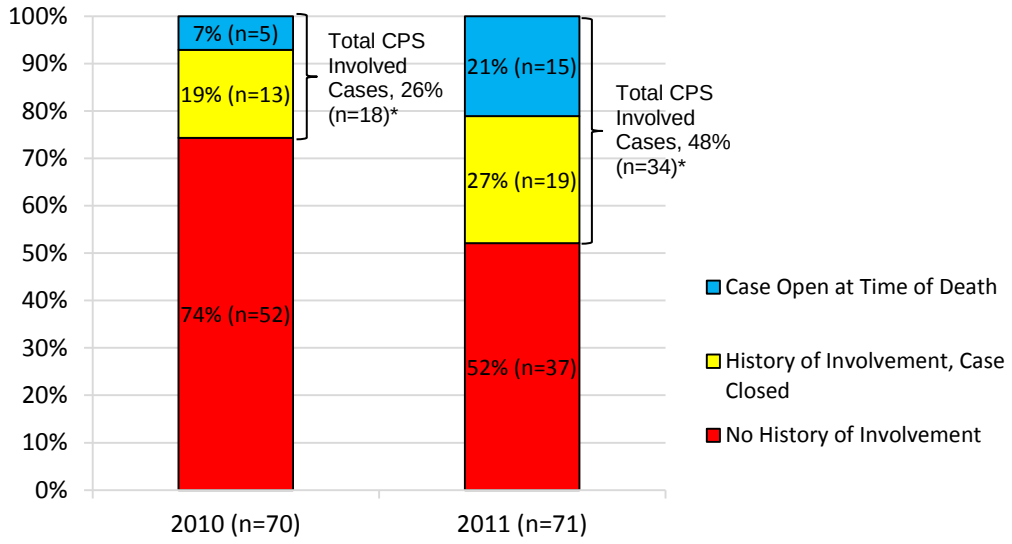
Table 34. Preventable Factors for Maltreatment Deaths Among Children, Arizona, 2011		
Factor*	**Number**	**Percent**
Drugs and/or alcohol	49	69%
Lack of supervision	32	45%
Unsafe sleep environment	9	13%
*More than one factor may have been identified for each death		

Child Protective Services Involvement with Families of Children Who Died Due to Maltreatment

Local Child Fatality Review Teams attempt to obtain records from child protective services agencies, including Arizona Child Protective Services and child protective agencies in other jurisdictions, such as tribal authorities and other states. If a child protective agency investigated a report of maltreatment for any child in the family prior to the incident leading to the child's death, then the family was considered to have had previous involvement with a child protective agency. This includes reports in which the maltreatment was not substantiated.

In 2011, 34 children who died from maltreatment were from families with prior child protective services involvement (48 percent). Among these 34 families, 15 had an open case with a child protective service's agency at the time of the death (44 percent). This was an increase from 2010, when there were 18 families with prior child protective services involvement (26 percent), five of which were open at the time of death. Figure 37 shows child maltreatment deaths by status with child protective services.

Figure 37. Maltreatment Deaths Among Children by Status with Child Protective Services, Arizona, 2010 and 2011



*These cases may not have been under the jurisdiction of Arizona Child Protective Services. This happens when prior history is identified through a tribal agency or a state other than Arizona.

For 14 maltreatment deaths, mandatory reporters did not notify Arizona Child Protective Services that after a complete investigation, the deaths were suspected to have resulted from child maltreatment (20 percent). These 14 cases were reported to Arizona Child Protective Services by the Child Fatality Review Program. The number and percentage of maltreatment deaths not reported to Arizona Child Protective Services decreased from 49 percent in 2010 (n=34) to 20 percent in 2011 (n=14).

There were 26 child maltreatment deaths in 2011 in which legal charges had been filed or were pending against the perpetrator(s) of the abuse or neglect at the time of the review (37 percent). In an additional four cases, charges were not filed because the perpetrator was deceased. Since additional criminal investigation may be required prior to filing legal charges against those involved in a child maltreatment death, information on legal outcomes may not be available to the local team at the time of the death review. In 2011, there were 23 deaths in which legal outcomes were unknown to the local review team (32 percent).

APPENDIX A: CHILD DEATHS BY AGE GROUP

The following section of the report provides information on the causes and manners of child deaths by age group. The information provided for each age group can be used to guide prevention efforts within each stage of development. For the past seven years, 100 percent of child deaths in Arizona have been reviewed, and data from 2007 through 2011 are included in the following tables in order to provide five full years of comparison data.

