Arizona Child Fatality Review Program

Twenty-Third Annual Report

November 15, 2016

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

Twenty-Third Annual Report

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For 23 years, the Arizona Child Fatality Review Program (CFR) has prepared an annual report on child deaths. By reviewing these deaths, the CFR state team is able to identify the causes, contributing factors, preventability and trends which can inform the community and public policy makers who wish to reduce the child mortality rate in our state through the implementation of the CFR's state team recommendations and other strategies.

In 2015, 768 children under 18 years of age died in Arizona. The CFR teams reviewed 100 percent of these deaths and determined that 39 percent of them were preventable (n=301) including 100 percent of the maltreatment, firearm and homicide deaths. There has been an eight percent decrease in the Arizona child mortality rate from 2014 when 834 children died and since 2009 the Arizona child mortality rate has declined by 14 percent. This decrease is especially attributable to the decrease in deaths due to medical conditions (natural causes). In 2015, the mortality rate from medical conditions continued to drop. There were 487 child deaths due to natural causes in 2015, a decrease from the 547 deaths. Prematurity, which accounted for 23 percent of all child deaths in Arizona in 2015 and is the most common medical cause of death, decreased 11 percent since 2014.

Preventability

In 2015, 768 children under the age of 18 years died in Arizona. Arizona Child Fatality Review Teams reviewed 100 percent of these deaths and determined 39 percent could have been prevented (n=301).

Teams determined that 100 percent of the following deaths were preventable:

- ✓ Homicides
- ✓ Firearm-related deaths

However, our child mortality rate has increased in other categories. For example, our child death rate from maltreatment and suicide has increased since 2009. Our prevention efforts need to especially focus on these causes of death since all of the deaths due to maltreatment and suicide, are potentially preventable.

Throughout the report, we note the racial and ethnic disparities in child mortality in Arizona. American Indian and African American children have had consistently higher mortality rates than children of other races. However, there are some categories where White, non-Hispanic children have higher mortality rates, including deaths due to suicide, firearms, and drowning. In contrast, Hispanic children are disproportionately more likely to die from medical conditions.

The Arizona CFR Program reviews each child death in order to identify future actions that can reduce the number of preventable deaths. We have included specific recommendations in this report to prevent child deaths for individuals, communities, first responders, elected officials and the public.

Mary Ellen Rimsza, MD
Chair, Arizona CFR State Team

Submitted to:

The Honorable Douglas A. Ducey, Governor, State of Arizona

The Honorable Andy Biggs, President, Arizona State Senate

The Honorable David Gowan, Speaker, Arizona State House of Representatives

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

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Acknowledgments

We would like to kindly acknowledge the following individuals, organizations and agencies for their tireless efforts to help reduce child deaths and make Arizona communities safer for all Arizona residents and visitors.

- Susan Newberry, Maricopa County CFR Coordinator, who is responsible for coordinating the reviews of more than 60 percent of all child deaths occurring annually in Arizona. Susan has spent more than 30 years as a dedicated champion for children. She tirelessly devotes her time and energy to creating and maintaining effective collaboration, cooperation and communication among team members.
- All agencies (e.g. hospitals, doctors, medical examiner's, child protective service agencies, and law enforcement) that promptly provided the CFR program with the records teams have requested. Informed child fatality reviews are only possible when the teams have accurate, current detailed information to review.

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Executive Summary

The Arizona Child Fatality (CFR) Program has spent more than 20 years reviewing child fatalities occurring in the state. This year there is hopeful news to share as well as areas for improvement. The number of deaths identified in three critical categories of preventable fatalities has decreased since the previous year. These categories are unintentional injuries including motor vehicle crashes, homicides and firearm-related deaths.

While the overall number of deaths has greatly decreased over the past five years, the number of child deaths deemed preventable have gone up in the following categories: natural deaths (e.g. prematurity), sudden unexplained infant deaths, suicide and drowning. Local teams found that in 2015, 39 percent of all deaths could have been prevented. This conclusion is drawn from in depth reviews conducted by local CFR teams. These teams examined the factors surrounding the deaths of all children less than 18 years old who died in their community in 2015. In order to determine the causes and preventability of each child's death, teams spend many hours each year reviewing records, providing their expertise and coming up with recommendations for prevention. Their hard work results in the information within this report based upon a total of 768 deaths that were reviewed in 2015.

By identifying preventable child deaths, the CFR program serves as a resource to help communities reduce the risk factors that are associated with child deaths, promote the protective steps that may prevent a death and improve outcomes for Arizona's children. Each child's death is a tragedy not only for their family but also for all of us who care about children. Everyone regardless of age, race or position can help prevent a child death. While much work has been done to prevent child deaths over the past twenty years, more work is needed and the hope is the findings will assist those who are working to prevent child deaths.

Many people might not consider themselves prevention agents, but they contribute a great deal to prevention strategies and programming. Some examples of these contributions include law enforcement officers who serve as car seat safety technicians, social workers who provide valuable insight into the signs and symptoms of abuse and neglect, and a parent who takes the time to speak with their child daily about their lives and daily stresses. The combined contributions of these individuals can positively affect the community, parents and caregivers to help prevent future fatalities.

This annual report provides recommendations that can help prevent further child deaths. The State CFR Team recommendations are supported by the findings from the review of the data. Found in the body of the report are recommendations for individuals, communities, first responders, elected officials and the public.

Report Highlights

Natural Deaths (Deaths due to Medical Conditions)

- Natural deaths **decreased** from 547 in 2014 to 487 in 2015 and accounted for 64 percent of all child deaths in Arizona.
- Nine percent of the natural deaths were determined by the team to be preventable (n=43).
- Prematurity accounted for 36 percent (n=177) of all natural deaths.
- Congenital anomalies, neurological disorders, cancer, cardiovascular diseases and infections were the other leading causes of natural death.
- The majority of children who died from natural causes were less than 1 year old (n=573, 77 percent).
- Hispanic, African American and American Indian deaths were disproportionately higher than the percentages of the population they comprise.

Prematurity

- Deaths due to prematurity **decreased** 20 percent from 222 deaths in 2014 to 177 deaths in 2015.
- Seven percent of the prematurity deaths were determined to be preventable (n=13).
- Eighty-four percent of the deaths due to prematurity (n=149) were associated with medical complications during pregnancy. Examples include placental abruption, obesity, advanced maternal age, gestational diabetes and preterm labor.
- Twenty-six percent of the pregnant mothers had received no prenatal care (n=46), an increase from 18 percent in 2014 and ten percent in 2013.
- Three percent of the mothers had gestational diabetes (n=6).
- Twenty percent of the parents were first generation immigrants from Mexico (n=35).
- The average maternal age for the 177 prematurity related deaths was 27 years old.
- Hispanic and African American deaths were disproportionately higher than other races.

Unintentional Injury Deaths (Deaths due to Accidents)

- Unintentional injury deaths **decreased** 11 percent from 180 in 2014 to 160 in 2015 and comprised 21 percent of all child deaths.
- Ninety-four percent of unintentional injury deaths were determined by the team to be preventable.
- The leading cause of unintentional injury death was suffocation (39 percent, n=63).
- Thirty-six percent of these children were less than one year old (n=58).
- Boys accounted for 56 percent of the 160 deaths (n=90).
- African American and American Indian deaths were disproportionately higher.

Sudden Unexpected Infant Deaths (SUID) and Sleep Related Deaths

- In 2015, 78 infant deaths were categorized as SUID and accounted for 10 percent of all child deaths in Arizona; this is an eight percent **decrease** since 2014.
- Ninety-one percent of SUID deaths were preventable. (n=71).
- The number of unsafe sleep-related deaths **decreased** ten percent from 82 deaths in 2014 to 74 deaths in 2015.
- Thirty-six (49 percent) infants died while co-sleeping (bed sharing with adults and/or other children).
- Deaths due to suffocation were determined to be the cause of death for 52 infants.
- African American deaths were disproportionately higher than the population they comprise.

Maltreatment Deaths (Deaths due to Child Abuse and Neglect)

- Child fatalities due to maltreatment **increased** from 75 in 2014 to 87 in 2015 and accounted for 11 percent of all child deaths in Arizona.
- One hundred percent of maltreatment deaths were determined by the team to be preventable.
- Blunt force traumas, suffocation, drowning and motor vehicle crashes accounted for 62 percent of maltreatment deaths (n=54).
- Eighty percent of children who died due to maltreatment were less than five years old.
- In 79 percent of maltreatment deaths, the perpetrator was the child's mother or father.
- Substance use was associated with 53 maltreatment deaths (61 percent).
- African American and American Indian deaths were disproportionately higher.

Motor Vehicle Crash and Other Transport Deaths

- Motor vehicle crash and other transportation deaths **decreased** 12 percent from 57 in 2014 to 50 in 2015 accounting for seven percent of all child deaths in 2015.
- There has been a 38 percent **decrease** in motor vehicle crash deaths since 2013 (n=80).
- Ninety-six percent of motor vehicle and other transport deaths were determined by the team to be preventable and lack of proper vehicle restraint remained the leading preventable factor accounting for 24 motor vehicle crash fatalities (48 percent).
- American Indian and African American deaths were disproportionately higher than the percent of population they comprise.

Suicides

- Child suicides **increased** from 38 in 2014 to 47 in 2015 and accounted for six percent of all child deaths.
- Ninety-eight percent of suicides were determined by the team to be preventable.
- Drug use was the most commonly identified preventable factor in suicides followed closely by family discord and history of parental divorce.

- The majority of suicide deaths occurred in children 15 through 17 years old (n=35).
- White, non-Hispanic and American Indian deaths were disproportionately higher.

Homicides

- Homicides **decreased** from 36 in 2014 to 32 in 2015 and accounted for four percent of all child deaths.
- One hundred percent of homicides were determined by the team to be preventable.
- Twenty-seven of the homicide deaths (84 percent) were due to child abuse/neglect.
- Eleven of the deaths were from blunt force trauma and nine were due to firearms.
- Children aged one through four years were the most affected (n=18, 38 percent).
- The biological parents were the perpetrator in 53 percent of the deaths (n=17).
- African American and American Indian deaths were disproportionately higher.

Drowning Deaths

- Drowning deaths **decreased** slightly from 31 deaths in 2014 to 30 deaths in 2015 and accounted for four percent of all child deaths.
- Ninety-seven percent of drowning deaths were determined by the teams to be preventable.
- The majority of drowning deaths (67 percent) occurred in children one through four years of age (n=20).
- Sixty-seven percent of the deaths occurred in a pool or hot tub (n=10), nine deaths took place in open water (30 percent) and six deaths occurred in a bathtub (20 percent).
- Lack of supervision was the contributing factor in 50 percent of the deaths (n=15).
- White, non-Hispanic and African American deaths were disproportionately higher.

Firearm Deaths

- Firearm deaths **increased** from 25 in 2014 to 28 in 2015 and accounted for four percent of all child deaths.
- One hundred percent of firearm deaths were determined by the teams to be preventable.
- Substance and alcohol abuse were identified as preventable factors in 21 deaths (71percent).
- The majority of firearm deaths (68 percent) occurred in children 15 through 17 years of age (n=19).
- Eighteen of the 28 children who died from firearms were White, non-Hispanic children.

Disparities

- Deaths continued to be disproportionately higher among some race/ethnicities in Arizona during 2015 and varied by cause and/or manner of death.
- Hispanic child deaths were overrepresented in deaths due to natural causes and the sub-category prematurity.

- African American children were disproportionately more likely to die from natural causes, including prematurity, unintentional injuries such as motor vehicle crashes and drowning, SUID, maltreatment-related deaths and homicide.
- American Indian children were disproportionately more likely to die from natural causes, including prematurity, unintentional injuries such as motor vehicle crashes, SUID, maltreatment, and suicides.
- White, non-Hispanic children comprised higher percentages of suicides, drowning and firearm deaths.

