



SIXTEENTH ANNUAL REPORT NOVEMBER 2009

Arizona Department of Health Services
Public Health Prevention Services
Bureau of Women's and Children's Health





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JANICE K. BREWER, GOVERNOR
WILL HUMBLE, INTERIM DIRECTOR

November 15, 2009

Dear Friends of Arizona's Children:

Each death of a child is a tragedy not only for the family, but also for the community as a whole. The child fatality review process provides the 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 among children. Each death was reviewed by a local, multidisciplinary team. While the number of deaths among children declined in 2008, 33 percent of these deaths could have been prevented.

A total of 1,038 children younger than 18 years of age died in Arizona. Drowning deaths increased in 2008, and 100 percent of these deaths were considered preventable. In 25 drowning deaths, lack of supervision of a child around water was a contributing factor.

Deaths involving drugs and alcohol continued to increase in 2008, accounting for 20 percent of all deaths, including 53 percent of maltreatment deaths and 28 percent of suicides. Deaths due to maltreatment declined from 65 in 2007 to 51 in 2008. For 23 maltreatment deaths, mandatory reporters did not notify Arizona Child Protective Services that the deaths were suspected to have been due to maltreatment even after the investigations.

Sixty-one percent of all deaths occurred in the first year of life. Ninety infant deaths occurred in unsafe sleep environments. Although the number of deaths due to prematurity declined in 2008, they still represented 26 percent of all child deaths.

Deaths were disproportionately high among Hispanic, African American, American Indian, and Asian children, which emphasizes the need to target these populations when implementing prevention strategies.

In order to prevent future child deaths, the State Child Fatality Review Team includes in this report several recommendations addressing child passenger safety, all terrain/off-highway vehicle use, pool fencing, reporting of suspected maltreatment, and infant safe sleep. We hope that the information in this report will not only heighten your awareness of the causes and potential preventability of child death but also spur you into action to help prevent future child deaths.

Sincerely,

A handwritten signature in dark ink, appearing to read "W. Humble".

Will Humble
Interim Director
Arizona Department of Health Services

A handwritten signature in dark ink, appearing to read "Mary E. Rimsza, MD".

Mary Ellen Rimsza, MD, FAAP
American Academy of Pediatrics
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JS:JS:cr

ARIZONA CHILD FATALITY REVIEW TEAM

SIXTEENTH ANNUAL REPORT

NOVEMBER 2009

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 Robert Burns, President, Arizona State Senate
The Honorable Kirk Adams, Speaker, Arizona State House of Representatives



Leadership for a Healthy Arizona

Janice K. Brewer, Governor
State of Arizona

Will Humble, Interim Director
Arizona Department of Health Services

MISSION:

Setting the standard for personal and community health through direct care delivery, science, public policy, and leadership

Arizona Department of Health Services
Public Health Prevention Services
Bureau of Women's and Children's Health
Child Fatality Review Program
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ACKNOWLEDGMENTS

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

- The Navajo Nation enacted booster seat legislation in 2009.
- AAA Arizona champions traffic safety initiatives designed to save children's lives, including ongoing efforts to pass booster seat legislation in Arizona.
- The City of Flagstaff adopted a bicycle helmet ordinance in September 2009. This ordinance will go into effect on January 1, 2010.
- Bob Khan, Chief of the Phoenix Fire Department, raises awareness of child drowning prevention, reminds everyone to always keep children in sight when near water, and encourages people to learn CPR.
- Patrick Kelly, Chief of the Tucson Fire Department, raises awareness of child drowning prevention and encourages people to assign a dedicated child watcher when children are near water.
- Dave Munsey, KSAZ Fox 10 Meteorologist, reminds everyone to watch their children around water.
- Prevent Child Abuse Arizona and Never Shake a Baby Arizona expanded education on the prevention of abusive head trauma to include more than 50 percent of birthing hospitals in Arizona.
- Kiwanis of Zane Grey Country provided funding for safe cribs for infants in Gila County.

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 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 data from all death reviews.

In 2008, 1,038 children younger than 18 years of age died in Arizona. This was a decline from 2007, despite the fact that the population of children increased in Arizona during 2008.

Arizona Child Fatality Review Teams reviewed 100 percent of child deaths and determined that 33 percent of these deaths could have been prevented (n=343).

- 100 percent of homicides were preventable (n=60).
- 100 percent of drownings were preventable (n=29).
- 98 percent of motor vehicle crashes were preventable (n=80).
- 96 percent of maltreatment deaths were preventable (n=49). For four percent of maltreatment deaths, local review teams were not able to determine preventability (n=2).
- 95 percent of accidents were preventable (n=160).
- 89 percent of suicides were preventable (n=31). For 11 percent of suicides, local review teams were not able to determine preventability (n=4).

Deaths among all age groups declined in 2008 except for children ages one through four years. The percentage of children ages one through four years who died increased from 10 percent of all child deaths in 2007 (n=113) to 12 percent of all child deaths in 2008 (n=126).

Deaths were disproportionately high among all minority children in Arizona during 2008. African American children comprised five percent of the population in Arizona, but 10 percent of the fatalities. American Indian children comprised seven percent of the population and eight percent of deaths. Asian children comprised three percent of the population and four percent of the deaths. Hispanic children accounted for 39 percent of the population and 44 percent of fatalities.

Deaths due to prematurity increased among some minority groups during 2008. African American infants accounted for eight percent of deaths due to prematurity in 2007 (n=26) and 14 percent of deaths due to prematurity in 2008 (n=39). Asian infants comprised three percent of deaths due to prematurity in 2007 (n=10) and six percent of deaths due to prematurity in 2008 (n=16).

Deaths involving substance use (illegal drugs, prescription drugs, and/or alcohol) continued to increase in 2008. Twenty percent of all child deaths involved substance use (n=209), an increase from 2007 when substance use was involved in 17 percent of all child deaths (n=198).

The rate of motor vehicle fatalities declined from 9.9 deaths per 100,000 children in 2006 to 4.7 deaths per 100,000 children in 2008. Motor vehicle crashes claimed 82 children's lives in 2008, a decline from 2007 when 122 children died in motor vehicle crashes. Ten children died in all terrain vehicle (ATV) crashes in 2008. Ninety-eight percent of motor vehicle-related deaths were determined to have been preventable (n=80). Lack of vehicle restraints was identified as a preventable factor for 38 percent of motor vehicle crash fatalities (n=31).

The rate of drowning fatalities increased from 1.4 deaths per 100,000 children in 2007 to 1.7 deaths per 100,000 children in 2008. Twenty-nine children died due to drowning during 2008, and 100 percent of these deaths were determined to have been preventable. The highest numbers of both pool drownings and open-water drownings were among children ages one through four years.

The child suicide rate increased from 1.7 deaths per 100,000 children in 2007 to 2.0 deaths per 100,000 children in 2008. Thirty-five children took their own lives during 2008, and 89 percent of these deaths were determined to have been preventable (n=31). For 11 percent of suicides, local review teams were not able to determine preventability (n=4). The majority of suicides were among children ages 15 through 17 years (74 percent, n=26), and 26 percent were among children 14 years of age and younger (n=9).

In 2008, the leading cause of death for children ages 15 through 17 years was firearm-related injuries (27 percent, n=37). This included firearm-related deaths due to both suicides (n=11) and homicides (n=26).

Deaths due to maltreatment declined from six percent of all deaths in 2007 (n=65) to five percent of deaths in 2008 (n=51). For 23 maltreatment deaths, mandatory reporters did not notify Arizona Child Protective Services that the deaths were suspected to have been due to maltreatment even after the investigations. Substance use was involved in more than half of the child maltreatment deaths during 2008 (53 percent, n=27). Ninety-six percent of maltreatment deaths were determined to have been preventable (n=49). For four percent of maltreatment deaths, local review teams were unable to determine preventability (n=2).

Ninety infants died in unsafe sleep environments in 2008, including 44 infants who were placed to sleep in adult beds and 13 who were placed to sleep on couches or chairs. Thirty-one infants were placed to sleep on their sides or stomachs. Forty-eight infants were bed sharing with adults and/or other children, and 25 of the adults who bed shared were using illegal drugs, prescription drugs, and/or alcohol.

Fourteen percent of all child deaths occurred in or around the home, and 89 percent of these deaths were determined to have been preventable (n=126). In 2008, 141 children died in or around the home, due to causes such as drownings, sleep-related suffocations, poisonings, falls, and fires. Seventy percent of these deaths were among children younger than five years of age (n=120).

Successes Related to Previous Recommendations

Deaths involving substance use

In 2009, the Arizona Substance Abuse Partnership developed goals, objectives, and action steps to address prescription drug abuse among children and underage drinking. This group, which is part of the Governor's Office of Children, Youth, and Families, is enlisting parents, communities, and pharmaceutical retailers to develop strategies to educate the public about the consequences of prescription drug abuse. The Division for Substance Abuse Policy is working with partner agencies to develop and implement a public awareness campaign regarding the proper disposal of prescription drugs. The Substance Abuse Partnership is also working to build capacity at the state level to enhance enforcement strategies to reduce underage drinking.

In 2009, several communities throughout Arizona have held 'Dump the Drugs' events where residents drop off unneeded medications to be properly destroyed. Among many others, these included the cities of Cottonwood, Prescott, Show Low, Sierra Vista, White River, and Williams.

Deaths due to motor vehicle crashes

The Navajo Nation enacted legislation in 2009 which requires children less than four feet, nine inches in height to be restrained in booster seats while riding in vehicles.

In September 2009, the City of Flagstaff enacted a city ordinance requiring children to wear helmets while riding bicycles within city limits. This ordinance will go into effect in January 2010.

Deaths due to injuries

In 2009, two First Things First Regional Councils offered grants to target injury prevention among children five years of age and younger.

Unexpected infant deaths

The Arizona Department of Health Services Bureau of Women's and Children's Health is developing infant safe sleep education, which will be distributed to child care facilities, emergency and transitional housing programs, and other agencies throughout Arizona in the Spring of 2010.

The Phoenix Police Department is developing public service announcements to educate the public on infant safe sleep. These will be completed in January 2010.

Since 2006, the Tucson Police Department has distributed information about infant safe sleep to new parents through Tucson Medical Center's Labor and Delivery Unit.

The Arizona Unexplained Infant Death Council and the Arizona Sudden Unexpected Infant Death Investigation Task Force revised the Infant Death Investigation Checklist during 2009.

Deaths due to prematurity

In July 2009, the Community Health Nursing component of the High Risk Perinatal Program began including intraconception care in its activities with parents. The Arizona Department of Health Services Bureau of Women's and Children's Health produced new materials to address preconception health. These materials were made available to the public on the agency website.

RECOMMENDATIONS

Based on its review of child deaths that occurred during 2008 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 Prematurity

Recommendation to the Arizona Department of Health Services: Launch a preconception health awareness campaign which includes messaging that targets African Americans in Arizona.

To Prevent Deaths due to Substance Use

Recommendation to the Prescription Drug Subcommittee of the Arizona Substance Abuse Partnership: Develop culturally effective educational materials for parents/caregivers with children and adolescents regarding the safe storage and disposal of prescription medications and distribute these materials in English and Spanish to medical providers and pharmacists.

To Prevent Deaths due to Motor Vehicle Crashes

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

Recommendation to the Arizona Legislature: Enact a primary seat belt law to allow law enforcement officers to ticket a driver for not wearing a seat belt. This has already been enacted in four Arizona Tribal Nations.

Recommendation to the Arizona Game and Fish Department and all Arizona Law Enforcement Agencies: Increase enforcement of existing laws regarding children riding or driving all terrain/off-highway vehicles including helmet use, double riding, and licensing.

Recommendation to Arizona Injury Prevention Advisory Council: Convene a work group to collaborate with Arizona Game and Fish Department and local law enforcement agencies to develop statewide recommendations to promote safe all terrain/off-highway vehicle use among Arizona residents.

To Prevent Drowning Deaths

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

Recommendation to the Drowning Prevention Coalition of Arizona: Develop strategies to reduce child drownings in spas and hot tubs.

To Prevent Injury-Related Deaths among Children

Recommendation to Arizona Department of Health Services: Provide local child death and injury data to Regional First Things First Councils so that they may utilize this information when developing regional grants to target injury prevention.

To Prevent Deaths due to Suicide

Recommendation to Arizona Department of Health Services: Develop a taskforce to explore the development and implementation of a Suicide Investigation Checklist for use by law enforcement when investigating child suicides.

To Prevent Deaths due to Maltreatment

Recommendation to all Arizona Law Enforcement Officers and Medical Examiners: Report every child death where child abuse or neglect is suspected to the Child Protective Services' Child Abuse Hotline promptly (1-888-SOS-CHILD), even if there are no other children living in the home.

Recommendation to Arizona Department of Economic Security Division of Developmental Disabilities and its providers: Notify Child Protective Services' Child Abuse Hotline (1-888-SOS-CHILD) promptly whenever a family refuses Developmental Disability services and neglect of a child's medical or developmental condition is suspected.

Recommendation to Arizona Department of Economic Security Division of Youth, Children, and Families: Educate staff that the decision to substantiate or unsubstantiate a maltreatment report should be based on a thorough child safety assessment and investigation and not solely on a determination of the manner of death by a medical examiner's office or findings by law enforcement.

Recommendation to Arizona Department of Economic Security Division of Youth, Children, and Families and Children's Justice Coordinators: Include information in the training of Department of Economic Security staff and other mandatory reporters regarding the increased risk for child abuse and neglect when a parent/caregiver lacks

the ability to appropriately care for a child, especially when the child has special needs or is medically fragile.

Recommendation to the Arizona Legislature: Increase funding to the Arizona Department of Economic Security Division of Youth, Children, 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.

To Prevent Sudden Unexpected Infant Deaths

Recommendation to Arizona Department of Health Services: Develop an Infant Safe Sleep Message to be disseminated throughout the state.

Recommendation to the Arizona Perinatal Trust: Include an evaluation of safe sleep policies for infants and safe sleep education programs for parents into its reviews and site visits of all Arizona birthing hospitals.

Recommendation to the Arizona Unexplained Infant Death Council: Send a letter to all law enforcement agencies in Arizona reminding them of the statutory obligation to complete an Infant Death Investigation Checklist whenever a child younger than one year of age dies unexpectedly (A.R.S. § 36-2293). This letter should instruct law enforcement officers to promptly email or fax all completed Infant Death Investigation Checklists to the medical examiner's office where the autopsy will be conducted.

Recommendation to the Arizona Medical Association and the Arizona Osteopathic Association: Educate physicians that all sudden unexpected infant deaths should have death certificates completed by medical examiners as required by statute (A.R.S. § 36-325 and A.R.S. § 11-593).

Recommendation to Arizona Medical Examiners: The determination of the manner and cause of a sudden unexpected infant death should not be made without a review of the Infant Death Investigation Checklist, medical records, and an autopsy which includes radiographs, appropriate toxicology testing, and appropriate metabolic studies.

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. A 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
- Governor's Office for Children
- 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
- Unexplained Infant Death Council
- 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

Actual reviews of 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 2.0) that includes extensive information regarding the circumstances surrounding the death. The Case Report was created by the National Center for Child Death Review.

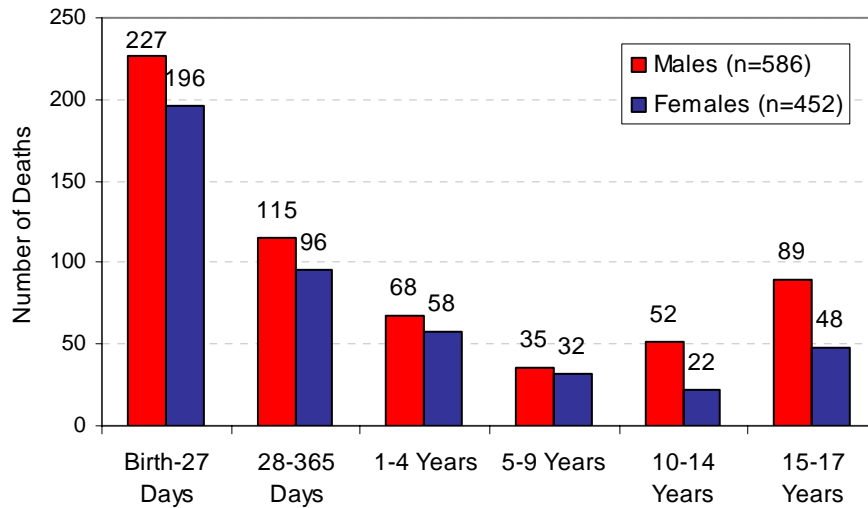
Local Child Fatality Review Teams review deaths throughout the year and submit all reviews to the Child Fatality Review Program by August 15th for inclusion in the annual report published each November. If a team has not completed a review by the August 15th deadline, the death will not be included in the published report. 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.