The Neonatal Period, Birth Through 27 Days

Table 35. Deaths Among Children Ages Birth Through 27 Days by Cause and Manner, Arizona, 2011 (n=334)

Cause	Natural	Accident	Suicide	Homicide	Undetermined	Total
Medical*	139	2	0	0	1	**142**
Prematurity	179	0	0	0	2	**181**
Suffocation	0	5	0	0	0	**5**
Blunt/Sharp Force Trauma	0	0	0	1	0	**1**
Undetermined	0	0	0	0	5	**5**
Total	**318**	**7**	**0**	**1**	**8**	**334**

*Excluding SIDS and prematurity

Table 36. Deaths Among Children Ages Birth Through 27 Days by Cause, Arizona, 2007-2011

Cause	2007		2008		2009		2010		2011	
Prematurity	281	58%	256	60%	221	60%	180	54%	181	54%
Medical*	180	37%	155	37%	128	35%	145	43%	143	43%
Undetermined	4	1%	6	1%	5	1%	6	2%	5	2%
SIDS	4	1%	3	1%	1	<1%	0	0%	0	0%
MVC/Transport	5	1%	2	<1%	2	<1%	1	<1%	0	0%
Other	5	1%	1	<1%	5	1%	0	0%	1	<1%%
Suffocation	5	1%	0	0%	4	1%	1	<1%	5	1%
Exposure			0	0%	0	0%	1	<1%	0	0%
Drowning	1	0%	0	0%	0	0%	0	0%	0	0%
Total	**485**		**423**		**366**		**334**		**334**	

*Excluding SIDS and Prematurity

Table 37. Deaths Among Children Ages Birth Through 27 Days by Manner, Arizona, 2007-2011

Manner	2007		2008		2009		2010		2011	
Natural	464	96%	414	98%	349	95%	324	97%	318	95%
Undetermined	6	1%	6	1%	7	2%	7	2%	8	2%
Accident	12	2%	2	<1%	7	2%	2	1%	7	2%
Homicide	3	1%	1	<1%	3	1%	1	<1%	1	<1%
Suicide	0		0	0%	0	0%	0	0%	0	0%
Total	**485**		**423**		**366**		**334**		**334**	

The Post-Neonatal Period, 28 Days Through 365 Days

Table 38. Deaths Among Children Ages 28 Days Through 365 Days by Cause and Manner, Arizona, 2011 (n=175)							
Cause	**Natural**	**Accident**	**Suicide**	**Homicide**	**Undetermined**	**Unknown**	**Total**
Medical*	74	0	0	0	1	0	**75**
Prematurity	16	0	0	0	0	1	**17**
MVC/Transport	0	4	0	0	0	0	**4**
Firearm	0	3	0	1	0	0	**1**
Suffocation	0	31	0	1	2	0	**34**
Drowning	0	3	0	0	0	0	**3**
SIDS	1	0	0	0	1	0	**2**
Blunt/Sharp Force Trauma	0	0	0	9	0	0	**9**
Undetermined	1	0	0	1	28	0	**30**
Total	**92**	**38**	**0**	**12**	**32**	**1**	**175**
*Excluding SIDS and prematurity							

Table 39. Deaths Among Children 28 Days Through 365 Days by Cause, Arizona, 2007-2011										
Cause	**2007**		**2008**		**2009**		**2010**		**2011**	
Medical*	83	37%	91	43%	77	42%	82	43%	75	43%
Undetermined	25	11%	44	21%	35	19%	56	29%	30	17%
Suffocation	21	9%	21	10%	13	7%	22	11%	34	19%
SIDS	33	15%	17	8%	27	15%	1	<1%	2	1%
Prematurity	35	15%	15	7%	18	10%	17	9%	17	10%
Blunt/Sharp Force Trauma	8	3%	9	4%	3	2%	6	3%	9	5%
Other non-Medical	5	2%	6	3%	3	2%	3	2%	1	<1%
MVC/Transport	7	3%	6	3%	2	1%	1	<1%	4	2%
Drowning	5	2%	1	<1%	3	2%	2	1%	3	2%
Exposure	2	1%	1	<1%	0	0%	1	<1%	0	0%
Fire/Burn	6	3%	0	0%	0	0%	0	0%	0	0%
Poisoning	1	0%	0	0%	1	<1%	1	<1%	0	0%
Hanging	1	0%	0	0%	0	0%	0	0%	0	0%
Total	**225**		**211**		**183**		**192**		**175**	
*Excluding SIDS and Prematurity										