Future Actions for Prevention

The following are a summary of the overarching prevention recommendations found in the report:

- Promote public awareness of the importance of healthy behaviors and women's overall health prior to pregnancy in order to prevent pregnancy complications and improve the health of women and their future children.
- Promote safe sleep practices and provide services and education to new parents. This may include public service announcements for Safe Sleep education, safe breastfeeding/sleep practices and co- sleeping education.
- Support and implement community suicide prevention and awareness programs, such as Mental Health First Aid, that train community members, teachers, families and students how to identify and address depression, bullying, and related behaviors that can lead to suicide.
- Promote community and family awareness about drowning risks through public awareness campaigns that address the need for age-appropriate supervision of infants and children near water and barriers to young children's access to pools.
- Support sufficient funding for behavioral health and substance abuse assessment and treatment services for children, youth and their families and drug prevention education and awareness programs in Arizona.

Glossary

ADES - Arizona Department of Economic Security

ADCS - Arizona Department of Child Safety (formerly child protective services under Arizona Department of Economic Security (ADES))

ADHS - Arizona Department of Health Services

Cause of death – The illness, disease or injury responsible for the death. Examples of natural causes include heart defects, asthma and cancer. Examples of injury-related causes include blunt impact, burns and drowning.

CFR Data Form - A standardized form, approved by the State CFR Team, required for collecting data on all child fatality reviews.

CFR State Program - Established in the ADHS, provides administrative and clerical support to the State Team; provides training and technical assistance to Local Teams; and develops and maintains the CFR data program.

Confidentiality Statement - A form, which must be signed by all review process participants, that includes statute information regarding confidentiality of data reviewed by local child fatality teams.

Drowning death- Child dies from an accidental or intentional submersion in a body of water.

Firearm-related death – Death caused by an injury resulting from the penetrating force of a bullet or other projectile shot from a powder-charged gun.

Fire/flame death – Death caused by injury from severe exposure to flames or heat that leads to tissue damage or from smoke inhalation to the upper airway, lower airway or lungs.

Home-safety related death – Home safety-related deaths are unintentional or undetermined deaths that occur in or around the home environment (e.g. bedroom, driveway, and yard).

Homicide – Death resulting from injuries inflicted by another person with the intent to cause fear, harm or death.

Infant – A child younger than one year of age.

Intentional injury – Injury resulting from the intentional use of force or purposeful action against oneself or others. Intentional injuries include interpersonal acts of violence intended to

cause harm, criminal negligence or neglect (e.g., homicide) and self-directed behavior with intent to kill oneself (e.g., suicide).

Local CFR Team - A multi-disciplinary team authorized by the State CFR Team to conduct reviews of child deaths within a specific area, i.e. county, reservation or other geographic area.

Maltreatment – An act of physical abuse or neglect against a child (please see the Technical Appendix and definitions for physical abuse, neglect, and perpetrator).

Manner of death – The circumstances of the death as determined by postmortem examination, death scene investigation, police reports, medical records, or other reports. Manner of death categories include: natural, accident (e.g., unintentional), homicide (e.g., intentional), suicide (e.g., intentional), therapeutic complication and undetermined. In this report, manner is used interchangeably with "intent" or "type."

Motor vehicle crash-related death – Death caused by injuries from a motor-vehicle incident, including injuries to motor vehicle occupant(s), pedestrian(s), pedal cyclist(s) or other person.

Neglect- This is defined as the failure to provide appropriate and safe supervision, food, clothing, shelter, and/or medical care when this causes or contributes to the death of the child.

Perpetrator- Individual identified as possible perpetrator of physical, sexual or emotional abuse, or neglect. Caregiver may include individual providing supervision of child including parent's boyfriend/girlfriend, friend, neighbor, child care provider, or other household member.

Physical abuse- This means the infliction of physical harm whether or not the inflictor planned to carry out the act or inflicted harm. The abuse may have occurred on or around the time of death, but also will include any abuse that occurred previously if that abuse contributed to the child's death. **NOTE: Shooting deaths by a parent, guardian or caregiver will also be identified as this type of maltreatment.**

Prematurity death - A death that was due to a premature birth (less than 37-week gestation).

Preventable death - A child's death is considered to be preventable if the community or an individual could have done something that would have changed the circumstances leading to the child's death. A death is preventable if reasonable medical, educational, social, legal or psychological intervention could have prevented the death from occurring. The community, family and individual's actions (or inactions) should be considered in making this determination.

Record Request Forms - A form required to request records for the purpose of conducting a team review.

Sleep-related death – A unique grouping of infant injury deaths inclusive of select injury causes (unintentional suffocation in bed, unspecified threat to breathing, and undetermined causes) in which the infant was last known to be asleep when last seen alive (see Technical Appendix).

Substance use – The CFR program defines substance use as associated with a child's death if the child, the child's parent, caretaker and/or if the person responsible for the child, during or about the time of the incident leading to the death, used or abused substances, including illegal drugs, prescription drugs and/or alcohol.

Suffocation/Asphyxia death – Death resulting from inhalation, aspiration or ingestion of food or other object that blocks the airway or causes suffocation; intentional or accidental mechanical suffocation, including hanging, strangulation or lack of air in a closed place.

State CFR Team - Established by A.R.S. 36-3501 et seq., the State CFR Team provides oversight to Local CFR teams, they prepare an annual report of review findings, and develop recommendations to reduce preventable child deaths.

Suicide – Death from self-directed intentional behavior where the intent is to die as a consequence of that behavior.

Sudden Unexpected Infant Death (SUID) – SUID is defined as the death of a healthy infant who is not initially found to have any underlying medical condition that could have caused their death. It includes the deaths that might have previously been categorized as "crib deaths" if the death occurred during sleep, however not all of these deaths are sleep-related. Many of these SUIDs are due to suffocation and unsafe sleep environments.[1]

Undetermined – Deaths that the medical examiner is unable to decide whether the manner of death was natural, accident, homicide or suicide. A death may be listed as undetermined because information is lacking, incomplete or conflicting. In some cases, a death is listed as undetermined because it is not clear if it was an intentional injury or an unintentional injury. For example, it may not be clear when a firearm death is due to an accident, suicide or homicide.

Unintentional injury – This is when an injury occurred where there was no intent to cause harm or death; an injury that was not intended to take place. This is also often referred to as an "accident."

[1] See the Technical Appendix for further explanation of SUIDs and its subcategories.

Introduction

Injuries and preventable medical conditions are the leading causes of death among children in Arizona and the United States. Most injuries, unlike diseases do not strike randomly and are therefore predictable and preventable. Infants are injured most often by suffocation, such as an unsafe sleep environment; toddlers are more likely to drown and older children are more vulnerable to traffic injuries. These risk factors allow certain injuries to be anticipated and then prevented if the appropriate protective factors are in place.

The Arizona Child Fatality Review (CFR) Program was established in order to review factors in a child's death and determine ways to reduce or eliminate any identified preventable fatalities. Legislation passed in 1993 (A.R.S. § 36-342, 36- 3501-4) authorizing the creation of the CFR Program. Data collection and case reviews began in 1994. Since 2005, the program has reviewed the death of every child in the state.

This report provides comprehensive review of fatalities among children and youth birth through 17 years of age occurring in Arizona. Descriptive statistics and trend analysis are used to present summary information about cases as well as the leading causes under each manner of death by factors such as age, gender and race/ethnicity. Demographic and prevention information represented in the report are used to help broadly inform public health initiatives and the community. Recommendations for prevention are decided upon by both State and local review teams based upon the information collected and reviewed on each child death.

Conducting a Case Review

According to the National Center for Child Death Review, there are six steps to a quality review of a child's death:

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

Methods

Arizona has 11 Local County CFR Teams who complete reviews at the county level. Second level reviews of SUID and Maltreatment Deaths are done at the state level by committees of the State Team. The review process begins when a child under 18 years-old dies and the State CFR program sends a copy of their death certificate to the local CFR team in the deceased child's county of residence. If the child is not a resident of Arizona, the local team in the county where the death occurs will conduct the

review. These teams are located throughout the state and must include local representatives from the ADCS, 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.[2] Information collected during the review is then entered into the National Child Death Review Database. The resulting dataset is used to produce the statistics found in this annual report.

Descriptive statistics are used in the report to present summary information about cases, as well as the leading causes of death by manner of death by age, gender and race/ethnicity. Frequencies and cross-tabulations are shown throughout the report. Since most of the counts are small, tests for statistical significance are not done. Rather the demographic and prevention information represented in the report is primarily used to help broadly inform public health initiatives and the community.

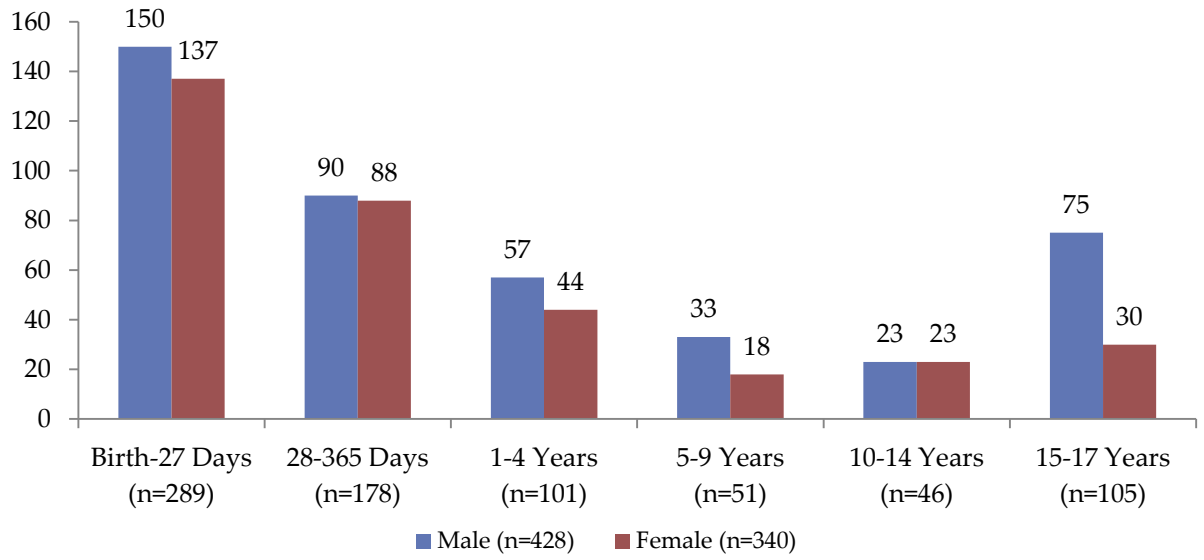
In Arizona, the cause of death refers to the injury or medical condition that resulted in death (e.g. firearm-related injury, pneumonia, cancer). Manners of death include natural (e.g., cancer), accident (e.g., unintentional car crash), homicide (e.g., assault), suicide (e.g., self-inflicted intentional firearm injury) and undetermined. 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.

[2] For a full list of participants see the Technical Appendix.

Demographics

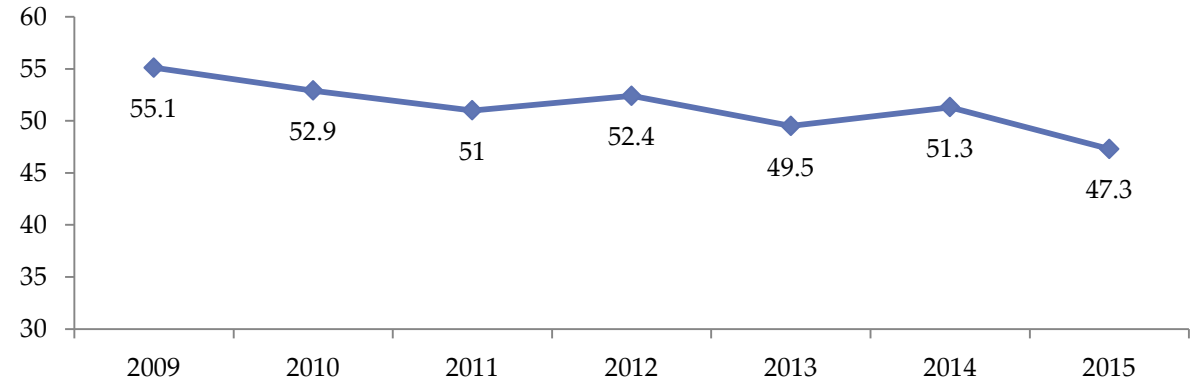
During 2015, there were 768 fatalities among children younger than 18 years of age in Arizona, a decrease from the 834 deaths in 2014. Males accounted for 56 percent of deaths (n=428) and females comprised the remaining 44 percent (n=340) (Figure 1).