This is the sixteenth annual report issued by the Arizona Child Fatality Review Program. Each year, the state team has made recommendations regarding the prevention of child deaths. These recommendations are evidence-based and 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.

2008 DEMOGRAPHICS

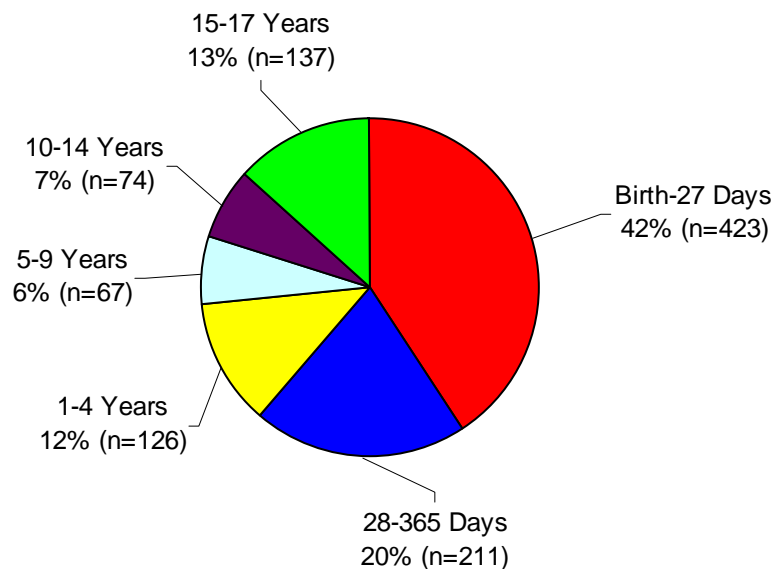
During 2008, there were 1,038 fatalities among children younger than 18 years in Arizona. This was a decline from 2007 when 1,143 children died, despite the fact that the population of children increased by 1.3 percent in Arizona during 2008. Males accounted for 56 percent of deaths (n=586) and females accounted for 44 percent (n=452). 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 2008 (n=1,038)



The largest percentage of deaths was among infants younger than 28 days (42 percent, n=423). Figure 2 shows deaths among children by age group.

Figure 2. Deaths Among Children by Age Group, Arizona 2008 (n=1,038)



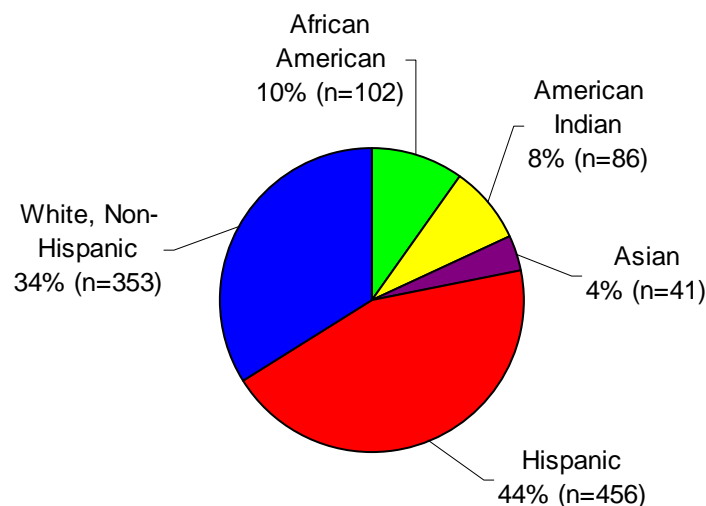
Compared to 2007, there was an increase in the percentage of deaths among children ages one through four years in 2008. Each of the other age groups declined or

remained at the same percentage of total deaths. Table 1 shows deaths among children by age group for 2005 through 2008.

Table 1. Deaths Among Children by Age Group, Arizona 2005-2008								
Age Group	2005		2006		2007		2008	
0-27 Days	434	38%	440	37%	485	42%	423	42%
28-365 Days	233	20%	206	18%	225	20%	211	20%
1-4 Years	130	11%	153	13%	113	10%	126	12%
5-9 Years	85	7%	64	6%	67	6%	67	6%
10-14 Years	86	8%	92	8%	92	8%	74	7%
15-17 Years	180	16%	206	18%	161	14%	137	13%
Total	1,148		1,161		1,143		1,038	

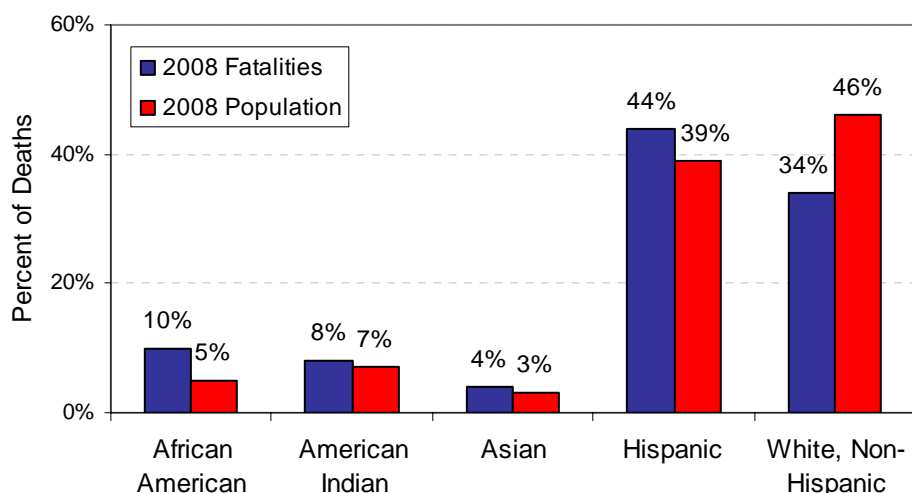
Forty-four percent of child deaths in 2008 were among Hispanics (n=456), 34 percent were among Non-Hispanic Whites (n=353), 10 percent were among African Americans (n=102), eight percent were among American Indians (n=86), and four percent were among Asians (n=41). Figure 3 shows deaths among children by race/ethnicity.

Figure 3. Deaths Among Children by Race/Ethnicity, Arizona 2008 (n=1,038)



Deaths were over-represented among four racial/ethnic groups in 2008. African American children comprised five percent of the population in Arizona, but 10 percent of fatalities. American Indian children comprised seven percent of the population and eight percent of deaths. Asian children comprised three percent of the population and four percent of deaths. Hispanic children accounted for 39 percent of the population and 44 percent of child fatalities in 2008. 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 2008



Compared to 2007, the percentages of African American and Asian child deaths increased during 2008. For all other races/ethnicities, the number of child deaths declined. Table 2 shows deaths among children by race/ethnicity for 2006 through 2008.

Table 2. Deaths Among Children by Race/Ethnicity, Arizona 2006-2008						
Race/Ethnicity	2006		2007		2008	
African American	102	9%	75	7%	102	10%
American Indian	111	10%	104	9%	86	8%
Asian	19	2%	26	2%	41	4%
Hispanic	505	42%	529	46%	456	44%
White, Non-Hispanic	424	37%	409	36%	353	34%
Total	1,161		1,143		1,038	

Table 3 shows deaths among children by county of residence. There were increases in the percentages of deaths among children who resided in Apache, Pima, and Yuma Counties in 2008. The population of children increased slightly in each of these counties from 2007 to 2008 (Apache, less than one percent; Pima and Yuma, one percent each). The percentage of children who died in 2008 declined in Maricopa and Mohave Counties, even though the population of children in those counties increased slightly (one percent each). The percentage of child deaths in Pinal County declined in 2008, although the population of children in this county increased 11 percent.

Table 3. Deaths Among Children by County of Residence, Arizona 2007-2008				
County	2007 (n=1,143)		2008 (n=1,038)	
	Number	Percent	Number	Percent
Apache	13	1%	20	2%
Cochise	27	2%	24	2%
Coconino	25	2%	21	2%
Gila	17	1%	15	1%
Graham	12	1%	11	1%
Greenlee	0	--	1	--
La Paz	1	<1%	5	<1%
Maricopa	648	57%	577	56%
Mohave	27	2%	11	1%
Navajo	39	3%	30	3%
Pima	148	13%	165	16%
Pinal	64	6%	52	5%
Santa Cruz	6	<1%	6	<1%
Yavapai	28	2%	17	2%
Yuma	35	3%	39	4%
Outside Arizona	53	5%	44	4%
Total	1,143		1,038	

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:

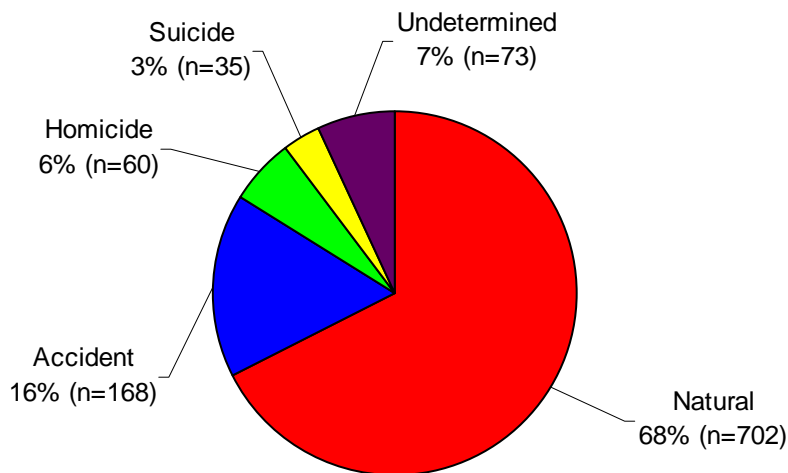
- natural (e.g., cancer)
- accident (e.g., unintentional car crash)
- homicide (e.g., intentional assault)
- suicide (e.g., self-inflicted intentional firearm injury)
- undetermined.

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.

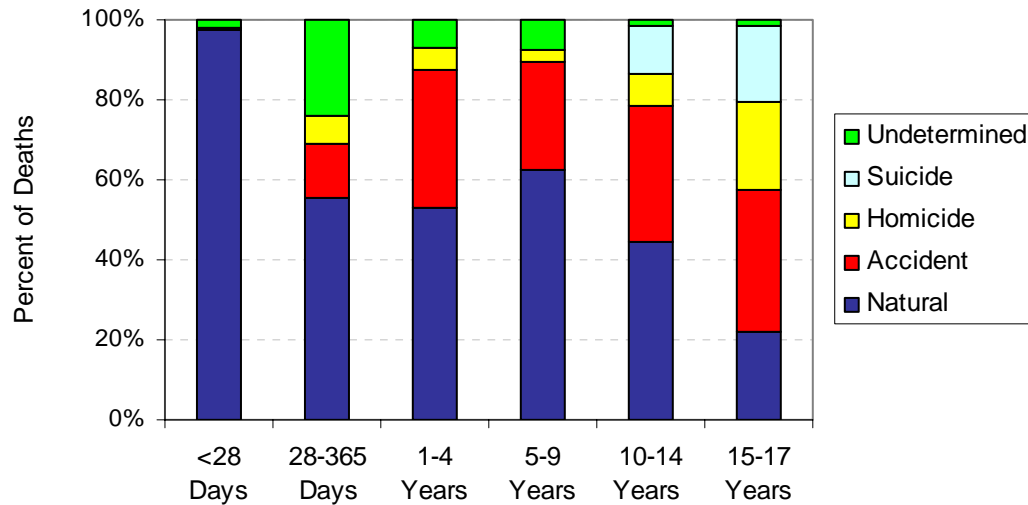
Natural deaths accounted for 68 percent of all child deaths during 2008 (n=702), 16 percent of child deaths were accidents (n=168), six percent were homicides (n=60), three percent were suicides (n=35), and seven percent were of undetermined manner (n=73). Figure 5 shows deaths among children by manner.

Figure 5. Deaths Among Children by Manner, Arizona 2008 (n=1,038)



The distribution of manner of death varied by age group. Deaths among infants were primarily due to natural causes, while accidental deaths were more common among older children. Suicide occurred only among the two older age groups, and homicide occurred in all age groups. Figure 6 shows manner of child deaths by age group.

Figure 6. Manner of Child Deaths by Age Group, Arizona 2008 (n=1,038)



The percentage of deaths due to accidents declined during 2008, and the percentages of natural deaths and undetermined deaths increased. Table 4 shows deaths among children by manner for 2006 through 2008.

Manner	2006		2007		2008	
	Count	Percentage	Count	Percentage	Count	Percentage
Natural	743	64%	769	67%	702	68%
Accident	270	23%	227	20%	168	16%
Undetermined	37	3%	53	5%	73	7%
Homicide	63	5%	66	6%	60	6%
Suicide	48	4%	28	2%	35	3%
Total	1,161		1,143		1,038	

There were 420 deaths due to medical conditions in 2008, 271 deaths due to prematurity, and 20 deaths due to Sudden Infant Death Syndrome (SIDS). There were 82 motor vehicle-related deaths and 29 drownings. There were nine deaths due to exposure in 2008. Four of these children died of hyperthermia while crossing the Mexico-United States border, and four children were left in vehicles and died of hyperthermia. One child died of hypothermia. Table 5 shows deaths among children by cause.

Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Medical*		2		418		420
Prematurity				271		271
Motor vehicle crash	82					82
Undetermined					59	59
Firearm injury	2	33	14			49
Drowning	28	1				29
Suffocation	18	1			2	21
Hanging	2		18		1	21
SIDS				13	7	20
Blunt force trauma		16				16
Other	7	7				14
Poisoning	9		3		2	14
Fall/crush	9					9
Exposure	7				2	9
Fire/burn	4					4
Total	168	60	35	702	73	1,038

*Excluding SIDS and prematurity

The percentages of deaths due to drownings and firearm injuries increased, and the percentages of child deaths due to motor vehicle crashes, poisoning, and prematurity declined. Table 6 shows deaths among children by cause for 2007 and 2008.

Cause	2007		2008	
	Count	Percentage	Count	Percentage
Medical*	420	37%	420	40%
Prematurity	321	28%	271	26%
Motor vehicle crash	122	11%	82	8%
Undetermined	34	3%	59	6%
Firearm injury	48	4%	49	5%
Drowning	23	2%	29	3%
SIDS	37	3%	20	2%
Suffocation	27	2%	21	2%
Hanging	13	1%	21	2%
Other	33	3%	14	1%
Poisoning	24	2%	14	1%
Blunt force trauma	18	1%	16	1%
Fall/crush	9	1%	9	1%
Exposure	8	1%	9	1%
Fire/burn	6	1%	4	1%
Total	1,143		1,038	

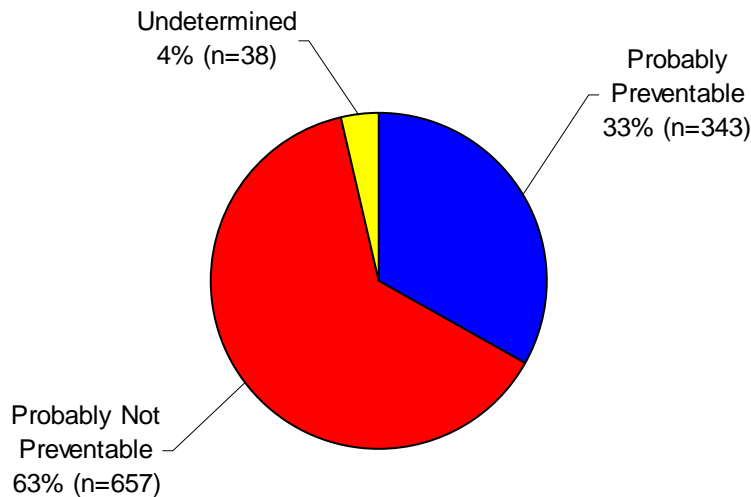
*Excluding SIDS and prematurity

Preventability

In Arizona, the child fatality review process 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 been done (by an

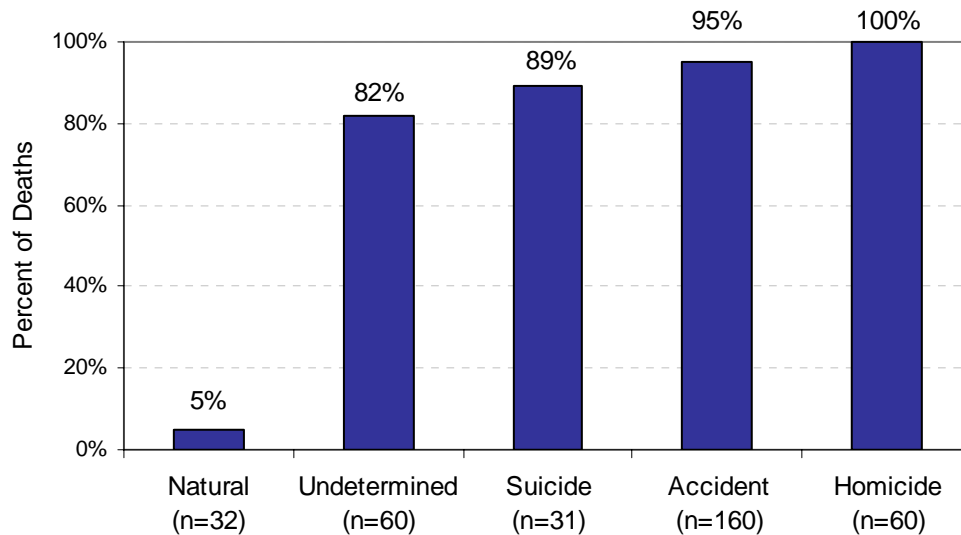
individual such as the caregiver or supervisor, or by the community as a whole) that could have prevented the death. Child Fatality Review Teams determined that 343 child deaths in 2008 were preventable (33 percent). This was a decline from 2007, when 34 percent of deaths were determined to have been preventable (n=390). Figure 7 shows deaths among children by preventability.