Table 40. Deaths Among Children Ages 28 Days Through 365 Days by Manner, Arizona, 2007-2011										
Manner	**2007**		**2008**		**2009**		**2010**		**2011**	
Natural	147	65%	116	55%	116	63%	109	57%	92	53%
Undetermined	27	12%	52	25%	42	23%	50	26%	32	18%
Accident	38	17%	29	14%	18	10%	25	13%	38	22%
Homicide	13	6%	14	7%	7	4%	8	4%	12	7%
Suicide	0	0%	0	0%	0	0%	0	0%	0	0%
Unknown	0	0%	0	0%	0	0%	0	0%	1	<1%
Total	**225**		**211**		**183**		**192**		**175**	

Children, One Through Four Years of Age

Table 41. Deaths Among Children Ages One Through Four Years by Cause and Manner, Arizona, 2011 (n=106)							
Cause	**Natural**	**Accident**	**Suicide**	**Homicide**	**Undetermined**	**Unknown**	**Total**
Medical*	39	0	0	0	1	0	**40**
Prematurity	1	0	0	0	0	0	**1**
MVC/Transport	0	15	0	0	0	0	**15**
Firearm	0	0	0	1	0	0	**1**
Suffocation	0	7	0	1	0	0	**8**
Drowning	0	18	0	0	0	0	**18**
Blunt/Sharp Force Trauma	0	0	0	10	0	0	**10**
Hanging	0	3	0	0	0	0	**3**
Undetermined	0	0	0	0	5	0	**5**
Poisoning	0	1	0	0	0	0	**1**
Fire/Burn	0	1	0	0	1	0	**2**
Fall/Crush	0	2	0	0	0	0	**2**
Total	**40**	**47**	**0**	**12**	**7**	**0**	**106**
*Excluding SIDS and prematurity							

Table 42. Deaths Among Children Ages One Through Four Years by Cause, Arizona, 2007-2011										
Cause	**2007**		**2008**		**2009**		**2010**		**2011**	
Medical*	45	40%	67	53%	50	38%	52	44%	40	38%
Drowning	12	11%	25	20%	24	18%	22	18%	18	17%
MVC/Transport	21	18%	10	8%	20	15%	19	16%	15	14%
Other non-Medical	11	10%	7	5%	11	8%	7	6%	0	0%
Undetermined	8	7%	7	5%	10	8%	6	5%	5	5%
Blunt/Sharp Force Trauma	7	6%	4	3%	7	5%	4	3%	10	9%
Firearm	2	2%	2	2%	4	2%	2	2%	1	1%
Poisoning	2	2%	2	2%	0	0%	0	0%	1	1%
Exposure	1	1%	2	2%	0	0%	2	2%	0	0%
Fire/burn	2	2%	1	1%	3	2%	2	2%	2	2%
Fall/crush	-	-	-	-	-	-	2	2%	2	2%
Hanging	-	-	-	-	-	-	1	<1%	3	3%
Prematurity	0	0%	0	0%	1	1%	0	0%	1	1%
Suffocation	2	2%	0	0%	0	0%	0	0%	8	8%
Total	**113**		**126**		**130**		**119**		**106**	
*Excluding SIDS and Prematurity										

Table 43. Deaths Among Children Ages One Through Four Years by Manner, Arizona, 2007-2011										
Manner	**2007**		**2008**		**2009**		**2010**		**2011**	
Natural	49	43%	67	53%	54	42%	52	44%	40	38%
Accident	45	40%	43	34%	56	43%	52	44%	47	44%
Undetermined	7	6%	9	7%	8	6%	8	7%	7	7%
Homicide	12	11%	7	5%	12	9%	6	5%	12	11%
Suicide	0	0%	0	0%	0	0%	0	0%	0	0%
Unknown	-	-	-	-	-	-	1	<1%	0	0%
Total	**113**		**126**		**130**		**119**		**106**	