Figure 1. Number of Deaths among Children by Age Group and Sex, Arizona, 2015 (n=768)



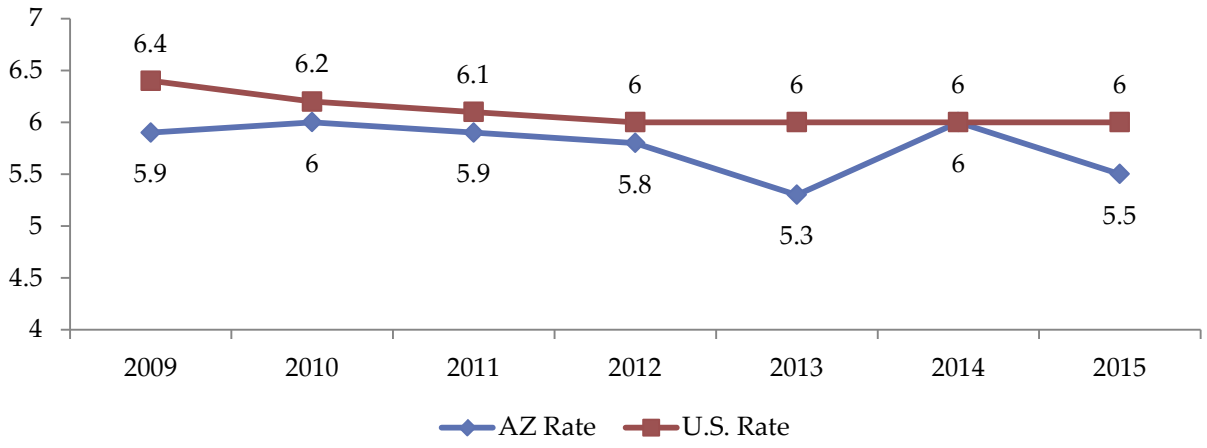
Arizona's child mortality rate showed an eight percent decrease from 2014 to 2015 (from 51.3 in 2014 to 47.3 in 2015) (Figure 2). The rate has decreased fourteen percent overall since 2009, from 55.1 deaths per 100,000 children in 2009 to 47.3 deaths per 100,000 children in 2015.

Figure 2. Mortality Rates per 100,000 Population among Children 0 through 17 year olds, Arizona, 2009-2015[3]



From 2009 to 2015 Arizona child mortality rates decreased in every age group. The infant mortality rate decreased eight percent from 6.0 deaths per 1,000 live births in 2014 to 5.5 deaths per 1,000 live births in 2015. Figure 3 illustrates Arizona's infant mortality rate compared to the U.S. mortality rate from 2009-2015. Arizona consistently has had lower infant mortality rates than the U.S. except in 2014.

Figure 3. Infant Mortality Rates per 1,000 Live Births, Arizona & U.S., 2009-2015



[3] Note that for all rate charts throughout the report that there was a change in the calculation for population denominators in 2014. See the Appendix of Population Denominators for Arizona Children for further information.

In 2015, the mortality rates for children 1-4 years of age and 15-17 years of age increased while children aged 10-14 years saw the most significant decrease in mortality rates (36 percent) from 15.6 deaths per 100,000 population in 2009 to 10.0 deaths per 100,000 population in 2015 (Figure 4).

Figure 4. Mortality Rates per 100,000 Population among Children by Age Group, 1 through 17 year olds, Arizona, 2009-2015[4]

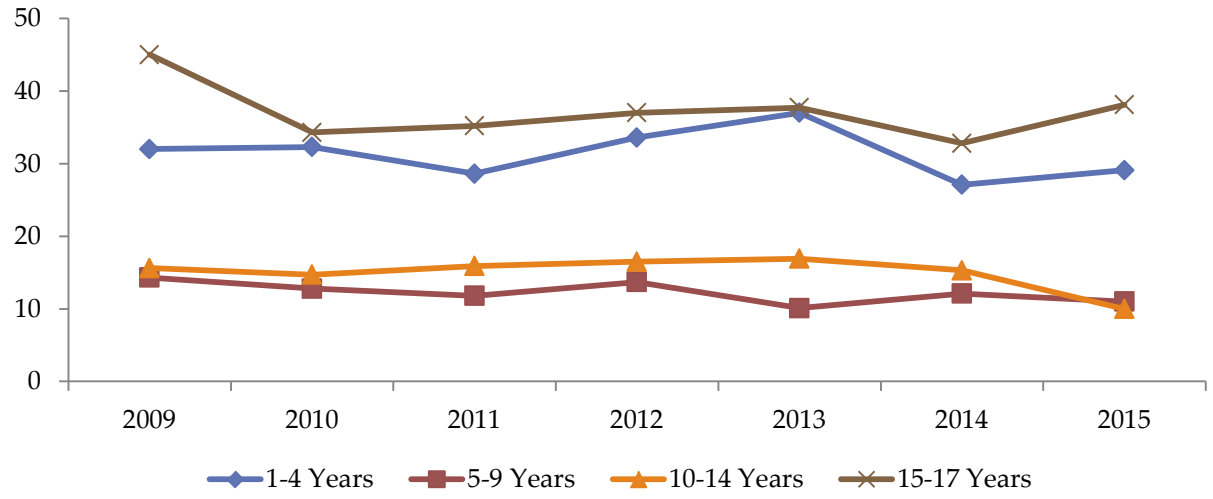
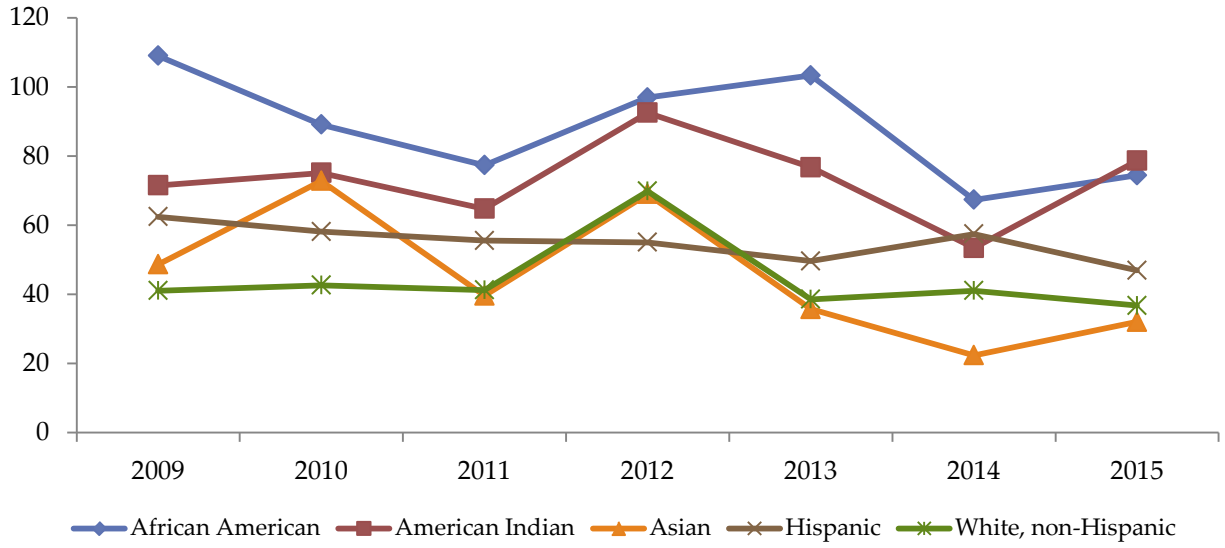


Figure 5 shows the child mortality rates for the last six years by race and ethnicity. While there is some yearly fluctuation of the rates within each of the five categories, the graph illustrates that African American and American Indian children consistently maintain higher rates of death compared to other races/ethnicities.

[4] Mortality rates for children less than one are calculated differently and can be seen in Figure 3.

Though the graph below indicates the rates for African American and American Indian children have decreased significantly from 2013 to 2014, the population estimate methodology changed in 2014 and therefore changed the denominators used to calculate the mortality rates. The change in the race/ethnicity population denominators may have contributed to the increases in White, non-Hispanic and Hispanic mortality rates between 2013 and 2014 as well (see table 70 in the appendix for population denominators by race/ethnicity).

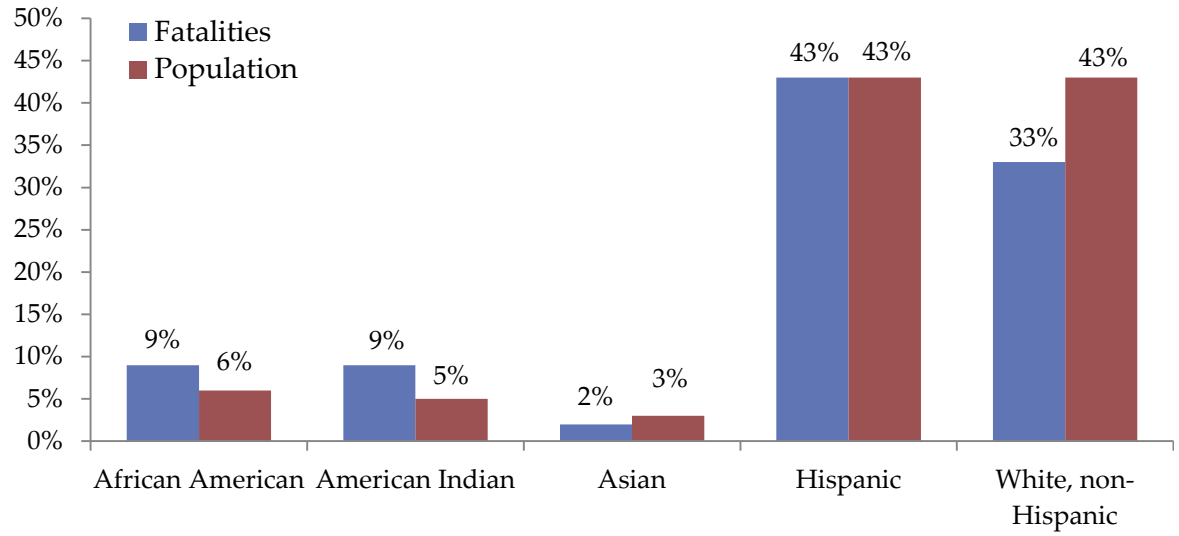
Figure 5. Mortality Rates among Children by Race/Ethnicity, per 100,000 Population, Arizona, 2009-2015



African American children comprised six percent of the Arizona child population in 2015 but made up nine percent of all child fatalities. American Indian children comprised nine percent of the total fatalities in 2015 but only made up five percent of the total child population (Figure 6).

Though White, non-Hispanic children made up a significantly lower percentage of deaths than the percentage of the population they represent, there are some categories in which they were overrepresented compared to other race/ethnicities. Each section heading includes disparities information by race/ethnicity and gender.

Figure 6. Percentage of Deaths among Children by Race/Ethnicity Compared to Population, Arizona, 2015 (n=738)[5]



Preventable Deaths

The main purpose of the CFR program is to identify preventable factors in a child's death. Throughout the report the term "preventable death" will be used. Each multi-disciplinary team is made up of professionals who review the circumstances of a child's death using records ranging from autopsies to law enforcement reports. The team then determines if there were any preventable factors present prior to the death. They used one of the following three labels to determine preventability; 1) Yes, probably 2) No, probably not 3) Team could not determine. A determination is based on the program's operational definition of preventability in a child's death.

A child's death is considered to be preventable if the community (education, legislation, etc.) or an individual could reasonably have done something that would have changed the circumstances that led to the child's death.