Figure 7. Deaths Among Children by Preventability, Arizona 2008 (n=1,038)



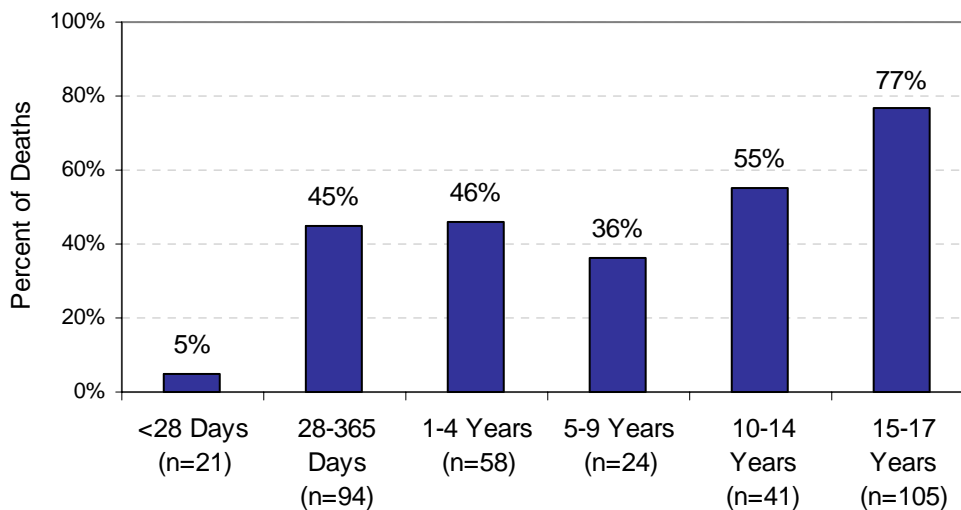
One hundred percent of homicides were preventable (n=60), 95 percent of accidental deaths were preventable (n=160), and 89 percent of suicides were preventable (n=31). For 11 percent of suicides, local teams did not have enough information to determine preventability. Five percent of natural deaths were determined to have been preventable (n=32). Figure 8 shows preventable deaths by manner.

Figure 8. Preventable Deaths Among Children by Manner, Arizona 2008 (n=343)



Preventability also varied by age group. Children younger than one year of age had the lowest percentage of preventable deaths (18 percent, n=115). The highest percentage of preventable deaths was among children ages 15 through 17 years (77 percent, n=105). Figure 9 shows preventable deaths among children by age group.

Figure 9. Preventable Deaths Among Children by Age Group, Arizona 2008 (n=343)



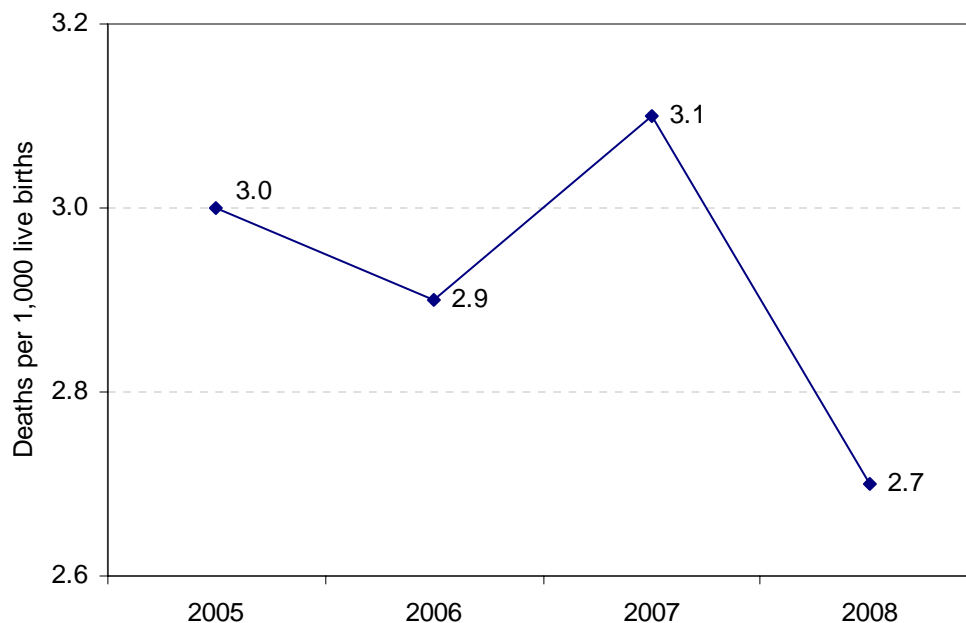
During the review of each child's death, teams identify factors believed to have contributed to the death. Although the presence of a contributing factor typically led to the determination that a death was preventable, this was not always the case. For example, the team might have concluded that an unsafe sleep environment (e.g. infant

left sleeping on a couch) was a contributing factor in an unexpected infant death. However, the team may not have had sufficient information (e.g. autopsy report, adequate scene investigation) to determine that the death could have been prevented.

PREMATURITY

Local teams consider a child's cause of death to be prematurity if the infant was less than 38 weeks gestation and had no other underlying cause of death. Infants with congenital anomalies not compatible with life are not included in the prematurity category. In 2008, there were 271 deaths due to prematurity, which accounted for 26 percent of all child deaths. There were 321 deaths due to prematurity in 2007 (28 percent of all deaths). The rate of deaths due to prematurity in 2008 was 2.7 deaths per 1,000 live births. This was a decline from 2007 when the rate was 3.1 deaths per 1,000 live births. Figure 10 shows the rates of child deaths due to prematurity from 2005 through 2008.

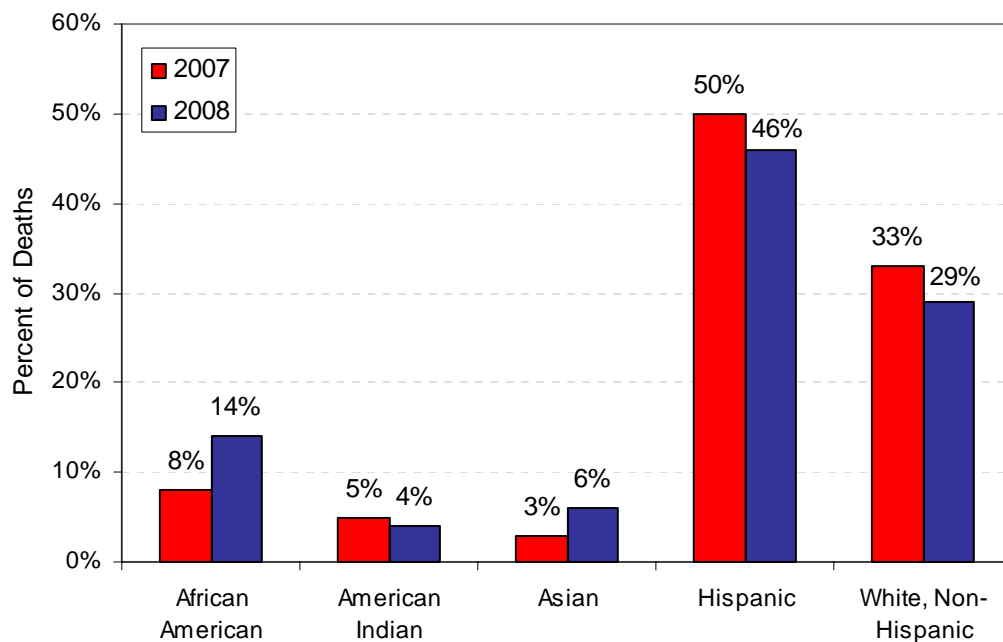
**Figure 10. Rate of Child Deaths due to Prematurity
(per 1,000 live births), Arizona 2005-2008**



In 2008, 58 percent of the premature infants who died were males (n=158) and 42 percent were females (n=113). Nearly half of the premature infants who died were Hispanic (46 percent, n=125), 29 percent were White, Non-Hispanic (n=79), 14 percent were African American (n=39), six percent were Asian (n=16), and four percent were American Indian (n=12). In 46 cases, at least one of the parents was a first generation immigrant, including four families from African countries and two from Asian countries.

The percentage of African American infants who died of prematurity increased from eight percent in 2007 (n=26) to 14 percent in 2008 (n=39). In 2007, the percentage of Asian children who died of prematurity was three percent (n=10). Figure 11 shows deaths due to prematurity by race/ethnicity for 2007 and 2008.

Figure 11. Child Deaths due to Prematurity by Race/Ethnicity, Arizona 2007-2008



In 2008, the majority of prematurity-related deaths were among infants who were 21 through 24 weeks gestational age (60 percent, n=162), followed by infants who were 25 through 37 weeks gestational age (21 percent, n=56). There were 49 infants who were 20 weeks or less (18 percent). For four infants, gestational age was unknown. There were 63 deaths due to prematurity among infants in multiple births (52 were twins, 10 were triplets, and one was a quintuplet).

For 10 percent of deaths due to prematurity, prenatal care information was unknown to review teams (n=28). For 11 percent of the deaths, the mother reported that she did not receive any prenatal care (n=29). Seventy-nine percent of mothers started prenatal care within the first trimester (n=214). For almost half of the prematurity deaths, the mother was 20 through 29 years of age at the time of the birth (44 percent, n=119). Fourteen percent of the mothers were 19 years of age and younger (n=38), 34 percent were 30 through 39 years of age, and three percent of mothers were 40 years of age and older (n=9).

Forty-seven percent of mothers whose infants died of prematurity were insured by the Arizona Health Care Cost Containment System (AHCCCS) (n=128). Ten percent of mothers had less than a high school education (n=27), 47 percent completed high

school (n=128), and 25 percent completed at least some college (n=69). For eight percent of mothers, educational status was unknown (n=23).

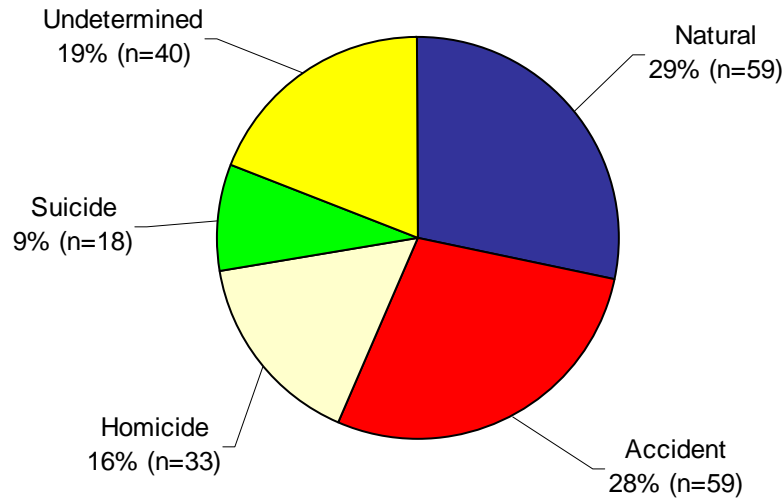
For 85 percent of deaths due to prematurity, the mothers experienced pregnancy- or birth-related complications which may have contributed to the death (n=231), including 89 mothers who experienced preterm labor. Eleven mothers were known to have had non-gestational diabetes. Four percent of mothers reported using illegal drugs during pregnancy (n=11), and two percent reported heavy alcohol use (n=5). Nine percent of mothers reported smoking during pregnancy (n=24). Table 7 shows risk factors for prematurity deaths.

Table 7. Risk Factors for Prematurity Deaths, Arizona 2008		
Factor*	Number	Percent
Mother had pregnancy or birth complications	231	85%
Multiple birth	63	23%
Smoking during pregnancy	24	9%
Drugs and/or alcohol during pregnancy	16	6%
Mother had chronic illness (e.g. diabetes)	13	5%
*More than one factor may have been identified for each death		

SUBSTANCE USE

Substance use (including illegal drugs, prescription drugs, and/or alcohol) was involved in 209 child deaths in Arizona during 2008, which accounted for 20 percent of all child deaths. In 2007, substance use was involved in 17 percent of all child deaths (n=198). In 2008, substance use contributed to 28 percent of accidents (n=59), 28 percent of natural deaths (n=59), 19 percent of deaths of undetermined manner (n=40), 16 percent of homicides (n=33), and nine percent of suicides (n=18). Figure 12 shows child deaths involving drugs and/or alcohol by manner.

Figure 12. Child Deaths Involving Drugs and/or Alcohol by Manner, Arizona 2008 (n=209)



Firearms accounted for 15 percent (n=32) of deaths involving drugs and/or alcohol, and motor vehicle crashes accounted for 14 percent of child deaths (n=30), including 21 children who died in crashes involving substance-impaired drivers. Sixteen deaths were due to prematurity (typically substance exposed preterm newborns). Table 8 shows child deaths involving drugs and/or alcohol by cause and manner in 2008.

Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Medical*				36	1	37
Firearm injury		23	9			32
Undetermined				1	30	31
Motor vehicle crash	30					30
Prematurity				16		16
Poisoning	9		2		2	13
SIDS				6	4	10
Suffocation	7				1	8
Drowning	7	1				8
Hanging			7			7
Other injury	1	5				6
Exposure	2				2	4
Blunt force trauma		4				4
Fire/burn	2					2
Fall/crush	1					1
Total	59	33	18	59	40	209

*Excluding SIDS and prematurity

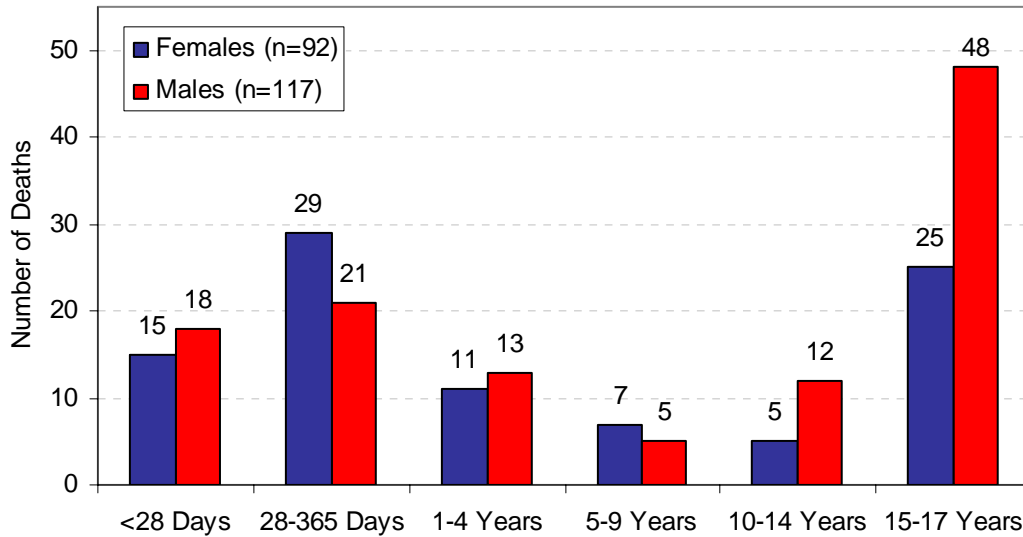
Alcohol was involved in 76 child deaths in 2008 and 80 deaths in 2007; marijuana was involved in 57 deaths in 2008 and 76 deaths in 2007; methamphetamine was involved in 39 deaths in 2008 and 48 deaths in 2007; cocaine was involved in 21 deaths in 2008 and 31 deaths in 2007; and opiates were involved in 18 deaths in 2008 and 16 deaths in 2007. Table 9 shows substances involved in child deaths for 2007 and 2008.