Children, Five Through Nine Years of Age

Table 44. Deaths Among Children Ages Five Through Nine Years by Cause and Manner, Arizona, 2011 (n=54)						
Cause	**Natural**	**Accident**	**Suicide**	**Homicide**	**Undetermined**	**Total**
Medical*	26	0	0	0	0	**26**
MVC/Transport	0	13	0	0	0	**13**
Firearm	0	0	0	3	0	**3**
Suffocation	0	1	0	0	0	**1**
Drowning	0	7	0	0	0	**7**
Blunt/Sharp Force Trauma	0	0	0	1	0	**1**
Hanging	0	0	1	0	0	**1**
Undetermined	0		0	0	1	**1**
Fire/Burn	0	1	0	0	0	**1**
Total	**26**	**22**	**1**	**4**	**1**	**54**
*Excluding SIDS and prematurity						

Table 45. Deaths Among Children Ages Five Through Nine Years by Cause, Arizona, 2007-2011										
Cause	**2007**		**2008**		**2009**		**2010**		**2011**	
Medical	37	55%	43	64%	42	63%	31	53%	26	48%
Prematurity	0	0%	0	0%	1	1%	0	0%	0	0%
MVC/Transport	13	19%	10	15%	15	22%	10	17%	13	34%
Other	7	10%	8	12%	6	9%	2	3%	0	0%
Drowning	4	6%	2	3%	3	4%	4	7%	7	13%
Fire/Burn	1	1%	2	3%	0	0%	2	3%	1	2%
Hanging	1	1%	1	1%	0	0%	0	0%	1	2%
Firearm	-	-	-	-	-	-	5	9%	3	6%
Undetermined	-	-	-	-	-	-	1	2%	1	2%
Fall/Crush	-	-	-	-	-	-	2	3%	0	0%
Blunt/Sharp Force Trauma	1	1%	1	1%	0	0%	0	0%	1	2%
Suffocation	1	1%	0	0%	0	0%	1	2%	1	2%
Poisoning	2	3%	0	0%	0	0%	0	0%	0	0%
Total	**67**		**67**		**67**		**58**		**54**	
*Excluding SIDS and Prematurity										

Table 46. Deaths Among Children Ages Five Through Nine Years by Manner, Arizona, 2007-2011										
Manner	**2007**		**2008**		**2009**		**2010**		**2011**	
Natural	37	55%	42	63%	43	64%	32	55%	26	48%
Accident	23	34%	19	28%	19	28%	20	34%	22	41%
Undetermined	0	0%	4	6%	0	0%	0	0%	1	2%
Homicide	7	10%	2	3%	5	7%	6	10%	4	7%
Suicide	0	0%	0	0%	0	0%	0	0%	1	2%
Total	**67**		**67**		**67**		**58**		**54**	

Children, 10 Through 14 Years of Age

Table 47. Deaths Among Children Ages 10 Through 14 Years by Cause and Manner, Arizona, 2011 (n=72)						
Cause	**Natural**	**Accident**	**Suicide**	**Homicide**	**Undetermined**	**Total**
Medical	34	0	0	0	0	**34**
MVC/Transport	0	16	1	0	0	**17**
Firearm	0	0	2	1	0	**3**
Suffocation	0	0	0	1	0	**1**
Drowning	0	2	0	0	0	**2**
Blunt/Sharp Force Trauma	0	2	0	0	0	**2**
Hanging	0	0	10	0	0	**10**
Undetermined	0	0	0	0	1	**1**
Fire/Burn	0	2	0	0	0	**2**
Total	**34**	**22**	**13**	**2**	**1**	**72**
*Excluding SIDS and prematurity						

Table 48. Deaths Among Children Ages 10 Through 14 Years by Cause, Arizona, 2007-2011										
Cause	**2007**		**2008**		**2009**		**2010**		**2011**	
Medical	40	43%	34	46%	43	59%	29	44%	34	47%
MVC/Transport	27	29%	19	26%	13	18%	12	18%	17	24%
Firearm	7	8%	7	9%	1	1%	8	12%	3	4%
Hanging	6	6%	6	8%	3	4%	7	11%	10	14%
Other	4	4%	2	3%	8	11%	1	2%	0	0%
Fall/Crush	3	3%	2	3%	2	3%	0	0%	0	0%
Poisoning	2	2%	2	3%	0	0%	1	2%	0	0%
Blunt/Sharp Force Trauma	1	1%	1	1%	0	0%	0	0%	2	3%
Exposure	1	1%	1	1%	2	3%	1	2%	0	0%
Suffocation	0	0%	0	0%	0	0%	0	0%	1	1%
Drowning	1	1%	0	0%	1	1%	2	2%	2	3%
Undetermined	-	-	-	-	-	-	3	5%	1	1%
Fire/burn	-	-	-	-	-	-	2	2%	2	3%
	92		**74**		**73**		**66**		**72**	
*Excluding SIDS and Prematurity										