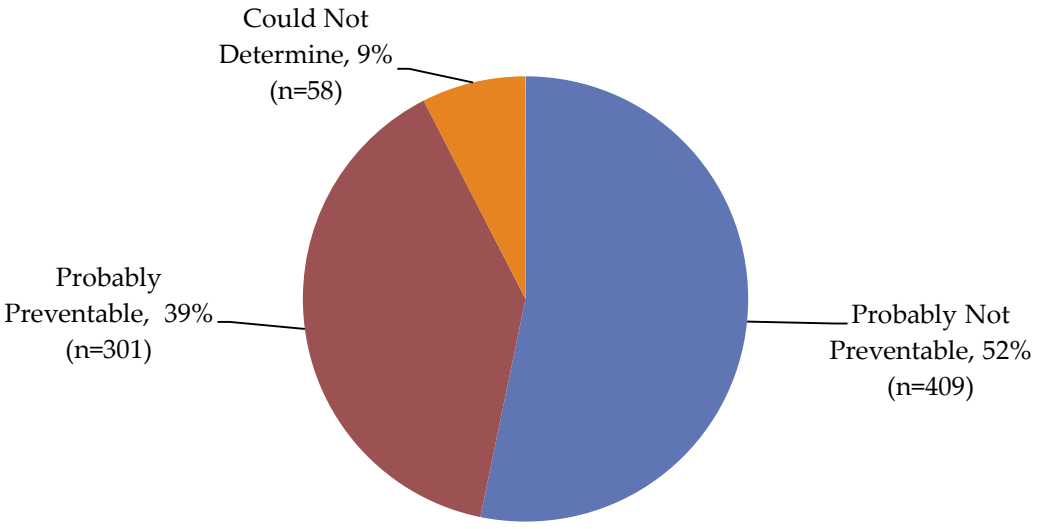
"Yes, probably," means that some circumstance or factor related to the death could probably have been prevented. "No, probably not" indicates that everything reasonable was most likely done to prevent the death, but the child would still have died. A designation of "Team could not determine" means that there was insufficient information for the team to decide upon preventability.

[5] Does not include the 32 from the category for 2 or more races.

When discussing all deaths, the report is referring to the total 768 child deaths that took place in 2015. When the text refers to preventable deaths these are the fatalities that the review teams deemed to be preventable. The majority of the data discussed in this report are based on those fatalities seen as preventable by the teams. This is important so that efforts are targeted to the areas where prevention initiatives will be most effective.

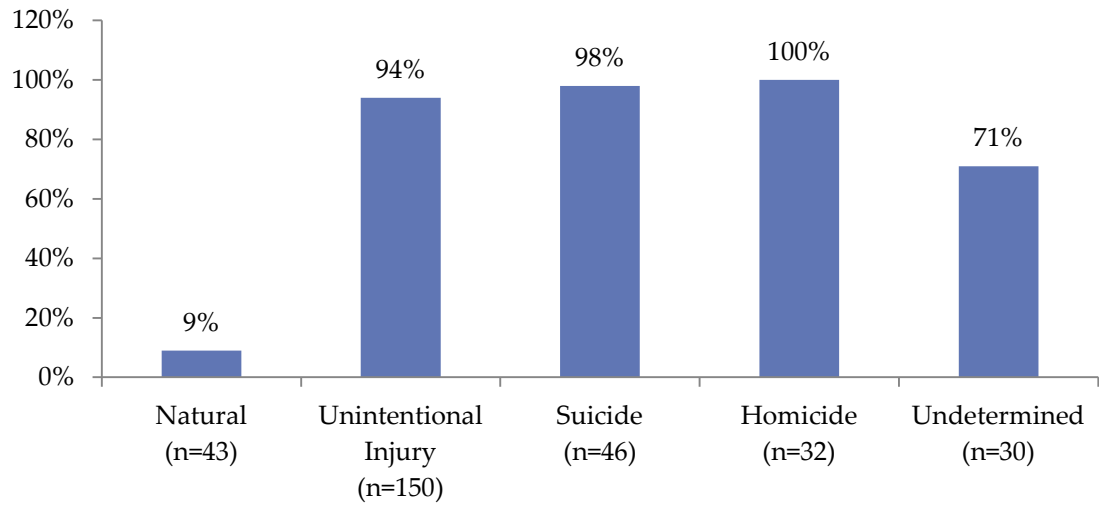
In 2015, CFR teams determined 301 child deaths were probably preventable (39 percent), 409 child deaths were probably not preventable (52 percent), and could not determine the preventability in 58 deaths (9 percent) (Figure 7).

Figure 7. Number and Percentage of Deaths among Children by Preventability, Arizona, 2015 (n=768)



CFR teams determined 94 percent of the unintentional injury deaths were preventable (n=150), 100 percent of homicides were preventable (n=32), and 98 percent of suicides were preventable (n=46). Only nine percent of natural deaths were determined to have been preventable (n=43) (Figure 8).

Figure 8. Number and Percentage of Preventable Deaths among Children by Manner, Arizona, 2015 (n=301)



Preventability also varied by age group. Neonatal infants (birth through 27 days) had the lowest percentage of preventable deaths (10 percent, n=29). The highest percentage of preventable deaths was among youth between the ages of 15-17 years (73 percent, n=76) and children 1-4 and 10-14 years (57 percent each) (Figure 9).

Figure 9. Percentage of Preventable Deaths among Children by Age Group, Arizona, 2015 (n=301)

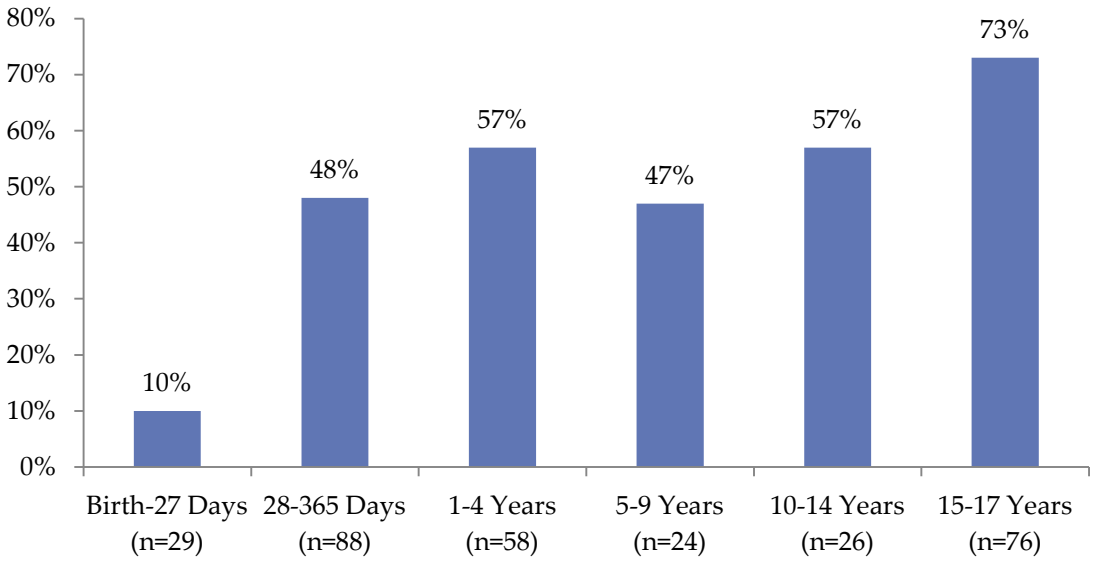


Table 1 shows the leading causes of death by age group in Arizona. Those boxes highlighted in blue are some of the leading causes of preventable injury deaths. Two of the top causes were suffocation which was the most common cause of preventable death in infants and motor vehicle crashes which was the most common cause of preventable deaths among children 5-14 years old. Drowning was the most common cause of preventable death for children aged 1-4 years and firearm injuries were the most common cause of preventable deaths among teens 15-17 years old.

Table 1. Leading Causes of Death by Age Group, Arizona, 2015[6]

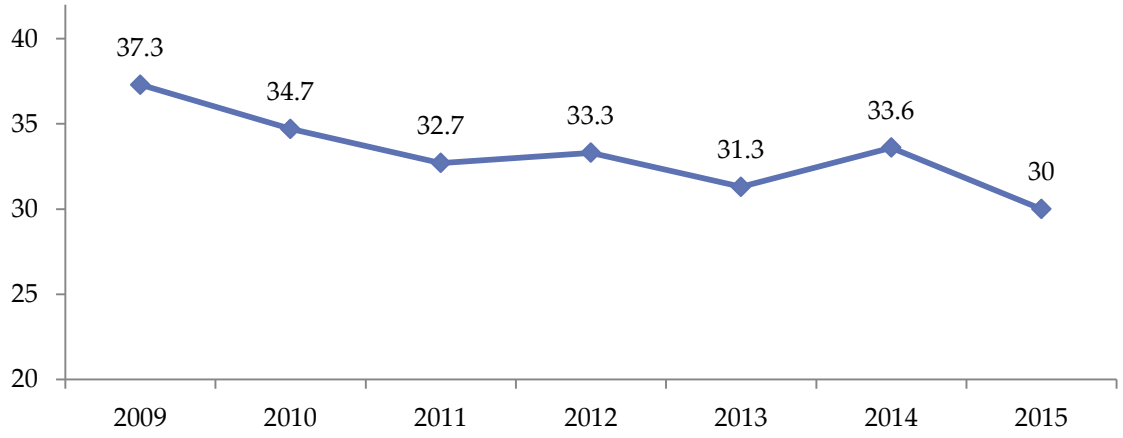
Rank	0-27 Days 38% (n=287)	28-365 Days 23% (n=178)	1-4 Years 13% (n=101	5-9 Years 7% (n=51)	10-14 Years 6% (n=46)	15-17 Years 13% (n=104)	All Deaths 100% (n=768)
1	Prematurity (n=152)	Suffocation (n=51)	Drowning (n=20)	MVC (n=9)	MVC (n=8)	Firearm Injury (n=19)	Prematurity (n=177)
2	Congenital Anomaly (n=67)	Undetermined (n=27)	Cardiovascular (n=18)	Cancer (n=8)	Neurological & Seizure Disorders (n=7)	MVC (n=18)	Congenital Anomaly (n=103)
3	Other Perinatal Condition (n=31)	Prematurity (n=25)	MVC (n=13)	Neurological& Seizure Disorders (n=7)	Firearm Injury (n=6)	Hanging (n=11)	Suffocation (n=65)
4	Neurological & Seizure Disorders (n=13)	Congenital Anomaly (n=23)	Blunt Force Trauma (n=9)	Drowning (n=6)	Hanging (n=<6)	Poisoning (n=11)	MVC and other transport (n=50)
5	Cardiovascular (n=8)	Cardiovascular (n=18)	Cancer (n=9)	Firearm Injury (n=<6)	Cancer (n=<6)	Cancer (n=10)	Undetermined (n=43)

[6] Note that causes highlighted in blue are the most common causes of preventable death in each age group.

Natural Deaths

In Arizona, as well as nationally, deaths classified as natural deaths due to a medical condition account for the largest percentage of child deaths every year. Natural deaths decreased eleven percent from 547 in 2014 to 487 in 2015. Prematurity accounted for 36 percent (n=177) and other medical conditions accounted for the remaining 64 percent of the deaths (n=312). Children less than 1 year were the most affected, comprising 77 percent of total natural deaths (n=373). Hispanic children accounted for 48 percent (n=235) of natural deaths and were overrepresented compared to the 43 percent of the population they compose. White, non-Hispanic children made up 27 percent (n=135) of the deaths. Congenital anomalies, neurological disorders, cancer, cardiovascular diseases and infections were the leading causes of natural death.