Substance*	2007		2008	
	Count	Percentage	Count	Percentage
Alcohol	80	7%	76	7%
Marijuana	76	7%	57	5%
Methamphetamine	48	4%	39	4%
Cocaine	31	3%	21	2%
Opiates	16	1%	18	2%

*More than one substance could have been involved in a single death

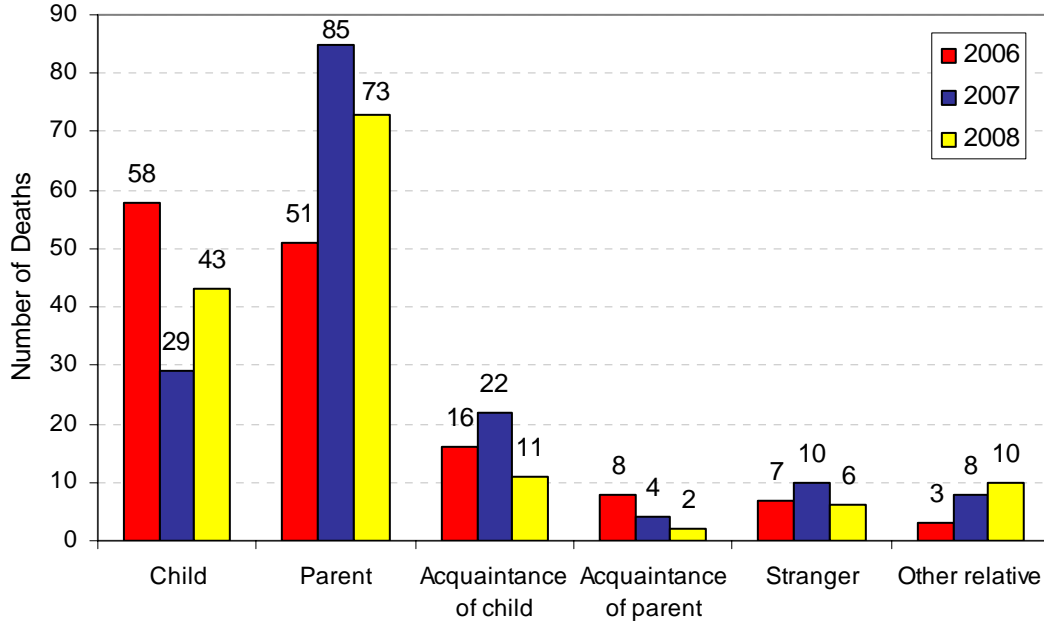
Drugs and/or alcohol were determined to have been involved in child deaths among males and females in all age groups. Males of all ages accounted for 56 percent of all substance use-related deaths (n=117). Figure 13 shows child deaths involving substance use by sex and age group.

Figure 13. Child Deaths Involving Substance Use by Sex and Age Group, Arizona 2008 (n=209)



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 73 deaths in 2008, the user was the parent, and for 43 deaths, the user was the child. In some deaths, more than one individual may have been using drugs and/or alcohol. Figure 14 shows child deaths involving drugs and/or alcohol by substance user for 2006 through 2008.

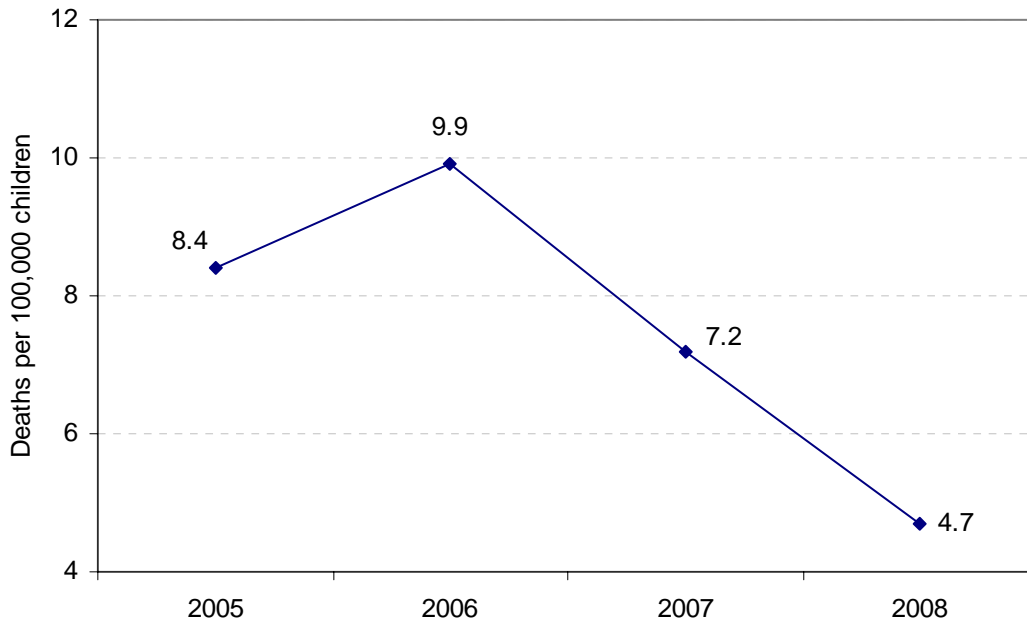
Figure 14. Child Deaths Involving Drugs and/or Alcohol by Substance User, Arizona 2006-2008



MOTOR VEHICLE CRASH FATALITIES

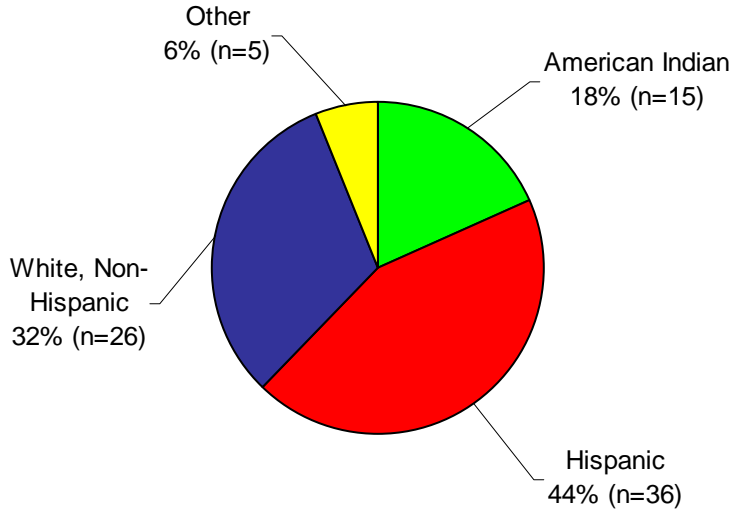
In 2008, 82 children died as the result of motor vehicle crashes in Arizona (eight percent of child fatalities). In 2007, 122 children died as the result of motor vehicle crashes in Arizona (11 percent of child fatalities). The rate of motor vehicle fatalities in 2008 was 4.7 deaths per 100,000 children, a decline from 2007 when the motor vehicle fatality rate was 7.2 deaths per 100,000 children. Figure 15 shows the rates of child deaths due to motor vehicle crashes from 2005 through 2008.

Figure 15. Rate of Child Deaths due to Motor Vehicle Crashes (per 100,000 children), Arizona 2005-2008



The majority of motor vehicle-related deaths in 2008 were among males (52 percent, n=63) and 48 percent were among females (n=59). Forty-four percent of the children who died were Hispanic (n=36), 32 percent were Non-Hispanic White (n=26), 18 percent were American Indian (n=15), and six percent were other races/ethnicities (n=5). Figure 16 shows motor vehicle-related deaths by race/ethnicity.

Figure 16. Motor Vehicle-Related Deaths Among Children by Race/Ethnicity, Arizona 2008 (n=82)

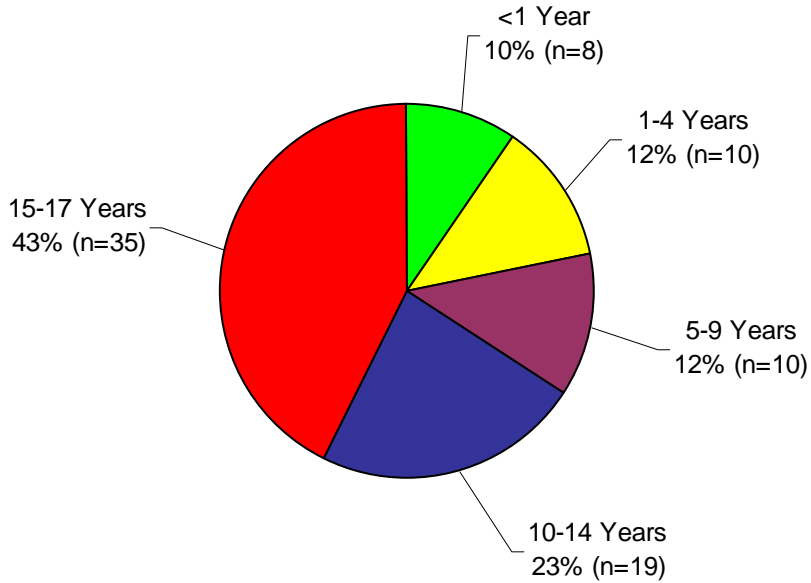


The distribution of motor vehicle-related deaths by race/ethnicity was different in 2007 when 12 percent of the deaths were among American Indian children, 42 percent of the deaths were among Hispanics, 40 percent were among Non-Hispanic Whites, and five percent were among other races/ethnicities. Table 10 shows motor vehicle-related deaths among children by race/ethnicity for 2006 through 2008.

Race/Ethnicity	2006		2007		2008	
	Count	Percentage	Count	Percentage	Count	Percentage
American Indian	14	11%	20	12%	15	18%
Hispanic	56	46%	69	42%	36	44%
White, Non-Hispanic	45	37%	66	40%	26	32%
Other	7	6%	9	5%	5	6%
Total	122		164		82	

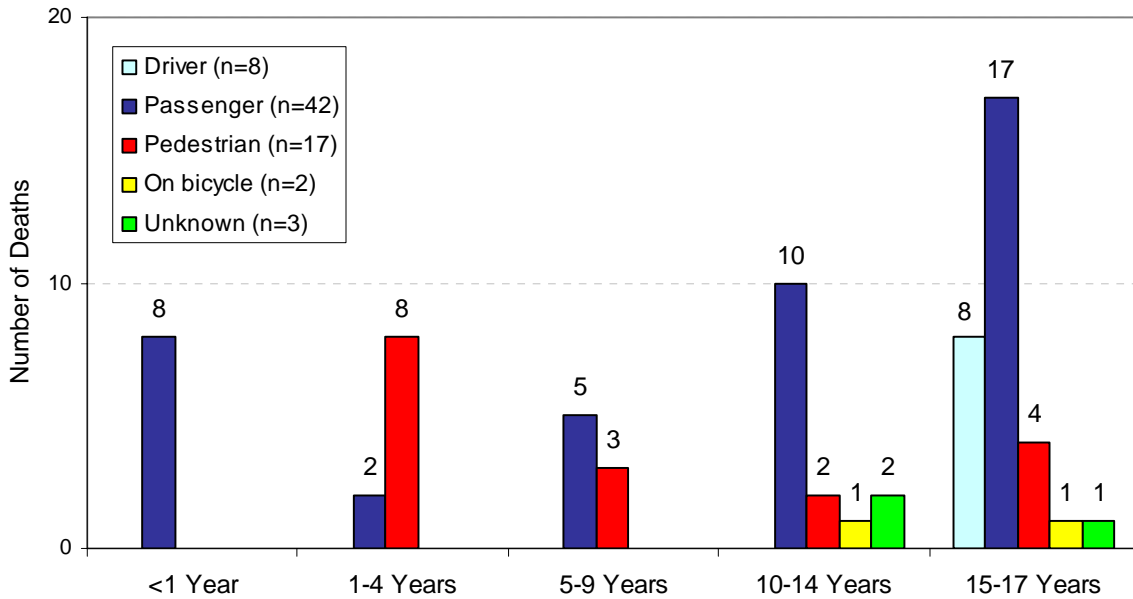
The largest percentage of motor vehicle-related deaths was among children ages 15 through 17 years (43 percent, n=35), followed by children ages 10 through 14 years (23 percent, n=19). Figure 17 shows motor vehicle-related deaths by age group.

Figure 17. Motor Vehicle-Related Deaths Among Children by Age Group, Arizona 2008 (n=82)



Of the 72 children who died in non-all terrain vehicle crashes, 42 were passengers of motor vehicles, eight were drivers, 17 were pedestrians (16 percent), and two were on bicycles. Five child pedestrians were killed due to vehicle backovers. All of these children were struck by sport utility vehicles or trucks, and all were two years of age and younger. For three children who died in motor vehicle crashes, their exact locations were unknown. Figure 18 shows motor vehicle crashes by age group and location. This figure excludes deaths due to all terrain vehicle crashes.

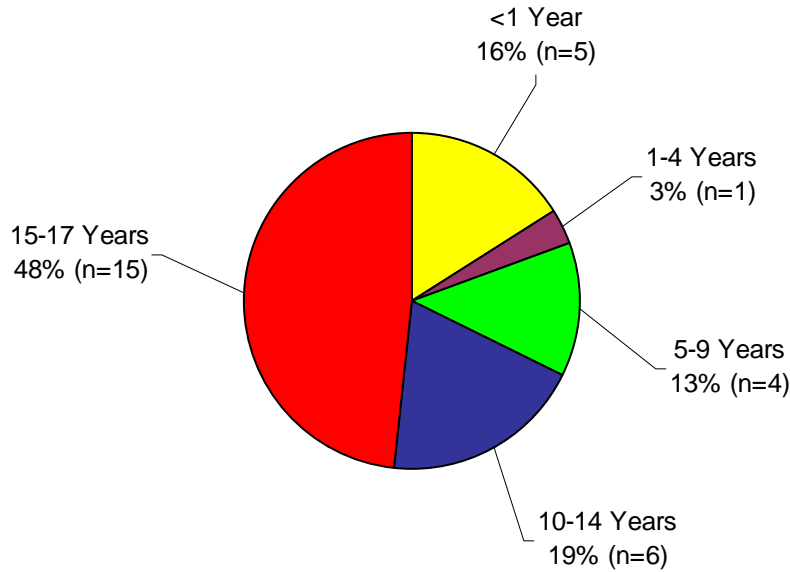
Figure 18. Motor Vehicle-Related Deaths Among Children by Age Group and Location (Excluding ATV Crashes), Arizona 2008 (n=72)



Among the total 42 passengers, 17 were located in the back seat, 17 were in the front seat, two were riding in truck beds, and four were in other or unknown locations. Two children died as a result of *in utero* trauma during motor vehicle crashes in 2008. Of the 17 children who were in front seats, seven were 13 years of age and younger.

Thirty-eight percent of children were not properly restrained in vehicles (n=31). Nearly half of all children who were not properly restrained were ages 15 through 17 years (48 percent, n=15). Figure 19 shows lack of vehicle restraints by age group.

Figure 19. Motor Vehicle Crash Deaths with Improperly Restrained Children by Age Group, Arizona 2008 (n=31)



Ninety-eight percent of all motor vehicle crash fatalities during 2008 were determined to have been preventable (n=80). Lack of vehicle restraints was identified as a preventable factor for 31 motor vehicle crash fatalities among children (38 percent). Twenty-seven children died in crashes involving substance-impaired drivers, and for three of these deaths, the impaired driver was the child who died. For 23 deaths, excessive speed was a contributing factor (28 percent). Table 11 shows preventable factors for motor vehicle crash deaths among children. This table includes factors that were identified for the 10 deaths due to ATV crashes.