Table 49. Deaths Among Children Ages 10 Through 14 Years by Manner, Arizona, 2007-2011										
Manner	**2007**		**2008**		**2009**		**2010**		**2011**	
Natural	40	43%	33	45%	47	64%	30	45%	34	47%
Accident	35	38%	26	35%	17	23%	18	27%	22	31%
Suicide	7	8%	9	12%	3	4%	9	14%	13	18%
Homicide	5	5%	6	8%	4	5%	4	6%	2	3%
Undetermined	5	5%	0	0%	25	3%	5	8%	1	1%
Total	**92**		**74**		**73**		**66**		**72**	

Children, 15 Through 17 Years of Age

Table 50. Deaths Among Children Ages 15 Through 17 Years by Cause and Manner, Arizona, 2011 (n=96)							
Cause	**Natural**	**Accident**	**Suicide**	**Homicide**	**Undetermined**	**Unknown**	**Total**
Medical*	25	0	0	0	0	0	**25**
MVC/Transport	0	20	1	0	0	0	**21**
Firearm	0	1	7	6	1	0	**15**
Suffocation	0	1	0	0	0	0	**1**
Drowning	0	1	1	0	0	0	**2**
Blunt/Sharp Force Trauma	0	0	0	3	0	0	**3**
Hanging	0	0	13	0	0	0	**13**
Undetermined	2	0	0	1	1	0	**4**
Poisoning	0	6	3	0	0	0	**9**
Fire/Burn	0	1	0	0	0	0	**1**
Fall/Crush	0	1	0	1	0	0	**2**
Total	**27**	**31**	**25**	**11**	**2**	**0**	**96**
*Excluding SIDS and prematurity							

Table 51. Deaths Among Children Ages 15 Through 17 Years by Cause, Arizona, 2007-2011										
Cause	**2007**		**2008**		**2009**		**2010**		**2011**	
Firearm	36	22%	37	27%	23	18%	7	8%	15	16%
MVC/Transport	49	30%	35	25%	30	23%	18	19%	21	22%
Medical*	35	22%	30	22%	32	25%	20	22%	25	26%
Hanging	6	4%	13	9%	12	9%	11	12%	13	14%
Poisoning	17	11%	10	7%	15	12%	16	17%	9	9%
Other	7	4%	4	3%	4	3%	8	9%	0	0%
Exposure	4	2%	4	3%	5	4%	6	6%	0	0%
Drowning	0	0%	1	1%	4	3%	3	3%	2	2%
Undetermined	4	2%	1	1%	1	1%	2	2%	4	4%
Fall/Crush	0	0%	1	1%	0	0%	0	0%	2	2%
Blunt/Sharp Force Trauma	0	0%	1	1%	2	2%	1	1%	3	3%
Fire/Burn	3	2%	0	0%	0	0%	0	0%	1	1%
Suffocation	-	-	-	-	-	-	1	1%	1	1%
Total	**161**		**137**		**128**		**93**		**96**	
*Excluding SIDS and Prematurity										

Table 52. Deaths Among Children Ages 15 Through 17 Years by Manner, Arizona, 2007-2011										
Manner	**2007**		**2008**		**2009**		**2010**		**2011**	
Accident	74	46%	49	36%	48	37%	43	46%	31	32%
Natural	34	21%	30	22%	32	25%	18	19%	27	28%
Homicide	26	16%	30	22%	20	16%	11	12%	11	11%
Suicide	21	13%	26	19%	24	19%	15	16%	25	26%
Undetermined	6	4%	2	1%	4	3%	4	4%	2	2%
Unknown	-	-	-	-	-	-	2	2%	0	0%
Total	**161**		**137**		**128**		**93**		**96**	

APPENDIX B: POPULATION DENOMINATORS FOR ARIZONA CHILDREN

The population denominators shown below were used in computing the rates presented in this report. Denominators for 2007 through 2009 were provided by the Arizona Department of Health Services Bureau of Public Health Statistics, available online at: http://www.azdhs.gov/plan/menu/info/pd.htm.

Population denominators for 2010 were tabulated from the 2010 Decennial Census, Summary File 1, available online from: www.census.gov.