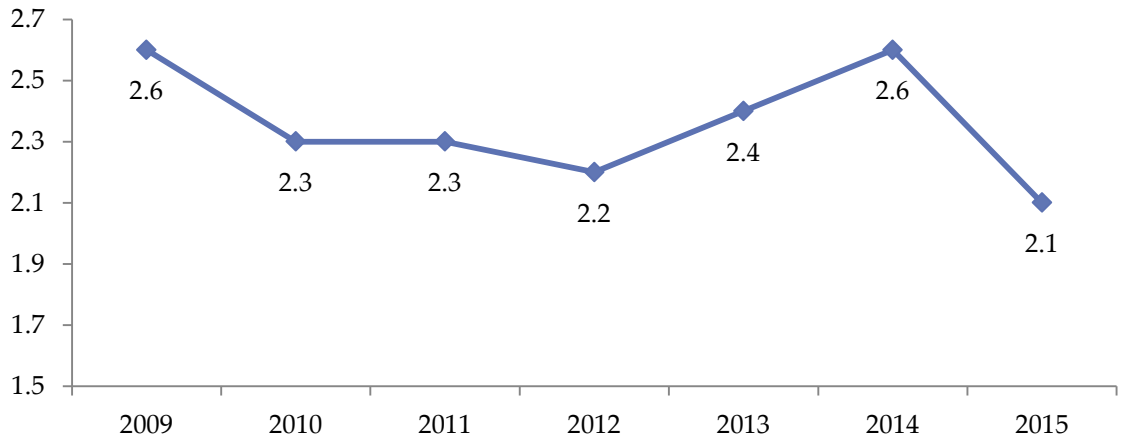
Figure 10. Mortality Rates Due to Natural Causes per 100,000 Children, Arizona, 2009-2015



Prematurity

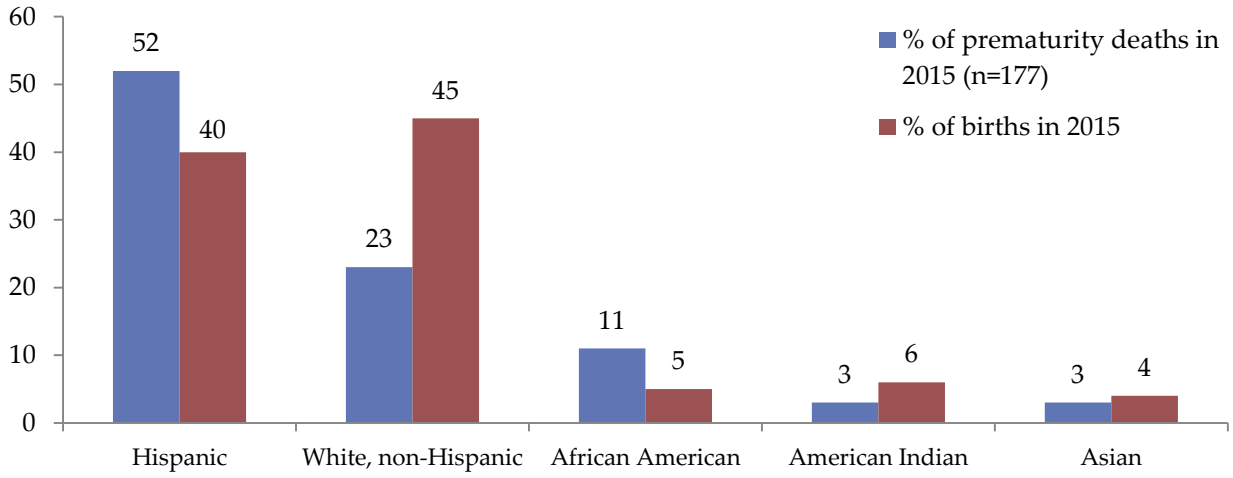
For the purposes of this report, a death is due to prematurity if the infant was born before 37 weeks gestation and with no underlying medical condition besides being premature. Approximately, a quarter of all child deaths in Arizona are due to prematurity, and in 2015, accounted for 23 percent (n=177) of those fatalities, a 20 percent reduction from the 27 percent in 2014 (n=222). The rate of prematurity deaths decreased from 2.6 deaths per 1,000 live births in 2014 to 2.1 deaths per 1,000 live births in 2015 (Figure 11). The prematurity rate has decreased overall by 19 percent since 2009 and is the lowest in Arizona since that same year (Figure 11).

Figure 11. Mortality Rate due to Prematurity (per 1,000 live births), Arizona, 2009-2015



Hispanic children remain at the highest risk in Arizona for prematurity related death. Fifty-two percent of the prematurity related deaths were Hispanic infants (n=92) compared to making up only 40 percent of the total birth population in 2015 (Figure 12).

Figure 12. Percentage of Child Deaths due to Prematurity Compared to Percentage of Births by Race/Ethnicity, Arizona 2015



Prevention

It can be difficult to determine the exact cause of premature birth. The report instead identifies the preventable risk factors that are known to be associated with premature birth for each of these infants. The steady decrease in the prematurity rate supports continued surveillance into the variety of risk and protective factors associated with prematurity. Some of the most common risk factors are medical complications, late prenatal care or the absence of prenatal

care, the overall health of the mother, socioeconomic status, gestational age, substance use or abuse by the mother or partner, mother's age and domestic violence.

The top three risk factors for 2015 included medical complications during pregnancy (84 percent, n=149), preterm labor (65 percent, n=115) and no prenatal care (26 percent, n=46). Eighteen percent of the prematurity deaths were less than 20 weeks of gestation (n=32); 62 percent were between 20 and 25 weeks of gestation (n=110); the remaining 18 percent were between 26 and 34 weeks of gestation (n=32) (Table 2).

Lack of prenatal care is a serious risk factor for premature birth. In twenty-six percent of the prematurity deaths the mother reported that she did not receive any prenatal care (n=46). Fifty-three percent of the mothers whose infants died due to prematurity started prenatal care within the first trimester of pregnancy (n=193), a six percent increase from 47 percent in 2014. In fifteen percent of the prematurity deaths, the mother was 16 through 19 years of age at the time of the birth (n=27). Fifty-five percent of the mothers were 20 through 29 years of age (n=79); 30 percent were 30 through 39 years of age (n=53), and six percent of mothers were 40 through 43 years of age (n=11). In four percent of the cases the age of the mother was unknown (n=7).

Six percent of mothers had less than a high school education (n=11); 46 percent completed high school (n=81); and 27 percent attended at least some college (n=48); six percent were post-graduates (n=10); and for another 15 percent the mother's educational status was unknown (n=27).

Table 2. Risk Factors for Prematurity Deaths, Arizona, 2015

Factor*	Number	Percent
Medical complications during pregnancy	149	84
Preterm labor	115	65
No prenatal care	46	26
Cervical insufficiency	20	11
Chorioamnionitis (bacterial infection)	19	11

*More than one factor may have been identified for each death

It is not always possible to determine if any one of these prematurity deaths was specifically preventable. However, studies have shown that the post neonatal period mortality rate is high for children in the U.S., and babies born to lower income mothers are at highest risk of death.[7] There are several protective factors that can help including good preconception health, early access to prenatal care, and community awareness about good health practices. Strengthening

[7] http://economics.mit.edu/files/9922

these can help reduce incidence and target prevention efforts to improve birth outcomes for groups at higher risk.[8]

Recommendations

For the Arizona public

- In order to have a healthy baby, take care of your health before pregnancy by maintaining a healthy weight, adopting healthy eating habits, don't smoke and avoiding alcohol and other drugs. Seek prenatal care as soon as you become pregnant.
- Assure that all Arizona women of child bearing age have access to medical care by providing educational resources regarding their health insurance options in both English and Spanish for their families.
- The U. S. Public Health Service and CDC recommend that all **women of childbearing age** consume 0.4 mg (400 micrograms) of **folic acid.** Folic acid is a B vitamin. If a woman has enough folic acid in her body at least one month before and during pregnancy, it can help prevent major birth defects of the developing brain and spine (anencephaly and spina bifida). Women can get folic acid from fortified foods or supplements, or a combination of the two, in addition to a varied diet rich in folate.

[8] http://www.amchp.org/Transformation-Station/Documents/AMCHP%20Preconception%20Issue%20Brief.pdf

Unintentional Injury Deaths

Unintentional injury deaths decreased from 180 in 2014 to 160 in 2015. The mortality rate for unintentional injury deaths decreased by 11 percent from 2014 to 2015 but overall the rate has increased by two percent from 2009 to 2015 (Figure 13). Thirty-six percent of unintentional injury deaths occurred in children less than one year of age (n=58). American Indian children composed 11 percent of the unintentional injury deaths but represent five percent of the total birth through17 population in Arizona (n=17). African American children were also disproportionately represented, totaling eight percent of the deaths but comprising six percent of the child population. There were 90 boys who died from an unintentional injury and 70 girls. The leading causes of unintentional injury deaths are shown in Figure 14.

Figure 13. Unintentional Injury-Related Mortality Rates per 100,000 Children, Arizona, 2009-2015

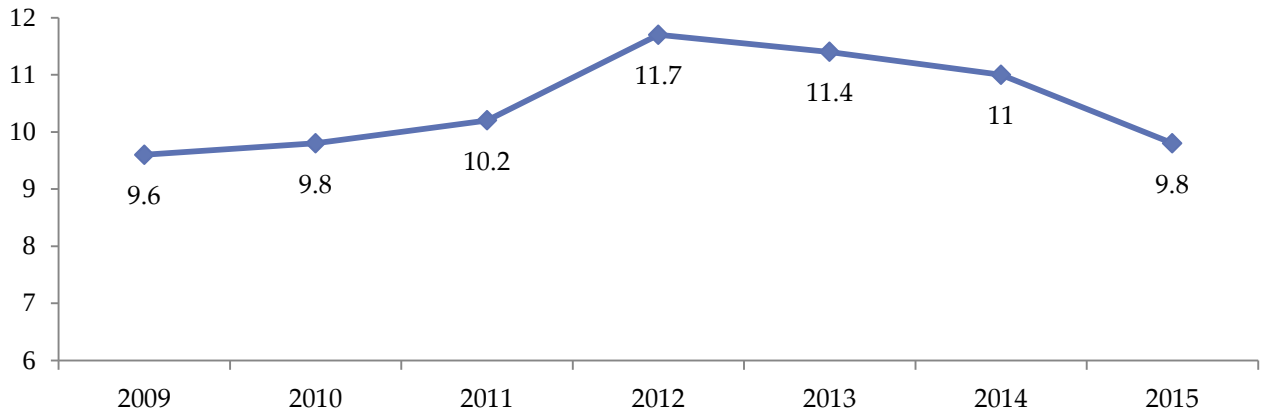
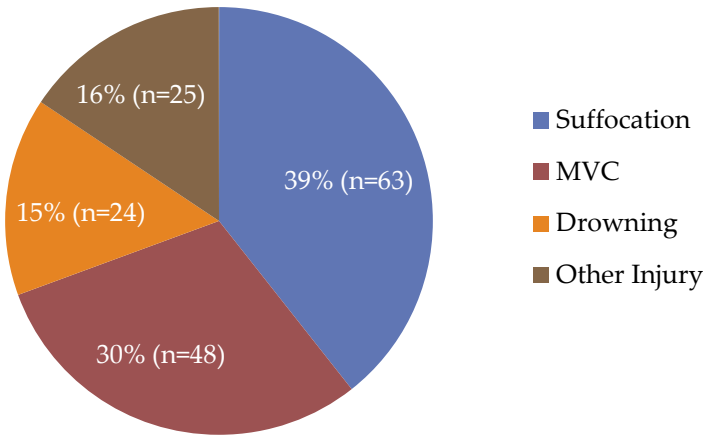


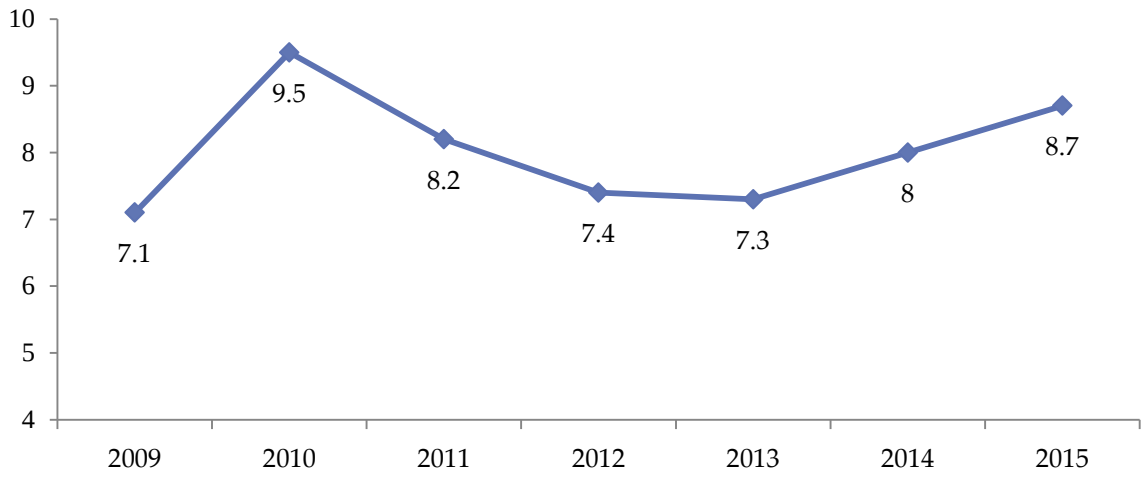
Figure 14. Leading Causes of Unintentional injury deaths for Children 0-17 Years, Arizona, 2015



Home-Safety Related Deaths

Home safety-related deaths are unintentional or undetermined deaths that occur in or around the home environment (e.g. bedroom, driveway, and yard). Although other deaths due to suicide, natural causes or homicide may also occur in the home environment, these categories are not included in the home-safety related deaths. Eighteen percent (n=142) of all Arizona child fatalities in 2015 were classified as home-safety related. Although the numbers of deaths have decreased since 2010, the rate has increased by 23 percent since 2009 and nine percent since 2014 (Figure 15). It should be mentioned that the methodology for determining home safety-related deaths changed since 2014 and is the reason for the increase in the number of deaths in 2015. Several variables were included in the 2015 analysis that were not included in previous reports, such as motor vehicle-related injuries that occurred on the sidewalk or driveway near the child's home or other residence.