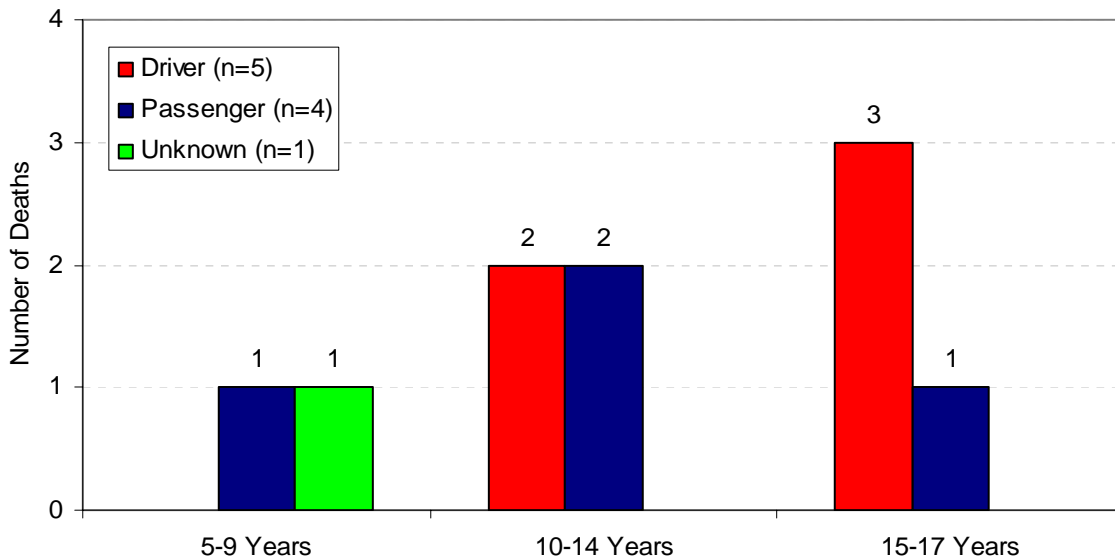
Factor*	Number	Percent
Lack of vehicle restraint	31	38%
Drugs and/or alcohol	27	33%
Excessive driving speed	23	28%
Reckless driving	20	24%
Driver inexperience	17	21%
Driver distraction	11	13%
Lack of helmet	9	11%
Red light running	6	7%
*More than one factor may have been identified for each death		

All Terrain Vehicle Crashes

Ten children died in all terrain vehicle (ATV) crashes. Two children were five through nine years of age and eight children were 10 years of age and older. Five of the children who died in ATV crashes were drivers, four were passengers, and one child's

location was unknown to the review team. Two of the children who were driving were younger than 16 years of age. Eight of the ATV crashes were single vehicle, and two crashes involved collisions with other vehicles. Four of the single ATV crashes were rollovers. Figure 20 shows ATV crash deaths by age group and location.

Figure 20. All Terrain Vehicle Crash Deaths Among Children by Age Group and Location, Arizona 2008 (n=10)

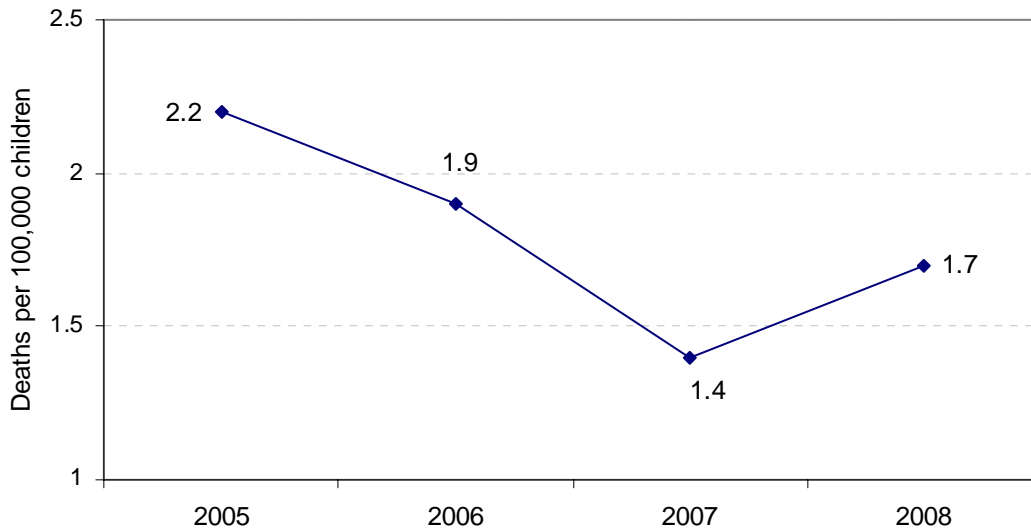


Six children who died in ATV crashes were not wearing helmets. Three ATV drivers were known to have been travelling at excessive or unsafe speeds, and three were known to have been driving recklessly. In three cases, review teams identified drivers' inexperience as contributing to the deaths. Two of the ATV crash deaths involved drugs and/or alcohol.

DROWNINGS

In 2008, there were 29 deaths among children due to drownings, which accounted for three percent of all child deaths. In 2007, there were 23 drowning fatalities among children (two percent of all child deaths). The rate of drowning fatalities in 2008 was 1.7 deaths per 100,000 children. This was an increase from 2007 when the drowning rate was 1.4 deaths per 100,000 children. Figure 21 shows the rates of child deaths due to drowning from 2005 through 2008.

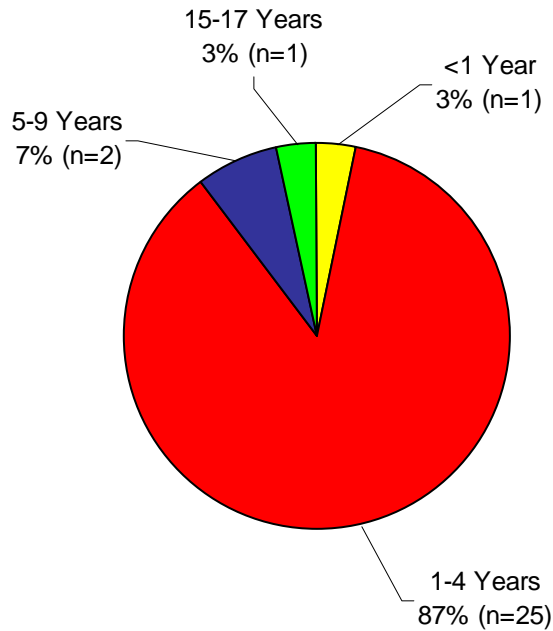
**Figure 21. Rate of Child Deaths due to Drowning
(per 100,000 children), Arizona 2005-2008**



Seventy-two percent of drowning deaths in 2008 were among males (n=21), and 28 percent were among females (n=8). Fifty-two percent of children who drowned were Hispanic (n=15), 28 percent were White, Non-Hispanic (n=8), 14 percent were American Indian (n=4), and seven percent were African American (n=2).

Eighty-seven percent of the drownings were among children ages one through four years (n=25), seven percent were among children ages five through nine years (n=2), three percent were among children ages 15 through 17 years (n=1), and three percent were among infants younger than one year of age (n=1). Figure 22 shows drowning deaths by age group.

Figure 22. Drowning Deaths Among Children by Age Group, Arizona 2008 (n=29)



Consistently since 2005, the largest percentage of drownings has been among children ages one through four years. The percentage of deaths in this age group increased from 53 percent in 2007 (n=12) to 87 percent in 2008 (n=25). Table 12 shows drownings among children by age for 2005 through 2008.

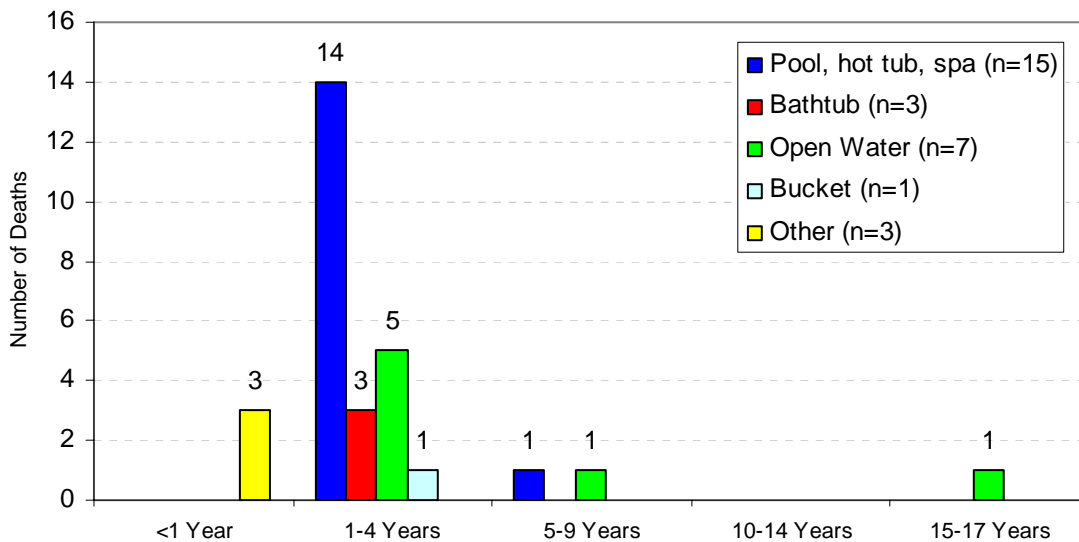
Age Group	2005		2006		2007		2008	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
0-27 Days	1	3%	0	0%	1	4%	0	0%
28-365 Days	1	3%	2	10%	5	22%	1	3%
1-4 Years	20	57%	16	51%	12	53%	25	87%
5-9 Years	6	17%	4	13%	4	17%	2	7%
10-14 Years	1	3%	3	10%	1	4%	0	0%
15-17 Years	6	17%	6	16%	0	0%	1	3%
Total	35		31		23		29	

In 2008, 13 drowning fatalities occurred in pools (all were in ground), seven occurred in open water, three occurred in bathtubs, two occurred in hot tubs or spas, and one occurred in a bucket. Among the seven open water drownings, five were in canals, one was in a lake, and one was in a river. Table 13 shows drowning fatalities by location.

Table 13. Location of Child Drowning Fatalities, Arizona 2008 (n=29)		
Location	Number	Percent
In ground pool	13	45%
Canal	5	17%
Other types of water	3	10%
Bathtub	3	10%
River/lake	2	7%
Hot tub/spa	2	7%
Bucket	1	3%
Total	29	

The highest number of pool drownings were among children ages one through four years (48 percent, n=14), and five of the seven open water drownings were also among children ages one through four years. Figure 23 shows drowning location by age group.

Figure 23. Drowning Deaths Among Children by Age Group and Location, Arizona 2008 (n=29)



One hundred percent of child drownings were identified as preventable (n=29). Lack of supervision was the most commonly identified preventable factor in child drowning fatalities (86 percent, n=25), followed by access to water (72 percent, n=21). Table 14 shows preventable factors for child drownings in Arizona during 2008.

Table 14. Preventable Factors for Child Drownings, Arizona 2008		
Factor*	Number	Percent
Lack of supervision	25	86%
Access to water	21	72%
Drugs and/or alcohol	7	24%
*More than one factor may have been identified for each death		

SUICIDES

In 2008, there were 35 suicides among children in Arizona, which accounted for three percent of all child deaths. In 2007, suicide accounted for two percent of all child deaths (n=28). The child suicide rate in 2008 was 2.0 deaths per 100,000 children. This was an increase from 2007 when the suicide rate was 1.7 deaths per 100,000 children. Figure 24 shows the rates of child suicides from 2005 through 2008.

Figure 24. Rate of Child Deaths due to Suicide (per 100,000 children), Arizona 2005-2008



Seventy-one percent of the children who committed suicide during 2008 were males (n=25) and 29 percent were females (n=10). Fifty-one percent were Non-Hispanic White (n=18), 26 percent of suicides were Hispanic (n=9), 17 percent were American Indian (n=6), and six percent were other races/ethnicities (n=2).

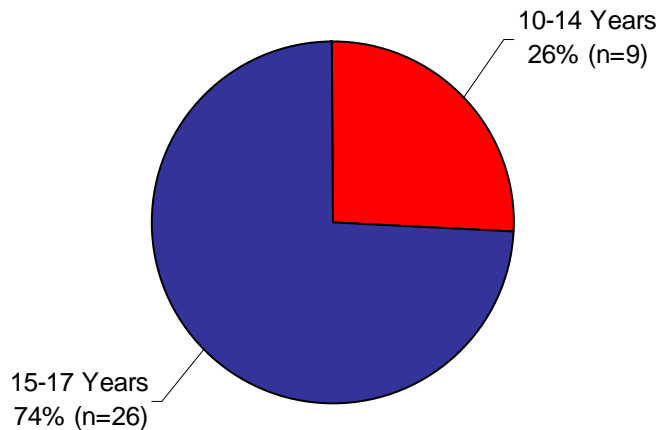
The distribution of suicides by race/ethnicity was different from 2007 when the largest percentage of suicides was among Hispanic children (54 percent, n=15). Table 15 shows suicides among children by race/ethnicity for 2006 through 2008.

Race/Ethnicity	2006		2007		2008	
	n	%	n	%	n	%
American Indian	9	19%	4	14%	6	17%
Hispanic	13	27%	15	54%	9	26%
White, Non-Hispanic	24	50%	8	29%	18	51%
Other	2	4%	1	3%	2	6%
Total	48		28		35	

In 2008, the majority of suicides were among children ages 15 through 17 years (74 percent, n=26), but 26 percent were among children 14 years of age and younger (n=9).

The youngest child who committed suicide in 2008 was 11 years old. Figure 25 shows suicides among children by age group.

Figure 25. Suicides Among Children by Age Group, Arizona 2008 (n=35)

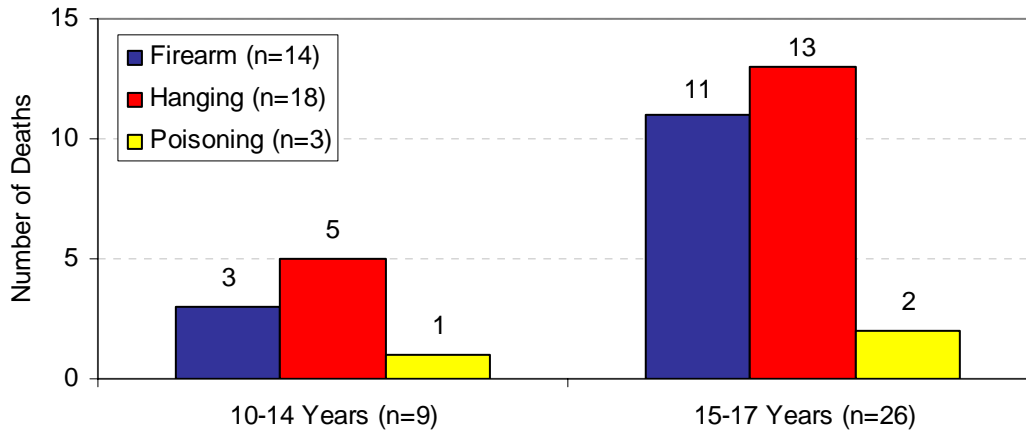


The distribution of suicides by age group has remained consistent since 2006. Table 16 shows suicides among children by age group for 2005 through 2008.

Age Group	2005		2006		2007		2008	
<10 Years	0	0%	1	2%	0	0%	0	0%
10-14 Years	13	36%	11	23%	7	25%	9	26%
15-17 Years	23	64%	36	75%	21	75%	26	74%
Total	36		48		28		35	

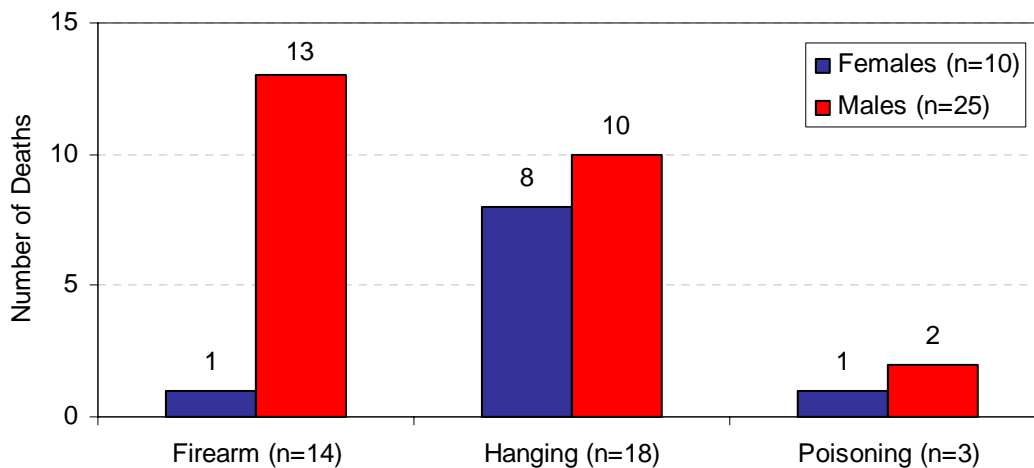
Hangings accounted for 51 percent of child suicides in Arizona during 2008 (n=18) and firearm injuries accounted for 40 percent (n=14). The objects used in hanging suicides were ropes, electrical cords, belts, and neckties. Nine percent of child suicides were caused by poisonings (n=3). Figure 26 shows suicides among children by cause of death and age group.