2011 population denominators were pulled from the Arizona Vital Statistics, 2011 from: www.azdhs.gov/plan/menu/info/pop/pop11/pd11.htm.

Table 53. Population of Children Ages Birth Through 17 Years by County of Residence, Arizona, 2007-2011

	2007	2008	2009	2010	2011
Apache	25,708	25,713	25,888	22,660	22,808
Cochise	34,478	34,786	35,356	30,250	30,099
Coconino	35,867	35,840	36,439	31,788	31,716
Gila	13,130	13,545	14,002	11,471	11,451
Graham	9,833	10,536	10,819	10,575	10,718
Greenlee	2,355	2,551	2,496	2,463	2,463
La Paz	4,143	4,130	4,074	3,678	3,682
Maricopa	1,051,575	1,059,737	1,064,572	1,007,861	1,014,790
Mohave	45,146	45,589	45,296	41,265	41,301
Navajo	35,821	35,684	35,814	31,973	31,901
Pima	242,411	243,987	244,390	225,316	226,652
Pinal	72,802	80,600	81,414	99,700	101,929
Santa Cruz	14,624	14,880	14,898	14,560	14,752
Yavapai	43,925	44,725	44,969	40,269	40,305
Yuma	58,446	59,083	59,089	55,185	56,547
Total	**1,690,264**	**1,711,386**	**1,719,515**	**1,629,014**	**1,641,114**

Table 54. Population of Children Ages 0 Through 17 Years by Age Group, Arizona, 2007-2011

	2007	2008	2009	2010	2011
<1 Year	102,587	98,995	92,263	87,557	88,211
1-4 Years	396,458	402,486	406,201	368,158	370,926
5-9 Years	457,956	465,088	469,372	453,680	457,080
10-14 Years	455,724	462,890	467,149	448,664	451,983
15-17 Years	277,927	281,927	284,530	270,955	272,908
Total	**1,690,264**	**1,711,386**	**1,719,515**	**1,629,014**	**1,641,108**

APPENDIX C: DATA ANALYSIS METHODOLOGY

Child fatality review data include a variety of data sources that may not be available to other programs or research endeavors. Arizona statute facilitates data collection among protected data sources, including health and law enforcement records (A.R.S. §36-3503). Confidentiality of records is strictly enforced, and meetings at which individual cases are reviewed are not open to the public. Case review records are destroyed after publication of the annual report.

All reasonable efforts are made to obtain complete records for each death. However, if records are unavailable, case reviews may be conducted without some information. Records may be difficult to obtain for children who died in Arizona but lived in other states or countries, for children whose families only recently moved to Arizona or for children residing in tribal communities. These cases may have had additional risk factors that were unknown to review teams.

The reliability of child fatality data is dependent upon the accuracy of the records provided for review. Data presented in the Child Fatality Review Annual Report may differ from other published sources.

After review by the local team, review data are entered into an electronic database maintained by the National Center for Child Death Review. Completed data are downloaded from the National Center for Child Death Review database, cleaned, and analyzed using SAS software, Version 9.3 (copyright 2010, SAS Institute Inc., Cary, NC).

APPENDIX D: ARIZONA CHILD FATALITY REVIEW TEAMS AND ARIZONA DEPARTMENT OF HEALTH SERVICES STAFF

State Child Fatality Review Team

Chair

Mary Ellen Rimsza, MD, FAAP
University of Arizona College of Medicine
American Academy of Pediatrics

Members

Frances Marabel
April Maggio (proxy)
Arizona Department of Economic Security
Division of Children Youth, and Families

Kathryn Bowen, MD
University of Arizona College of Medicine

David K. Byers
Leticia D'Amore (proxy)
Administrative Office of the Courts

Mary Ellen Cunningham
Irene Burnton (proxy)
Arizona Department of Health Services
Bureau of Women's and Children's Health

Steve Dingle, MD
Markay Adams (proxy)
Arizona Department of Health Services
Division of Behavioral Health Services

Tim Flood, MD
Arizona Department of Health Services
Bureau of Public Health Statistics

Randy Force
Phoenix Police Department

Blaine Gadow
Maricopa County Attorney's Office

Wade Kartchner, MD
Navajo County Public Health Services

Gaylene Morgan
Office of the Attorney General

John Raeder
Ashley Miles
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Information about the Arizona Child Fatality Review Program may be found on the internet through the Arizona Department of Health Services at:
http://www.azdhs.gov/phs/owch/cfr.htm