Figure 15. Mortality Rate due to Home Safety-Related Deaths per 100,000 Children, Ages Birth through17 Years, Arizona, 2009-2015

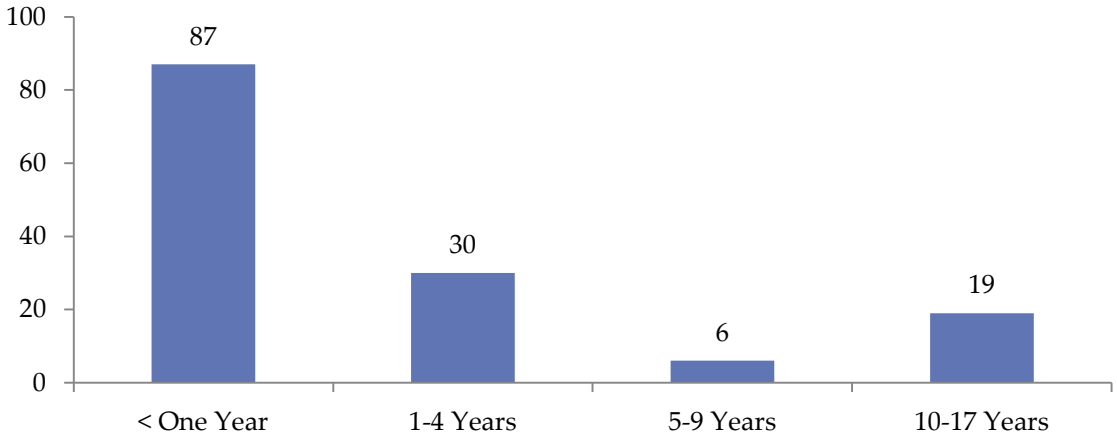


Prevention

In 2015, a child's race, ethnicity and age were the main risk factors associated with an increased risk for a Home-Safety Related death. Eighty-two percent of children who died in this category were less than five years old (n=117) and more than half of the deaths were infants less than one year (61 percent, n=87) (Figure 16). Fifty-one percent (n=73) were boys and 49 percent were girls (n=69). Forty-one percent were White, non-Hispanic (n=58) and 36 percent were Hispanic (n=51). African American (n=11) children accounted for eight percent and American Indian

(n=14) accounted for ten percent of the deaths. Twenty-eight percent of these deaths were also classified as maltreatment deaths due to neglect by the child's caretaker (n=39).

Figure 16. Number of Home Safety Related Deaths among Children by Age Group, Arizona, 2015



The most common cause of death in or around the home was suffocation, accounting for 42 percent of fatalities (n=64), followed by 36 undetermined deaths (26 percent) and 13 drowning incidents at home (nine percent) (Table 3).

Table 3. Number and Percentage of Child Deaths In or Around the Home by Cause, Arizona, 2015 (n=142)		
Cause	Number	Percent
Suffocation	64	42
Undetermined	36	26
Drowning	13	9
Poisoning	9	6
MVC	8	6

The most commonly identified preventable factors for home safety-related deaths in infants were unsafe sleep environments (52 percent, n=74), co-sleeping (28 percent, n=39) and lack of supervision (17 percent, n=24) (Table 4).

Table 4. Preventable Factors for Child Deaths In or Around the Home, Arizona, 2015		
Factor*	Number	Percent
Unsafe sleep environment	74	52
Co-Sleeping	39	28
Lack of supervision	24	17
Access to water	9	6
*More than one factor may have been identified for each death		

There are a variety of protective factors that can be employed to reduce these types of deaths. This might include educating families about the dangers of unsafe sleep environments, the importance of placing the child on their back to sleep, explaining the risks of co-sleeping with an adult or child, having proper pool fencing and providing adequate supervision to young children.

Recommendations

For parents and caregivers

Safe sleep environment

- Always place babies on their backs to sleep for every sleep.
- Use a firm sleep surface, such as a mattress in a safety-approved crib, covered by a fitted sheet.
- Have the baby share your room, not your bed. Your baby should not sleep in an adult bed, on a couch, or on a chair alone, with you, or with anyone else.
- Keep soft objects, such as pillows and loose bedding out of your baby's sleep area.
- Do not smoke during pregnancy, and do not smoke or allow smoking around your baby.

General home safety

- Check smoke alarm batteries every six months to make sure they are working.
- Install safety gates to keep children from falling down staircases and window guards or stops to prevent falls from windows.
- Keep all medicine up and away, even medicine you take every day. Be alert to medicine stored in other locations, like pills in purses, vitamins on counters and medicine on nightstands.
- Save the Poison Help line in your phone: 1-800-222-1222. Put the toll-free number for the Poison Control Center into your home and cell phones
- Give young children your full and undivided attention when they are in the bathtub or around water.

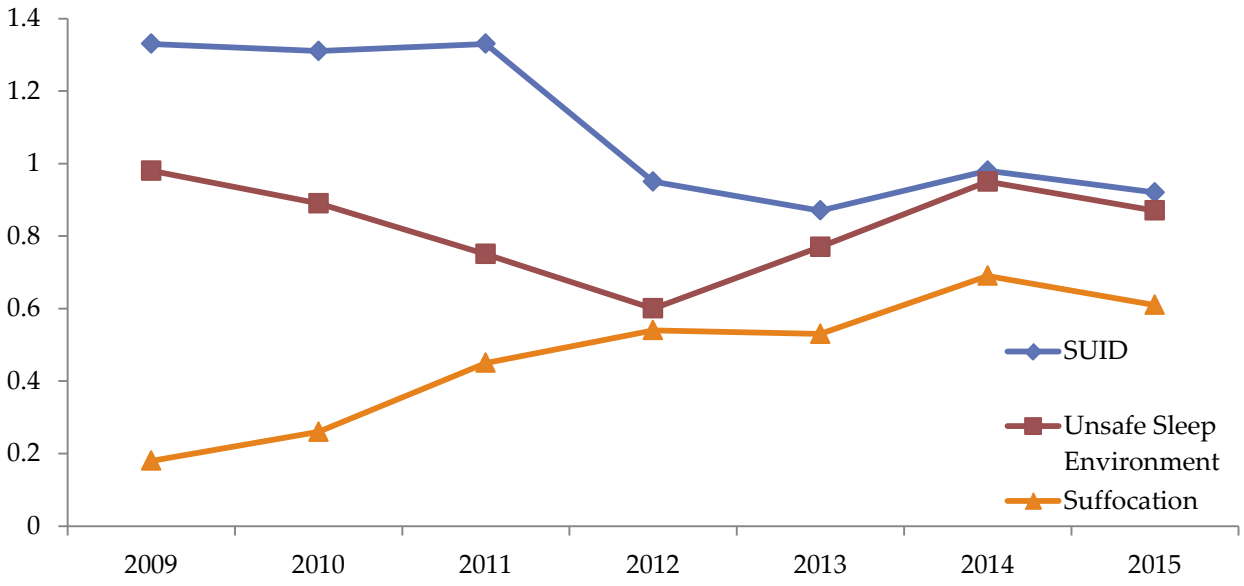
For the Arizona public

- Install a four–sided isolation fence, with self–closing and self–latching gates, around backyard swimming pools. This can help keep children away from the area when they aren't supposed to be swimming. Pool fences should completely separate the house and play area from the pool.
- When children are in or near water (including bathtubs), closely supervise them at all times. Because drowning happens quickly and quietly, adults watching children in or near water should avoid distracting activities like playing cards, reading books, talking on the phone, and using alcohol or drugs.

Sudden Unexpected Infant Death (SUID) and Sleep Related Deaths

SUID is defined as the death of a healthy infant who is not initially found to have any underlying medical condition that could have caused their death. It includes deaths that might have previously been categorized as "crib deaths" if the death occurred during sleep. Many SUIDs are due to suffocation and unsafe sleep environments but not ALL SUID cases are unsafe-sleep related.[9] SUID mortality rates have declined by 31 percent since 2009 and the number of SUIDs decreased from 85 in 2014 to 78 in 2015. Hispanic children accounted for 42 percent of the deaths (n=32), White, non-Hispanic children for 40 percent (n=31), and African Americans for nine percent (n=7).

Figure 17. Mortality Rates due to Sudden Unexpected Infant Death, Unsafe Sleep Environments, and Suffocation per 1,000 Live Births, Arizona, 2009-2015*



*These mortality rates are number of deaths per 1,000 live births.

Prevention

Local CFR teams determined 71 of these 78 SUIDs were preventable (91 percent). The most commonly identified cause of SUID was suffocation (67 percent, n=52) (Table 5). The major risk factors in many SUIDs are situations where an infant is placed to sleep on his/her stomach or side; on an unsafe sleeping surface, such as an adult mattress, couch, or chair; soft objects,

[9] Please see the Methodological Appendix for an expanded definition of SUID and its subcategories.

pillows, or loose coverings in sleep environment; in an overheated environment; has been exposed to cigarette smoke either prenatally or postnatal; and co-sleeping with an adult or other child.

Table 5. Number and Percentage of Sudden Unexpected Infant Deaths by Cause, Arizona, 2015 (n=78)		
Cause	Number	Percent
Suffocation	52	67
Undetermined	26	33

An unsafe sleep environment, including placement of infant in an unsafe sleep position, was associated with the majority of SUID deaths in Arizona; 74 of the 78 SUID fatalities in 2015 (95 percent) (Table 6). Thirty-six infants died while co-sleeping (bed sharing with adults and/or other children) and in ten of these deaths there was no crib in the home. Thirty-one infants died while sleeping in an adult bed, nine died sleeping on a couch or futon and 25 died while sleeping on their side or stomach. Sixty-seven of the 74 unsafe sleep-related deaths were determined to be preventable; the teams could not determine the preventability in seven deaths.

Table 6. Preventable Factors for Sudden Unexpected Infant Deaths, Arizona, 2015		
Factor*	Number	Percent
Unsafe sleep environment	74	95
Co-sleeping	36	46
*More than one factor may have been identified for each death		

These deaths could have potentially been prevented by using safe sleep practices. These include placing young infants to sleep on their back instead of on their side or stomach in a crib, always using a firm sleep surface, keeping soft objects and loose bedding out of the crib. Other measures that are known to be associated with a decreased risk for SUID include breast-feeding, and placing an infant to sleep in a crib in the same room with the caretaker. Since exposure to cigarette smoke has been associated with SUID, reducing smoking exposure can also help reduce the risk of SUID. Education and safety information that addresses these factors in a culturally appropriate way should be provided to all parents in order to minimize the risk of SUID.

Recommendations

For the Arizona public

- Parents and other caregivers should always place babies to sleep alone on their backs, in a crib that does not have toys or extra bedding.

- Parents should make sure all those who care for their infant understand safe sleep practices (use of a crib, avoidance of co-sleeping, and positioning infants on their back to sleep).
- Early childhood home visitors should educate families about and reinforce safe sleep practices.
- Encourage all health care providers and Arizona hospitals caring for infants to model safe-sleep practices including placing infants on their back to sleep and having cribs free of soft objects and loose bedding.
- Encourage all health care providers working with parents to discuss unsafe sleep practices and risk factors at every visit.
- Always return the infant back to their safe sleep environment after feeding.
- Arizona Perinatal Trust should continue to promote safe sleep guidelines in birthing hospitals.
- Child care providers should promote and enforce safe sleep practices.