Figure 26. Suicides Among Children by Cause of Death and Age Group, Arizona 2008 (n=35)



The distribution of cause of death varied by the sex of the child. As has been observed in previous years, males were more likely to have used firearms to commit suicide. For hangings and poisonings, the distributions between males and females were less disparate. Figure 27 shows suicides among children by cause of death and sex.

Figure 27. Suicides Among Children by Cause of Death and Sex, Arizona 2008 (n=35)



Identification of children at risk for suicide can be difficult, and warning signs are not always recognized or taken seriously. Fifteen children who took their own lives in 2008 were known to have talked about suicide to others (43 percent), 11 children were known to have made prior suicide threats (31 percent), and five children had made prior suicide attempts (14 percent). Only five children were known to have been on medication for mental illness at the time of their deaths (14 percent). Ten children who committed

suicide were known to have received prior mental health services (29 percent), but only six children were known to have been receiving mental health services at the time of their deaths (17 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 issue was family discord, which was identified in 13 suicides (37 percent). Table 17 shows factors that may have contributed to the child’s despondency prior to suicide.

For nearly half of all suicides, important information regarding risk factors was unknown to review teams, even after review of law enforcement records. For example, in 49 percent of suicides, prior mental health services were unknown (n=17). For 43 percent of suicides, it was unknown if the child was receiving mental health services at the time of death (n=15). Improvements in the investigations of child suicides may increase review teams’ abilities to identify risk factors.

Table 17. Factors That May Have Contributed to the Child’s Despondency Prior to Suicide, Arizona 2008		
Factor*	Number	Percent
Family discord	13	37%
History of drug and/or alcohol use	9	26%
Recent breakup with boyfriend or girlfriend	9	26%
Failure at school	7	20%
Recent argument with boyfriend or girlfriend	6	17%
Recent argument with parents/caregivers	6	17%
Recent problems with the law	4	11%
Recent suicide by friend or relative	2	6%
Victim of bullying	2	6%
*More than one factor may have been identified for each death		

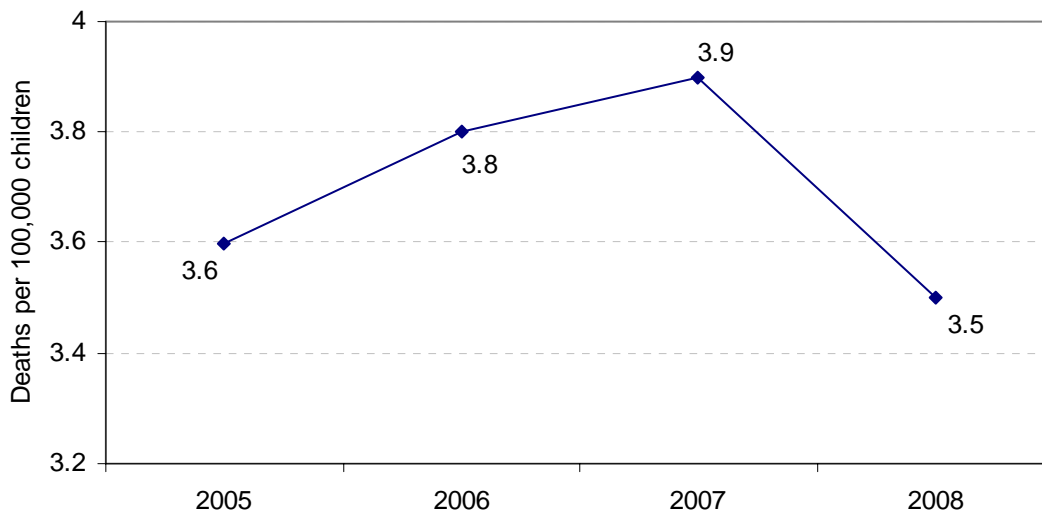
Eighty-nine percent of child suicides were determined to have been preventable (n=31). For 11 percent of suicides, local review teams were not able to determine preventability (n=4). Access to firearms was the most commonly identified preventable factor (37 percent, n=13), followed by drugs and/or alcohol (26 percent, n=9). Table 18 shows preventable factors for child suicides.

Table 18. Preventable Factors for Child Suicides, Arizona 2008		
Factor*	Number	Percent
Access to firearms	13	37%
Drugs and/or alcohol	9	26%
Lack of mental health treatment**	8	23%
*More than one factor may have been identified for each death		
**For 49 percent of suicides, it was unknown if the child had ever received mental health services (n=17). For 43 percent of suicides, it was unknown if the child was receiving mental health services at the time of death (n=15).		

HOMICIDES

Sixty children were victims of homicide in Arizona during 2008, compared to 66 in 2007. Homicide accounted for six percent of all child deaths in Arizona during 2007 and 2008. The child homicide rate in 2008 was 3.5 deaths per 100,000 children. This was a decline from 2007 when the homicide rate was 3.9 deaths per 100,000 children. Figure 28 shows the rates of child homicides from 2005 through 2008.

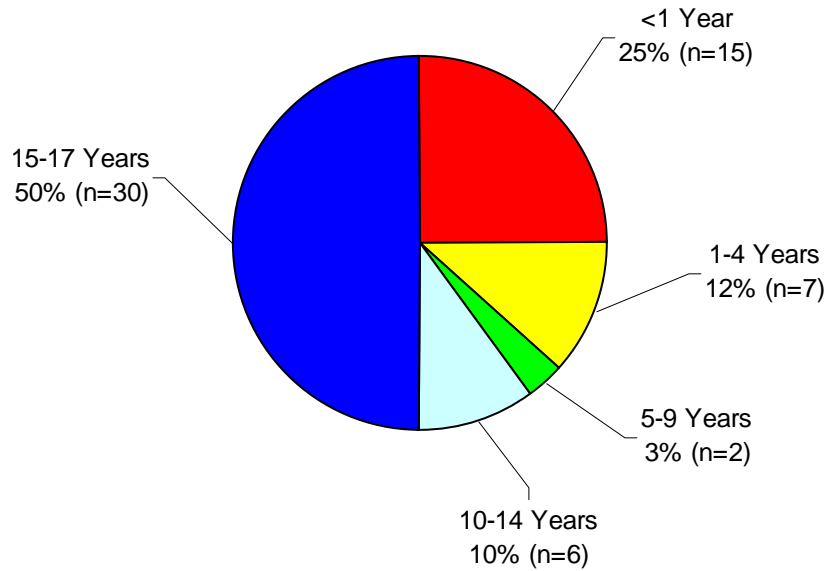
Figure 28. Rate of Child Deaths due to Homicide (per 100,000 children), Arizona 2005-2008



Sixty-seven percent of homicide victims in 2008 were males (n=40) and 33 percent were females (n=20). More than half of child homicides were among Hispanics (53 percent, n=32), 22 percent were among White Non-Hispanics (n=13), 12 percent were among American Indians (n=7), 10 percent were among African Americans (n=6), and less than one percent were among Asian children (n=2).

Children ages 15 through 17 years accounted for 50 percent of homicides (n=30). Twenty-five percent of homicides were among children younger than one year of age (n=15). Figure 29 shows homicides among children by age group.

Figure 29. Homicides Among Children by Age Group, Arizona 2008 (n=60)

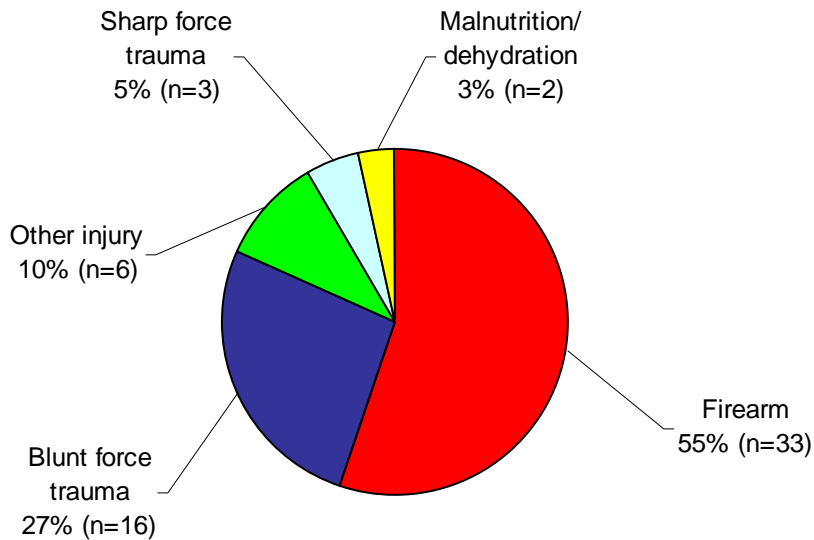


Compared to 2007, the greatest increase in homicides was observed among children ages 15 through 17 years (from 39 percent in 2007 to 50 percent in 2008). Table 19 shows homicides among children by age group for 2005 through 2008.

Age Group	2005		2006		2007		2008	
0-27 Days	3	5%	4	6%	3	4%	1	2%
28-365 Days	9	15%	12	19%	13	20%	14	23%
1-4 Years	13	22%	11	17%	12	18%	7	12%
5-9 Years	3	5%	0	0%	7	11%	2	3%
10-14 Years	5	9%	7	11%	5	8%	6	10%
15-17 Years	25	43%	29	47%	26	39%	30	50%
Total	58		63		66		60	

In 2008, firearms were the leading cause of death among child homicides (55 percent, n=33), followed by blunt force trauma (27 percent, n=16). Figure 30 shows homicides among children by cause of death.

Figure 30. Homicides Among Children by Cause of Death, Arizona 2008 (n=60)



For 30 percent of homicides, the perpetrator was unknown to review teams (n=18). In 15 percent, the perpetrator was someone that the child did not know (n=9). Biological parents or step-parents were the perpetrators in seven child homicides. Friends or acquaintances of the children accounted for an additional seven homicides. Table 20 shows homicides among children by perpetrator.

Table 20. Homicides Among Children by Perpetrator, Arizona 2008 (n=60)		
Perpetrator	Number	Percent
Unknown	18	30%
Stranger	9	15%
Parent/step-parent	7	12%
Child's friend/acquaintance	7	12%
Rival gang member	7	12%
Mother's partner	5	8%
Babysitter/child care worker	4	7%
Neighbor	2	3%
Sibling	1	2%
Total	60	

One hundred percent of child homicides were determined to have been preventable (n=60). Drugs and/or alcohol were the most commonly identified preventable factors in child homicides (57 percent, n=34), followed by access to firearms (55 percent, n=33).

Gang conflict was a factor in 10 homicides (17 percent). Table 21 shows preventable factors for child homicides in Arizona during 2008.

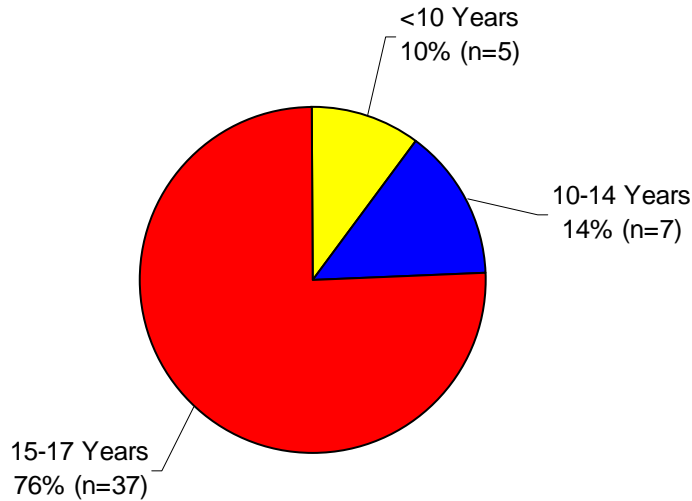
Table 21. Preventable Factors for Child Homicides, Arizona 2008		
Factor*	Number	Percent
Drugs and/or alcohol	34	57%
Access to firearms	33	55%
Lack of supervision	19	32%
Involvement in gang	10	17%
*More than one factor may have been identified for each death		

FIREARM-RELATED FATALITIES

There were 49 firearm-related fatalities in 2008, compared to 48 in 2007. Firearms accounted for five percent of all child deaths in 2008 and four percent in 2007. Eighty percent of the firearm-related deaths in 2008 were among males (n=39) and 20 percent were among females (n=10). More than half of firearm-related deaths were among Hispanics (59 percent, n=29), 25 percent were among Non-Hispanic Whites (n=12), eight percent were among African Americans (n=4), and eight percent were among other races/ethnicities (n=4).

Seventy-six percent of these deaths were among children ages 15 through 17 years (n=37). There were 12 deaths due to firearms among children 14 years of age and younger. Figure 31 shows firearm-related fatalities among children by age group.

Figure 31. Firearm-Related Deaths Among Children by Age Group, Arizona 2008 (n=49)

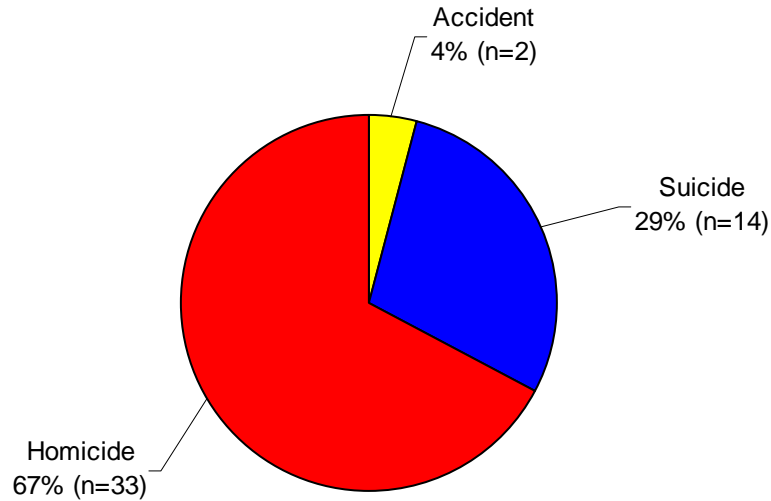


The age group distribution in 2008 was similar to what has been observed in previous years. In 2007, there were 36 firearm-related deaths among children ages 15 through 17 years (75 percent), seven among children ages 10 through 14 years (15 percent), and five among children younger than 10 years of age (10 percent). Table 22 shows firearm-related deaths among children by age group for 2005 through 2008.

Age Group	2005		2006		2007		2008	
<10 Years	2	5%	1	2%	5	10%	5	10%
10-14 Years	7	16%	13	22%	7	15%	7	14%
15-17 Years	34	79%	46	76%	36	75%	37	76%
Total	43		60		48		49	

In 2008, 67 percent of firearm-related deaths were homicides (n=33), 29 percent were suicides (n=14), and four percent were accidents (n=2). Figure 32 shows firearm-related deaths among children by manner.

Figure 32. Firearm-Related Deaths Among Children by Manner, Arizona 2008 (n=49)

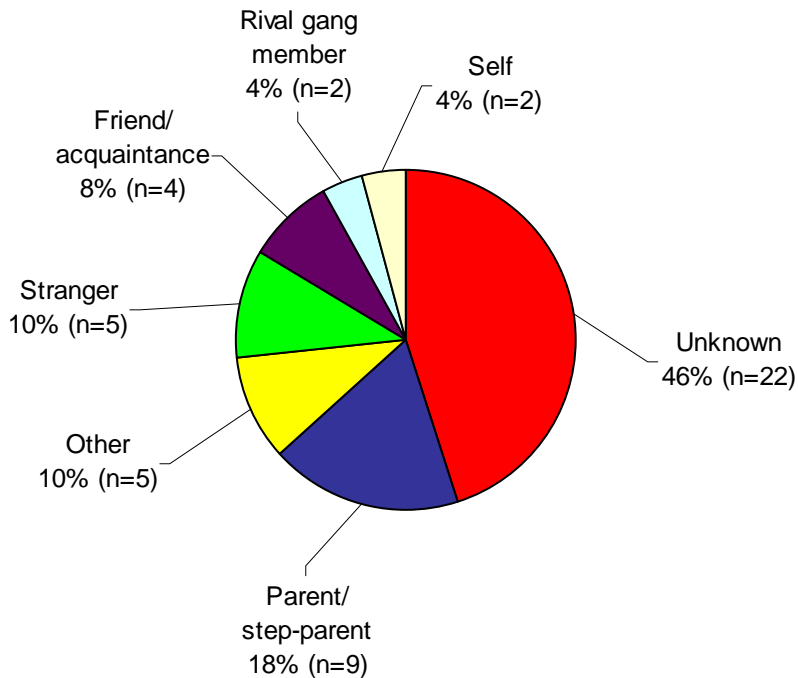


Handguns accounted for the majority of firearm-related fatalities among children in 2008 (67 percent, n=33), followed by shotguns (10 percent, n=5). Table 23 shows types of firearms involved in child deaths during 2008.