For elected officials and public administrators

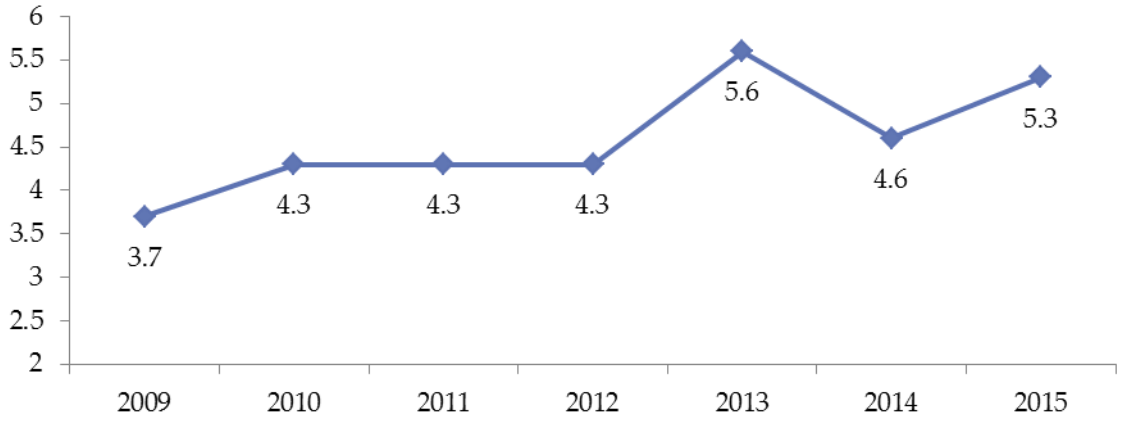
- Support public awareness campaigns and distribution of resources regarding the risk factors associated with sudden unexplained and sleep related infant deaths.
- Support and expand the use of the Arizona Unexpected Infant Death Investigation Checklist by Law enforcement, first responders, and medical investigators through regular training.
- ADHS continue to reinforce safe sleep practices.

Maltreatment Deaths (Deaths due to Child Abuse and Neglect)

Eleven percent (n= 87) of Arizona child fatalities in 2015 were due to maltreatment. From 2014 to 2015 the mortality rate due to maltreatment increased 15 percent from 4.6 deaths per 100,000 children to 5.3 deaths per 100,000 children as noted in Figure 18. In 2014, 75 children died due to maltreatment compared to 87 in 2015. In 32 percent of the 2015 maltreatment deaths (n=28) child physical abuse such as intentional trauma, suffocation and drowning was caused or contributed to the death. Child neglect caused or contributed to 77 percent of the deaths (n=67). Both child physical abuse and neglect may have been present in a death. It is important to note that while there have been some fluctuations in the rates between the years, the overall mortality rate due to maltreatment has increased by 43 percent since 2009.[10]

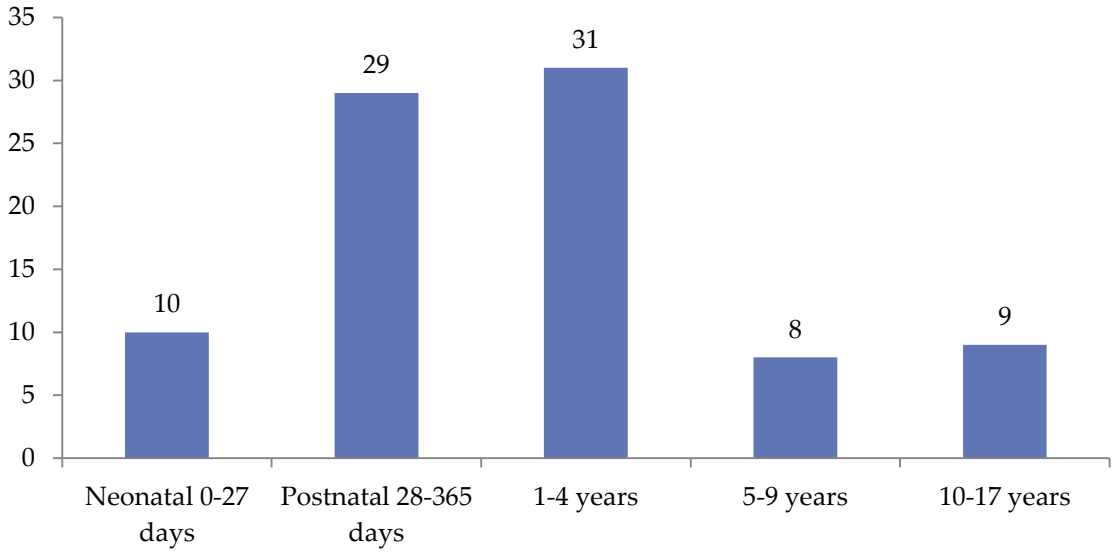
Males represented 49 percent of the maltreatment deaths, (n=43) versus 51 percent among females (n=44). Thirty-six percent of children who died due to maltreatment were Hispanic (n=31); 36 percent were White, non-Hispanic (n=31); 15 percent were American Indian (n=13) and 13 percent were African American (n=11). Eighty percent of the children who died from maltreatment were less than five years old (n=70).

Figure 18. Mortality Rates due to Maltreatment per 100,000 Children, Arizona, 2009-2015



[10] Please see the Technical Appendix for a full explanation and definition on maltreatment.

Figure 19. Number of Maltreatment Deaths among Children by Age Group, Arizona, 2015 (n=87)



The leading manner of death for maltreatment fatalities in Arizona was unintentional injuries. Accidents resulted in 38 unintentional injuries (44 percent, n=38). Homicides comprised 31 percent of the maltreatment deaths (n=27). Sixteen percent of maltreatment deaths were due to a natural manner (n=14) (Figure 20). Examples of maltreatment deaths due to a natural manner of death include prenatal substance use resulting in premature birth or failure to obtain medical care.

Figure 18. Number and Percentage of Maltreatment Deaths among Children by Manner, Arizona, 2015 (n=87)

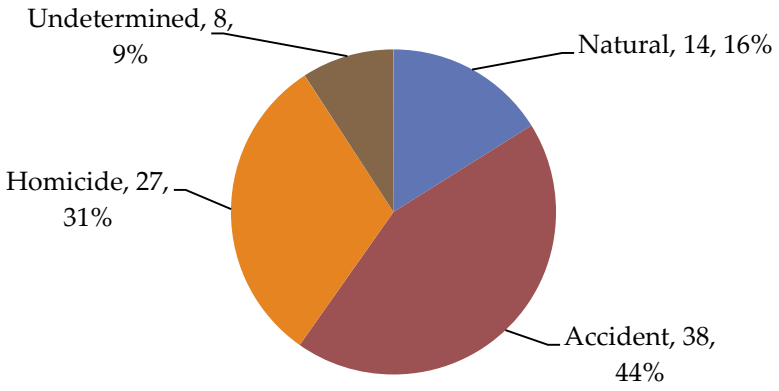


Table 7. Maltreatment Deaths Among Children by Top Four Causes of Death, Arizona, 2015 (n=87)		
Cause	Number	Percent
Suffocation	19	22
Drowning	12	14
MVC	12	14
Blunt/sharp Force Trauma	11	13

Blunt/sharp force trauma, suffocation, motor vehicle crashes and drowning were the leading causes of maltreatment-related deaths among children in Arizona (62 percent, n=54) (Table 7).

The primary perpetrator in 56 percent of maltreatment deaths was the child's mother (n=49). This was followed by 23 percent where the perpetrator was the child's father (n=20) and the mother's partner accounted for seven percent of the deaths (n=6) (Table 8).

Table 8. Number and Percentage of Maltreatment Deaths Among Children by Primary Perpetrator, Arizona, 2015 (n=87)		
Perpetrator	Number	Percent
Mother	49	56
Father	20	23
Mother's Partner	6	7
Other Relative	6	7
Other	6	7

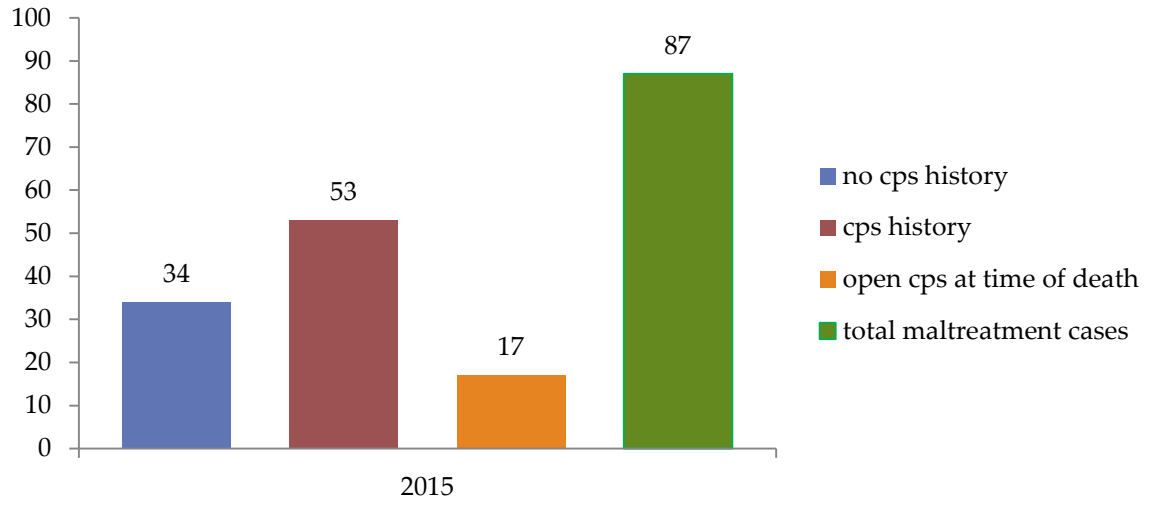
Any Child Protective Services Involvement with Families of Children Who Died Due to Maltreatment

Local CFR teams attempt to obtain records from child protective services (cps) agencies, including ADCS and cps agencies in other jurisdictions, such as tribal authorities and other states. Review teams consider a family as having previous involvement with a cps agency if a cps agency investigated a report of maltreatment for any child in the family prior to the incident leading to the child's death. Unsubstantiated reports of maltreatment are also included in this definition.

In 2015, 53 of the 87 children who died from maltreatment were from families with prior involvement with any cps agency (61 percent). Among the families who had prior involvement with a cps agency, 17 families had an open case with a cps agency at the time of the child's death (32 percent); 34 families had no history of cps agency involvement (39 percent) Figure 21. The number of children from families with prior cps agency involvement increased from 36 in 2014 to 53 in 2015. The number of families with an open cps case at the time of the child's death

also increased from 11 in 2014 to 17 in 2015. Eight of the 87 maltreatment cases involved a Tribal cps agency or involved out-of-state cps agencies.

Figure 19. Maltreatment deaths: involvement with any child protective services agency, Arizona, 2015



Prevention

Child maltreatment is any act or series of acts of commission or omission by a parent or other caregiver (e.g., clergy, coach, and teacher) that results in harm, potential for harm, or threat of harm to a child. There are several modifiable risk factors that exist when a child is at risk for maltreatment. These factors, usually in combination, may involve the parent or caregiver, the family, the child or the environment.[11]

- *Parent or caregiver factors*: personality characteristics and psychological well-being, having a history of maltreatment as a victim and/or perpetrator, history or patterns of substance use/abuse, incorrect attitudes and/or knowledge about caring for a child i.e. adequate nutrition, safe sleep practices and age
- *Family factors*: marital discord, domestic violence, single parenthood, unemployment, financial problems and stress
- *Child factors*: child's age and level of development, disabilities, and problem behavior
- *Environmental factors*: poverty and unemployment, social isolation and lack of social support and community violence

One hundred percent of child maltreatment deaths were determined to have been preventable (n=87). The CFR teams identified preventable factors in each of these deaths. The most common preventable factor was substance use or abuse which was associated with 61 percent (n=53) of the deaths. Alcohol was the most commonly listed involved substance (n=19) followed by

[11] https://www.childwelfare.gov/pubpdfs/2011guide.pdf

methamphetamines (n=17). An unsafe sleep environment contributed to 23 percent of maltreatment deaths (n=20) and lack of motor vehicle restraint use in seven percent of the deaths (n=6) (Table 9). More than one factor may have been identified for each death.