Table 23. Types of Firearms Involved in Child Deaths, Arizona 2008 (n=49)		
Type	Number	Percent
Handgun	33	67%
Shotgun	5	10%
Assault rifle	4	8%
Unknown	4	8%
Hunting rifle	3	6%
Total	49	

Among the 49 firearm-related deaths, 16 percent of firearms were stored with ammunition (n=8), and 10 percent of firearms were stored loaded (n=5). The largest percentage of firearms belonged to parents or step-parents (18 percent, n=9). Figure 33 shows the owners of the firearms used in child fatalities.

Figure 33. Owners of Firearms Involved in Child Deaths, Arizona 2008 (n=49)



For a large percentage of firearms, the storage location was unknown to the review teams (69 percent, n=34). One firearm was stored in a locked toolbox, but the remaining firearms were not stored in secured locations. Table 24 summarizes the locations of the firearms involved in child deaths during 2008.

Location	Number	Percent
Unknown	34	69%
Other not stored (unsecured location)	8	16%
In or under furniture (e.g. in a drawer or under a bed)	3	6%
Closet	2	4%
Glove compartment of car	1	2%
Locked toolbox	1	2%
Total	49	

One hundred percent of the firearm-related deaths in 2008 were determined to have been preventable. Drugs and/or alcohol were involved in 86 percent of firearm-related deaths (n=42). Lack of supervision was a factor in 41 percent of the deaths (n=20), and access to firearms was identified as a preventable factor for 35 percent of firearm-related fatalities among children (n=17). Table 25 shows preventable factors for firearm-related fatalities in Arizona during 2008.

Factor*	Number	Percent
Drugs and/or alcohol	42	86%
Lack of supervision	20	41%
Access to firearm	17	35%
Involvement in gang	9	18%
*More than one factor may have been identified for each death		

MALTREATMENT FATALITIES

To gain greater understanding of the contribution of neglect and abuse 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 three conditions must be met:

1. “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” 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.

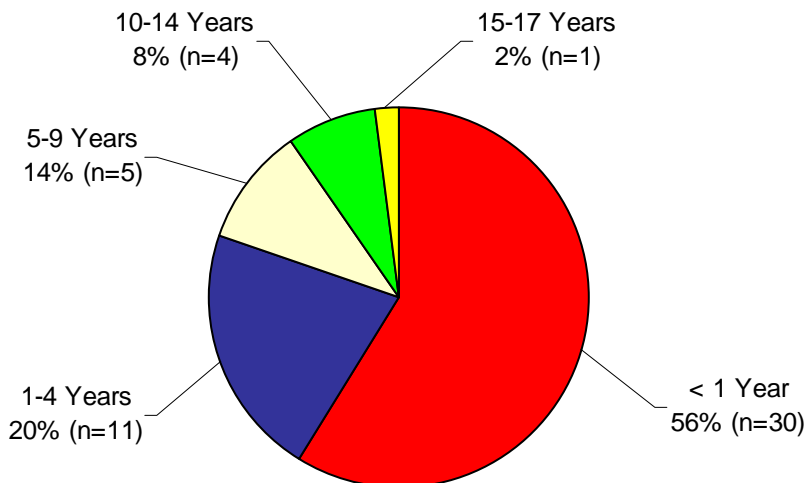
Deaths classified as maltreatment are also reported in other categories by manner and cause of death. For example, a death due to abusive head trauma would be classified as a manner of homicide with a cause of blunt force trauma, and a maltreatment death. An accidental or natural death might also be 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, it would be maltreatment if a child died in a motor vehicle crash due to the parent driving while intoxicated with the child in the car.

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 (AzDES) 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, these deaths would not be included in AzDES’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.

In 2008, there were 51 deaths classified as maltreatment, which was five percent of all child deaths that year. This was a decline from 65 child maltreatment deaths in 2007 (six percent of all child deaths). In 2008, 53 percent of maltreatment deaths were among males (n=27) and 47 percent were among females (n=24). Forty-one percent of the children who died due to maltreatment were Hispanic (n=21), 25 percent were White, Non-Hispanic (n=13), 16 percent were African American (n=8), 16 percent were American Indian (n=8), and two percent were Asian (n=1).

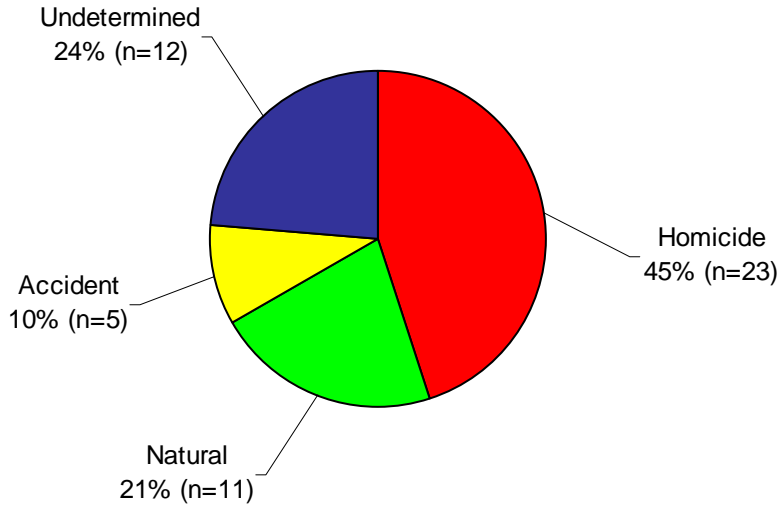
More than half of all maltreatment deaths were among children younger than one year of age (56 percent, n=29). Figure 34 shows maltreatment deaths among children by age group.

Figure 34. Maltreatment Deaths Among Children by Age Group, Arizona 2008 (n=51)



Homicide comprised almost half of child maltreatment deaths in Arizona (45 percent, n=23). Ten percent of maltreatment deaths were due to accidents (n=5). Maltreatment-related accidental deaths included unintentional injuries caused by significant negligence or substance abuse by a parent or guardian. Twenty-one percent of child maltreatment deaths were due to natural manners (n=11). Examples of maltreatment deaths due to natural manners of death included prenatal substance use resulting in premature birth, neglect which resulted in an illness, or failure to obtain medical care. Twenty-four percent of child maltreatment deaths were of undetermined manner (n=12). Figure 35 shows maltreatment deaths by manner.

Figure 35. Maltreatment Deaths Among Children by Manner, Arizona 2008 (n=51)



The leading causes of child maltreatment deaths were medical causes (27 percent, n=14) and blunt force trauma (25 percent, n=13). Table 26 shows maltreatment deaths among children by cause and manner.

Cause	Accident	Homicide	Natural	Undetermined	Total
Medical		2	11	1	14
Blunt force trauma		13			13
Undetermined				6	6
Other injury		4			4
Suffocation	1	1		2	4
Firearm injury	1	2			3
Exposure (hyperthermia)	1			2	3
Motor vehicle crash	1				1
Drowning		1			1
Fall/crush	1				1
Poisoning				1	1
Total	5	23	11	12	51

Sixteen percent of the maltreated children in Arizona during 2008 were known to have had physical, mental, and/or sensory disabilities (n=8), including two children with cerebral palsy.

The majority of maltreatment incidents occurred in parental homes (84 percent, n=43), and four incidents occurred in the homes of babysitters (three were unlicensed day care homes; one was a licensed child care facility). Two maltreatment incidents occurred on

roadways, and one incident occurred in the home of the mother's boyfriend. For one death, the maltreatment incident location was unknown to the review team.

For 71 percent of maltreatment deaths, the perpetrator was the child's biological parent (n=36), and for an additional 14 percent, the perpetrator was the mother's boyfriend or a step-parent (n=7). Table 27 shows maltreatment deaths among children by perpetrator.

Table 27. Maltreatment Deaths Among Children by Perpetrator, Arizona 2008 (n=51)		
Perpetrator	Number	Percent
Mother	28	55%
Father	8	16%
Mother's boyfriend	4	8%
Step-parent	3	6%
Unknown	3	6%
Babysitter*	3	6%
Licensed child care worker*	1	2%
Other relative	1	2%
Total	51	
*May not have been under the jurisdiction of Arizona Child Protective Services		

There were seven fatalities among children two years of age and younger due to abusive head trauma during 2008. Five of these children were known to have been shaken. This was a decrease from 2007, when 11 children two years of age and younger died as a result of abusive head trauma.

Ninety-six percent of the child maltreatment deaths in 2008 were determined to have been preventable (n=49). For four percent of maltreatment deaths, local review teams were not able to determine preventability (n=2). Drugs and/or alcohol contributed to 53 percent of the deaths (n=27). Lack of supervision contributed to 33 percent of maltreatment deaths (n=17). Table 28 shows preventable factors for child maltreatment deaths.

Table 28. Preventable Factors for Maltreatment Deaths Among Children, Arizona 2008		
Factor*	Number	Percent
Drugs and/or alcohol	27	53%
Lack of supervision	17	33%
Unsafe sleep environment	7	14%
*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 or was not substantiated.

In 2008, 59 percent of maltreated children were from families with prior child protective services involvement (n=30), and five of these children had prior involvement with Tribal Nation child protective services. Among these 30 families, eight were open cases with Arizona Child Protective Services at the time of the child's death. Six open cases had recent allegations that were in the process of being investigated.

For 23 maltreatment deaths, mandatory reporters did not notify Arizona Child Protective Services that the deaths were suspected to have been due to maltreatment even after the investigations. The number of maltreatment deaths that were not reported to Arizona Child Protective Services declined from 27 in 2007 to 23 in 2008.

For four child maltreatment deaths during 2008, the children were in the care of individuals other than a parent, guardian, or custodian (as defined in A.R.S. § 8-201) and may not have been under the investigative jurisdiction of Arizona Child Protective Services. These deaths were investigated by law enforcement (as defined in A.R.S. § 13-3620).

SUDDEN UNEXPECTED INFANT DEATHS

Local review teams define sudden unexpected infant deaths as deaths that occur 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. Sudden infant death syndrome (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.

Although the number of sudden unexpected infant deaths declined in 2008, these deaths comprised a larger percentage of total deaths than in 2007. There were 140 unexpected infant deaths in Arizona in 2008 (13 percent of all deaths that year). In 2007, there were 143 unexpected infant deaths in Arizona, which accounted for 12 percent of all child deaths. Fifty-nine percent of unexpected infant deaths in 2008 were among males (n=82) and 41 percent were among females (n=58).

Non-Hispanic Whites accounted for 40 percent of sudden unexpected infant deaths (n=56), Hispanic infants accounted for 33 percent (n=46), African Americans accounted for 15 percent (n=21), American Indians accounted for nine percent (n=12), and three percent were among Asian children (n=5).

Nearly half of the deaths were among infants younger than three months of age (48 percent, n=67). Fifty-four deaths were among infants between three and six months of age (39 percent), and 19 infants who died unexpectedly were older than six months of age (13 percent).

For 50 deaths, teams were unable to determine the cause of death (36 percent). Forty-two deaths were due to medical causes (30 percent). Twenty-one sudden unexpected infant deaths were due to suffocation (15 percent) and 20 deaths were due to SIDS (14 percent). Table 29 shows sudden unexpected infant deaths by cause.

Cause	Number	Percent
Undetermined	50	36%
Suffocation	21	15%
SIDS	20	14%
Cardiovascular	17	12%
Pneumonia/influenza	13	9%
Other medical	9	6%
Other injury	7	5%
Unknown	3	2%
Total	140	

Investigation

Law enforcement conducted scene investigations in 71 percent of sudden unexpected infant deaths (n=100). Seventy-six percent of sudden unexpected infant deaths were referred to medical examiners' offices (n=106), and all of those cases received an autopsy. For the 34 deaths that were not referred to medical examiners, most were deaths due to medical causes (n=33).

Ninety-five children were known to have had toxicology tests performed. Six children tested positive for nicotine, three tested positive for caffeine, and three tested positive for acetaminophen. Ninety-six children were known to have had x-rays.

More than half of the 140 sudden unexpected infant deaths were determined to have been preventable (58 percent, n=81). For 16 deaths, local review teams were unable to determine if the death could have been prevented. Unsafe sleep environment was a contributing factor in 90 sudden unexpected infant deaths (64 percent), followed by lack of supervision (51 percent, n=71). Table 30 shows preventable factors for sudden unexpected infant deaths.

Factor*	Number	Percent
Unsafe sleep environment	90	64%
Lack of supervision	71	51%
Drugs and/or alcohol	48	34%
Infant exposure to smoking	31	22%
*More than one factor may have been identified for each death		

Unsafe Sleep Environments

Of the 140 sudden unexpected infant deaths, 68 percent occurred in sleep environments (n=95). Ninety of these environments were determined to have been unsafe. Suffocation was the cause of 21 unsafe sleep-related deaths, and 18 deaths were identified as SIDS. For 46 deaths that occurred in unsafe sleep environments, cause of death was undetermined by the review teams.

Forty-eight infants were bed sharing with adults and/or other children. Twenty-five of the adults who were bed sharing with infants were known to have been using illegal drugs, prescription drugs, and/or alcohol. Forty-four infants were sleeping in adult beds, 13 were sleeping on couches or chairs, and two were sleeping in car seats or strollers. Thirty-one infants were put to sleep on their sides or stomachs.

Forty percent of the 90 infants in unsafe sleep environments were known to have had a crib/bassinette in the home (n=36), although only 13 infants were sleeping in cribs/bassinettes at the time of their deaths. Thirteen percent did not have a crib/bassinette in the home (n=12). For 47 percent, local review teams did not know if a crib/bassinette was present in the home (n=42). 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).

Of the 13 infants who were sleeping in cribs/bassinettes, only three were placed to sleep on their backs. Six were placed to sleep in the cribs on their stomachs and three were placed to sleep in the cribs propped on their sides. For one death, it was unknown how the infant was placed to sleep in the crib. All 13 of the infants who died while sleeping in cribs/bassinettes had factors that made the environment unsafe, including non-supine sleep position, soft/excessive bedding, pillows, and/or stuffed toys.

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 20 deaths identified as SIDS in 2008, compared to 37 in 2007.

Fifty-two percent of the children who died of SIDS were male (n=11) and 48 percent were female (n=9). Five of the infants who died of SIDS had been born prematurely (all were singleton births). Forty-five percent of the children who died of SIDS were White, Non-Hispanic (n=9), 30 percent were Hispanic (n=6), 15 percent were American Indian (n=3), and 10 percent were Asian (n=2).

Investigation

Eighteen SIDS deaths were known to have had law enforcement investigations of the death scenes. All 20 SIDS deaths received autopsies, and 19 had the official cause of

death determined by a medical examiner. Nineteen children who died of SIDS were known to have had toxicology tests performed. Five children tested positive for nicotine and three tested positive for caffeine. Seventeen of the 20 children were known to have had x-rays.

All 20 SIDS deaths occurred in sleep environments. Three of the deaths occurred while the infant was sleeping in a crib or bassinette, and nine occurred while the infant was sleeping in an adult bed. Eight of the infants who died of SIDS were bed sharing with at least one adult or child. For nine infants, the sleep position was unknown to the review teams. Six infants were known to have put on their backs to sleep, and five of the infants who died of SIDS were put to sleep on their stomachs or sides. Only one child who died of SIDS was sleeping in a crib on his back. Of the 17 infants who were not in cribs or bassinets, scene investigations showed that six of these families had a crib in the home.

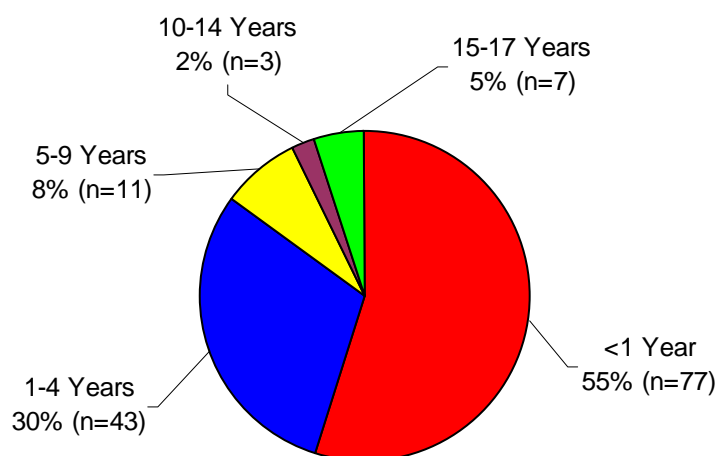
HOME SAFETY-RELATED DEATHS

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 manner. Suicides, homicides, and natural deaths were excluded. In 2008, 141 children died in or around the home (14 percent of all deaths that year). The majority of these deaths occurred among males (61 percent, n=86) and 39 percent were among females (n=55).

Forty percent of deaths that occurred in or around the home were among White, Non-Hispanic children (n=57), 36 percent were among Hispanic children (n=51), 16 percent were among African Americans (n=22), seven percent were among American Indians (n=9), and one percent were among Asian children (n=2).

More than half of the deaths that occurred in or around the home during 2008 were among infants younger than one year of age (55 percent, n=77). Thirty percent were among children ages one through four years (n=43). Figure 36 shows home safety-related deaths by age group.

Figure 36. Home Safety-Related Deaths Among Children by Age Group, Arizona 2008 (n=141)



For 38 percent of deaths, the cause of death was undetermined (n=53), and most of these deaths were among infants in unsafe sleep environments (n=46). The second most common cause of death was drowning (18 percent, n=25). Fifteen children drowned in family pools or hot tubs, three children drowned in bathtubs, and four children drowned in canals that ran directly behind the child’s home. Four children were crushed by heavy objects in the home, usually after climbing or pulling on these objects. Five children died as the results of falls. Four children died in home fires, and for two of these deaths, the kitchen stove/oven was the ignition source. One of these homes did not have a smoke detector. Table 31 shows child deaths that occurred in or around the home by cause.

Table 31. Child Deaths In or Around the Home by Cause, Arizona 2008 (n=141)		
Cause	Number	Percent
Undetermined	53	38%
Drowning	25	18%
Suffocation	20	14%
Poisoning	9	6%
SIDS	7	5%
Fall/crush	6	4%
Other	5	3%
Motor vehicle backovers	4	3%
Hyperthermia in vehicle	4	3%
Fire	3	2%
Hanging	3	2%
Firearm-related injury	2	1%
Total	141	

Eighty-nine percent of home safety-related deaths were determined to have been preventable (n=126), and for nine percent, teams were not able to determine preventability (n=13). The most commonly listed contributing factors were lack of supervision (71 percent, n=100) and drugs and/or alcohol (54 percent, n=76). Table 32 shows preventable factors for home safety-related deaths.

Table 32. Preventable Factors for Child Deaths In or Around the Home, Arizona 2008		
Factor*	Number	Percent
Lack of supervision	100	71%
Drugs and/or alcohol	76	54%
Access to water	17	12%
*More than one factor may have been identified for each death		

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 four years, 100 percent of child deaths in Arizona have been reviewed, and data from 2005 through 2008 are included in the following tables.

The Neonatal Period, Birth Through 27 Days

Table 33. Deaths Among Children Ages Birth Through 27 Days by Cause and Manner, Arizona 2008 (n=423)						
Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Prematurity				256		256
Medical*				155		155
Undetermined				1	5	6
SIDS				2	1	3
Motor vehicle crash	2					2
Firearm injury		1				1
Total	2	1		414	6	423

*Excluding SIDS and prematurity

Table 34. Deaths Among Children Ages Birth Through 27 Days by Cause, Arizona 2005-2008								
Cause	2005		2006		2007		2008	
Prematurity	263	61%	263	60%	281	58%	256	60%
Medical*	155	36%	168	38%	180	37%	155	37%
Undetermined	3	1%	2	0%	4	1%	6	1%
SIDS	3	1%	1	0%	4	1%	3	1%
Motor vehicle crash	4	1%	1	0%	5	1%	2	<1%
Other	1	0%	4	1%	5	1%	1	<1%
Suffocation	3	1%	1	0%	5	1%	0	0%
Exposure	1	0%	0	0%			0	0%
Drowning	1	0%	0	0%	1	0%	0	0%
Total	434		440		485		423	

*Excluding SIDS and prematurity

Table 35. Deaths Among Children Ages Birth Through 27 Days by Manner, Arizona 2005-2008

Manner	2005		2006		2007		2008	
Natural	421	97%	432	98%	464	96%	414	98%
Undetermined	3	1%	2	0%	6	1%	6	1%
Accident	7	2%	2	0%	12	2%	2	<1%
Homicide	3	1%	4	1%	3	1%	1	<1%
Suicide	0	0%	0	0%	0		0	0%
Total	434		440		485		423	

The Post-Neonatal Period, 28 Days Through 365 Days

Table 36. Deaths Among Children Ages 28 Days Through 365 Days by Cause and Manner, Arizona 2008 (n=211)

Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Medical*		1		90		91
Undetermined					44	44
Suffocation	18	1			2	21
SIDS				11	6	17
Prematurity				15		15
Blunt force trauma		9				9
Motor vehicle crash	6					6
Other injury	2	2				4
Fall/crush	2					2
Exposure	1					1
Downing	1					1
Total	30	13		116	52	211

*Excluding SIDS and prematurity

Table 37. Deaths Among Children Ages 28 Days Through 365 Days by Cause, Arizona 2005-2008

Cause	2005		2006		2007		2008	
Medical*	122	52%	89	43%	83	37%	91	43%
Undetermined	17	7%	14	7%	25	11%	44	21%
Suffocation	19	8%	24	12%	21	9%	21	10%
SIDS	34	15%	27	13%	33	15%	17	8%
Prematurity	21	9%	29	14%	35	15%	15	7%
Blunt force trauma	7	3%	8	4%	8	3%	9	4%
Other non-medical	5	2%	8	4%	5	2%	6	3%
Motor vehicle crash	1	0%	2	1%	7	3%	6	3%
Drowning	1	0%	2	1%	5	2%	1	<1%
Exposure	1	0%	0	0%	2	1%	1	<1%
Fire/burn	3	1%	1	0%	6	3%	0	0%
Poisoning	1	0%	2	1%	1	0%	0	0%
Hanging	1	0%	0	0%	1	0%	0	0%
Total	233		206		225		211	

*Excluding SIDS and prematurity

Table 38. Deaths Among Children Ages 28 Days Through 365 Days by Manner, Arizona 2005-2008

Manner	2005		2006		2007		2008	
Natural	178	76%	140	68%	147	65%	116	55%
Undetermined	9	4%	12	6%	27	12%	52	25%
Accident	19	8%	25	12%	38	17%	29	14%
Homicide	27	12%	29	14%	13	6%	14	7%
Suicide	0	0%	0	0%	0	0%	0	0%
Total	233		206		225		211	

Children, One Through Four Years of Age

Table 39. Deaths Among Children Ages One Through Four Years by Cause and Manner, Arizona 2008 (n=126)

Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Medical*				67		67
Downing	25					25
Motor vehicle crash	10					10
Undetermined					7	7
Other injury	2	2				4
Blunt force trauma		4				4
Poisoning	1				1	2
Firearm injury	1	1				2
Exposure	1				1	2
Fire/burn	1					1
Fall/crush	1					1
Hanging	1					1
Total	43	7		67	9	126

*Excluding SIDS and prematurity

Table 40. Deaths Among Children Ages One Through Four Years by Cause, Arizona 2005-2008

Cause	2005		2006		2007		2008	
Medical	56	43%	74	48%	45	40%	67	53%
Drowning	20	15%	16	10%	12	11%	25	20%
Motor vehicle crash	19	15%	34	22%	21	18%	10	8%
Other non-medical	5	4%	4	3%	11	10%	7	5%
Undetermined	5	4%	7	4%	8	7%	7	5%
Blunt force trauma	10	8%	6	4%	7	6%	4	3%
Firearm injury	0	0%	1	1%	2	2%	2	2%
Poisoning	4	3%	1	1%	2	2%	2	2%
Exposure	3	2%	1	1%	1	1%	2	2%
Fire/burn	5	4%	4	3%	2	2%	1	1%
Suffocation/choking	2	2%	5	3%	2	2%	0	0%
Total	130		153		113		126	

*Excluding SIDS and prematurity

Table 41. Deaths Among Children Ages One Through Four Years by Manner, Arizona 2005-2008

Manner	2005		2006		2007		2008	
Natural	56	43%	74	48%	49	43%	67	53%
Accident	54	42%	64	42%	45	40%	43	34%
Undetermined	7	5%	4	3%	7	6%	9	7%
Homicide	13	10%	11	7%	12	11%	7	5%
Suicide	0	0%	0	0%	0	0%	0	0%
Total	130		153		113		126	

Children, Five Through Nine Years of Age

Table 42. Deaths Among Children Ages Five Through Nine Years by Cause and Manner, Arizona 2008 (n=67)

Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Medical*				42	1	43
Motor vehicle crash	10					10
Fall/crush	3					3
Firearm injury	1	1				2
Fire/burn	2					2
Downing	2					2
Hanging					1	1
Undetermined					1	1
Blunt force trauma		1				1
Exposure					1	1
Other injury	1					1
Total	19	2		42	4	67

*Excluding SIDS and prematurity

Table 43. Deaths Among Children Ages Five Through Nine Years by Cause, Arizona 2005-2008

Cause	2005		2006		2007		2008	
Medical	43	51%	30	47%	37	55%	43	64%
Motor vehicle crash	23	27%	23	36%	13	19%	10	15%
Other non-medical	2	2%	2	3%	7	10%	8	12%
Drowning	6	7%	4	6%	4	6%	2	3%
Fire/burn	6	7%	2	3%	1	1%	2	3%
Hanging	0	0%	1	1%	1	1%	1	1%
Blunt force trauma	2	2%	1	1%	1	1%	1	1%
Suffocation	1	1%	0	0%	1	1%	0	0%
Poisoning	1	1%	1	1%	2	3%	0	0%
Total	85		64		67		67	

*Excluding SIDS and prematurity

Table 44. Deaths Among Children Ages Five Through Nine Years by Manner, Arizona 2005-2008

Manner	2005		2006		2007		2008	
Natural	43	51%	30	47%	37	55%	42	63%
Accident	39	46%	32	50%	23	34%	19	28%
Undetermined	0	0%	1	1%	0	0%	4	6%
Homicide	3	4%	0	0%	7	10%	2	3%
Suicide	0	0%	1	1%	0	0%	0	0%
Total	85		64		67		67	

Children, 10 Through 14 Years of Age

Table 45. Deaths Among Children Ages 10 Through 14 Years by Cause and Manner, Arizona 2008 (n=74)

Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Medical*		1		33		34
Motor vehicle crash	19					19
Firearm injury		4	3			7
Hanging	1		5			6
Poisoning	1		1			2
Fall/crush	2					2
Blunt force trauma		1				1
Fire/burn	1					1
Exposure	1					1
Other injury	1					1
Total	26	6	9	33		74

*Excluding SIDS and prematurity

Table 46. Deaths Among Children Ages 10 Through 14 Years by Cause, Arizona 2005-2008

Cause	2005		2006		2007		2008	
Medical	32	37%	38	41%	40	43%	34	46%
Motor vehicle crash	21	24%	21	23%	27	29%	19	26%
Firearm injury	7	8%	13	14%	7	8%	7	9%
Hanging	7	8%	3	3%	6	6%	6	8%
Other non-medical	1	1%	0	0%	4	4%	2	3%
Fall/crush	0	0%	1	3%	3	3%	2	3%
Poisoning	4	5%	2	2%	2	2%	2	3%
Blunt force trauma	1	1%	3	3%	1	1%	1	1%
Exposure	4	5%	4	4%	1	1%	1	1%
Suffocation	3	3%	4	4%	0	0%	0	0%
Drowning	1	1%	3	3%	1	1%	0	0%
Total	86		92		92		74	

*Excluding SIDS and prematurity

Table 47. Deaths Among Children Ages 10 Through 14 Years by Manner, Arizona 2005-2008

Manner	2005		2006		2007		2008	
Natural	32	37%	38	41%	40	43%	33	45%
Accident	34	40%	34	37%	35	38%	26	35%
Suicide	13	15%	11	12%	7	8%	9	12%
Homicide	5	6%	7	8%	5	5%	6	8%
Undetermined	2	2%	2	2%	5	5%	0	0%
Total	86		92		92		74	

Children, 15 Through 17 Years of Age

Table 48. Deaths Among Children Ages 15 Through 17 Years by Cause and Manner, Arizona 2008 (n=137)

Cause	Accident	Homicide	Suicide	Natural	Undetermined	Total
Firearm injury		26	11			37
Motor vehicle crash	35					35
Medical*				30		30
Hanging			13			13
Poisoning	7		2		1	10
Other	1	3				4
Exposure	4					4
Undetermined					1	1
Blunt force trauma		1				1
Downing	1					1
Fall/crush	1					1
Total	49	30	26	30	2	137

*Excluding SIDS and prematurity

Table 49. Deaths Among Children Ages 15 Through 17 Years by Cause, Arizona 2005-2008

Cause	2005		2006		2007		2008	
Firearm injury	34	19%	46	22%	36	22%	37	27%
Motor vehicle crash	66	37%	83	40%	49	30%	35	25%
Medical	34	19%	29	14%	35	22%	30	22%
Hanging	10	6%	19	9%	6	4%	13	9%
Poisoning	9	5%	5	2%	17	11%	10	7%
Other	2	1%	4	2%	7	4%	4	3%
Exposure	10	6%	4	2%	4	2%	4	3%
Drowning	6	3%	6	3%	0	0%	1	1%
Undetermined	2	1%	1	0%	4	2%	1	1%
Fall/crush	4	2%	1	0%	0	0%	1	1%
Blunt force trauma	2	1%	6	3%	0	0%	1	1%
Fire/burn	1	1%	2	1%	3	2%	0	0%
Total	180		206		161		137	

*Excluding SIDS and prematurity

Table 50. Deaths Among Children Ages 15 Through 17 Years by Manner,
Arizona 2005-2008

Manner	2005		2006		2007		2008	
Accident	92	51%	109	53%	74	46%	49	36%
Natural	35	19%	29	14%	34	21%	30	22%
Homicide	25	14%	29	14%	26	16%	30	22%
Suicide	23	13%	36	18%	21	13%	26	19%
Undetermined	5	3%	3	1%	6	4%	2	1%
Total	180		206		161		137	

APPENDIX B: 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 and for children whose families only recently moved to Arizona. 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 importing from the National Center for Child Death Review database, 2008 child death data were cleaned and analyzed using SAS software, Version 9.2 of the SAS System for Windows (copyright © 2008 SAS Institute Inc).

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

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Pinal County Child Fatality Review Team

Chair/Coordinator

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Against Abuse, Inc.

Members

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Casa Grande Police Department

Mark Dyrdaahl
Arizona Department of Economic Security
Division of Children, Youth, and Families

Andrea Kipp
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Robert Kull, MD
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Sylvia Lafferty
Pinal County Attorney's Office

Corporal Kent Ogaard
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Tom Schryer
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Detective Gary Vance
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Yavapai County Child Fatality Review Team

Chair/Coordinator

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Yavapai County Community Health Services

Secretary

Carol Espinosa

Members

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Yavapai County Attorney's Office

B.J. Jordison
Yavapai Regional Medical Center

Esther Brohner
CASA

Dennis McGrane
Yavapai County Attorney's Office

Sue Carlson
Licensed Counselor

Kathy McLaughlin
Yavapai Family Advocacy Center

Karen Dansby, MD
Pediatrician

LaRayne Ness
Yavapai Regional Medical Center

Pam Edgerton
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Bill Hobbs
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Becky Ruffner
Prevent Child Abuse Arizona

Dawn Kimsey
Arizona Department of Economic Security
Division of Children, Youth, and Families

Kathy Swope
School Nurse
Yavapai County Education Services Agency

Yuma County Child Fatality Review Team

Chair

Patti Perry, MD
Pediatrician

Coordinator

Chip Schneider
Amberly's Place

Members

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Sonny Hixon
Yuma County Sheriff's Office

Detective Debbie Machin
Yuma Police Department

Jim Miller
SAFE KIDS
Yuma County Health Department

Alice Nelson
Parent Representative

Maria Nunez
Yuma County Health Department

Maria Ortega
Arizona Department of Economic Security
Child Protective Services

Diane Umphress
Executive Director
Amberly's Place

Tom Varela
Yuma County Attorney's Office

Robert Vigil
Medical Examiner's Office

Arizona Department of Health Services Bureau of Women's and Children's Health

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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>