Table 9. Preventable Factors for Maltreatment Deaths Among Children, Arizona, 2015

Factor*	Number	Percent
Substance use	53	61
Unsafe sleep environment	20	23
Lack of proper restraint use in a motor vehicle	6	7
*More than one factor may have been identified for each death		

When a child is at risk for maltreatment there are a number of protective factors that can be strengthened to reduce the risk. These include mentally healthy caregivers, a healthy relationship with a parent or caregiver, parental resilience and strong social connections.

Recommendations

For the Arizona public

- Support sufficient funding for timely behavioral health and substance abuse assessment and treatment services for parents and their children.
- The Arizona legislature should increase funding for childcare assistance programs so that all low-income working families can have access to safe child care for their children.
- The Arizona legislature should ensure there is sufficient funding for the Arizona Department of Child Safety, Juvenile Court System, Attorney General's Office and community based services to effectively prevent and respond to child abuse and neglect.
- Public and community leaders should expand public awareness campaigns and provide free community trainings to promote knowledge and understanding about child abuse and neglect reporting laws, and effective prevention programs such as Safe Sleep, the Protective Factors Framework, Adverse Childhood Experiences, Who Do You Trust with Your Child, Don't Shake a Baby and Prevent Child Abuse America initiatives.
- Communities should support evidenced based programs focused on prevention such as Healthy Families Arizona, Nurse Family Partnership, Triple P-Positive Parent Program, Family Resource Centers, Strengthening Families and Nurturing Parenting.
- Report any suspected abuse or neglect to the Department of Child Safety at 1-888-SOS-CHILD (1-888-767-2445). For professional mandated reporters an online reporting system is available for non-emergency situations. Concerns submitted online will be reviewed within 72 hours of submission. Register for online reporting at: https://dcs.az.gov/services/suspect-abuse-report-it-now
- Home visiting programs should collaborate with law enforcement and child protective services agencies to increase awareness and support for home-visitation programs and child abuse prevention initiatives that assist parents and caregivers.

- Law enforcement agencies and the Arizona Department of Public Safety should collaborate with the Arizona Department of Child Safety and receive training on the recognition of signs and symptoms of maltreatment.

For parents and caregivers

- Report any suspected abuse or neglect by parents or caregivers to the Department of Child Safety at 1-888-SOS-CHILD (1-888-767-2445) and to law enforcement agencies.
- If in need of safe childcare, parents and caregivers can contact these agencies: Arizona Childcare Resource & Referral (1-800-308-9000) or the Association for Supportive Child Care (1-800-535-4599) for assistance. These agencies will match parents seeking childcare with appropriate community resources.

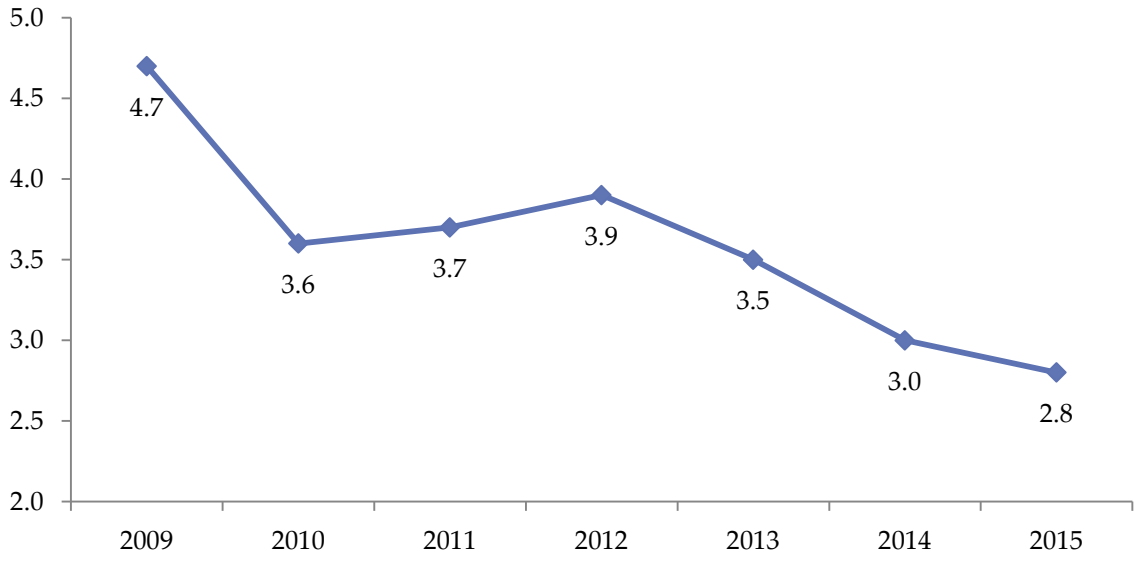
Motor Vehicle Crash and Other Transport Deaths

Deaths due to motor vehicle crashes have decreased since 2009, yet remain one of the leading causes of death for children aged 10 years and older in the United States and accounted for approximately seven percent (n=50) of all child deaths in Arizona. There are a number of risk factors that contribute to these deaths.

- *Age and gender*: males aged 15–19 are at greatest risk, children under 11 are less able to make safe decisions and teens and young adults have the lowest seatbelt use ratings
- *Improperly or unrestrained children*, especially children under five, are at increased risk of severe injury or death in the event of a motor vehicle crash
- Cyclists, motorcyclists or motorcycle passengers not wearing helmets are at greater risk of severe head injury or death
- Substance use/abuse by both children and adults
- Poor supervision
- Excessive speed, distracted and reckless driving including using mobile devices and texting

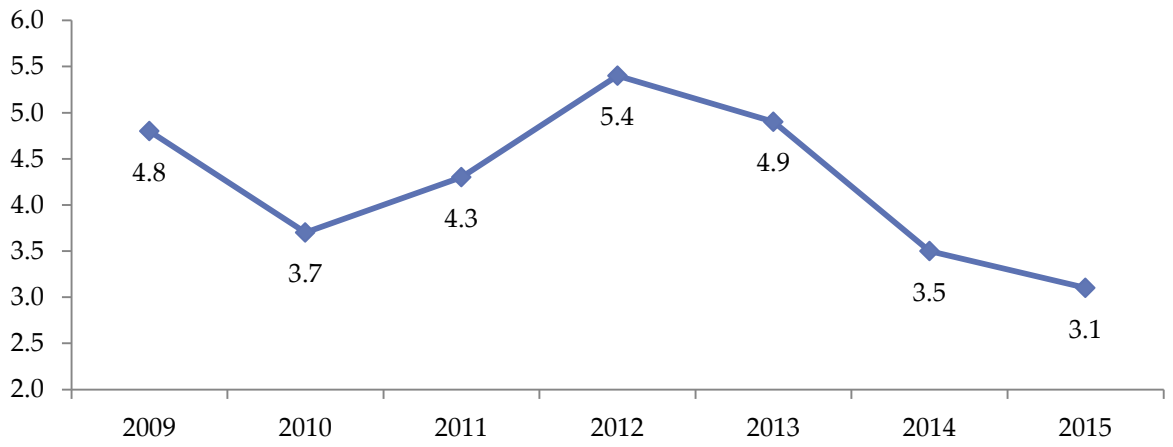
Effective prevention efforts have reduced the overall number of fatalities. Since 2009, the rate of motor vehicle crash (MVC) fatalities alone has been reduced by 40 percent (Figure 22), and the rate of MVC fatalities combined with other transport deaths saw a 35 percent decrease between 2009 and 2015 (Figure 23).[12]

Figure 20. Mortality Rate Due to Motor Vehicle Crashes per 100,000 Children, Arizona, 2009-2015



[12] Other transport accident is defined as any accident involving a device designed primarily for, or used at the time primarily for, conveying persons or good from one place to another. Examples include all-terrain vehicles (ATV) and pedacyclist collisions with motor vehicles.

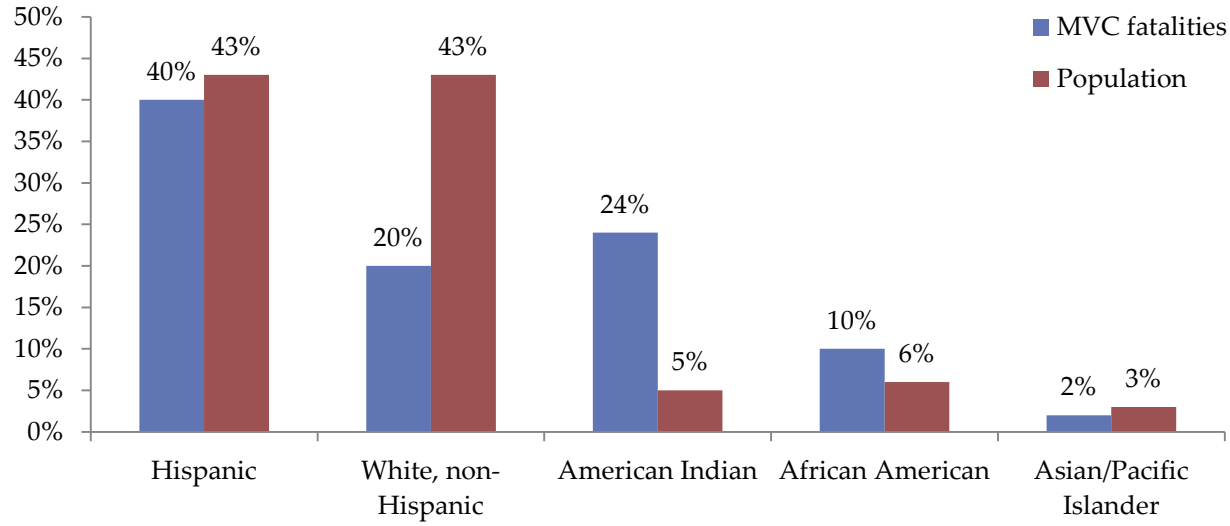
Figure 21. Mortality Rate Due to Motor Vehicle Crashes and Other Transport per 100,000 Children, Arizona, 2009-2015



Prevention

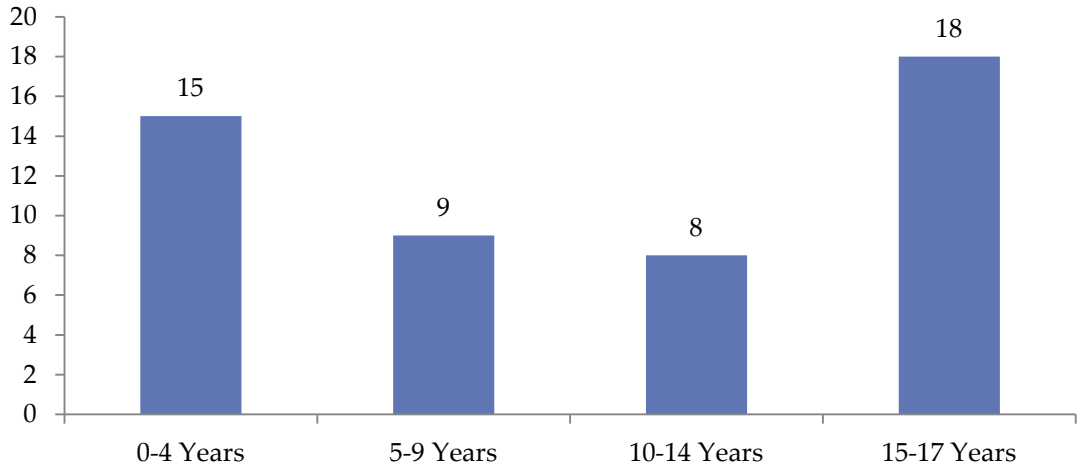
Local CFR teams determined that 96 percent of the 50 MVC and transport fatalities were preventable (n=48). Among these fatalities, certain groups still carry a larger part of the mortality burden and are in need of targeted prevention initiatives. Two of these groups continue to be American Indian and African American children, as they represent a higher percentage of deaths when compared to their percentage of the Arizona child population (Figure 24).

Figure 22. Percentage of Motor Vehicle and Other Transport Deaths by Race/Ethnicity, Compared to Populations, Arizona, 2015



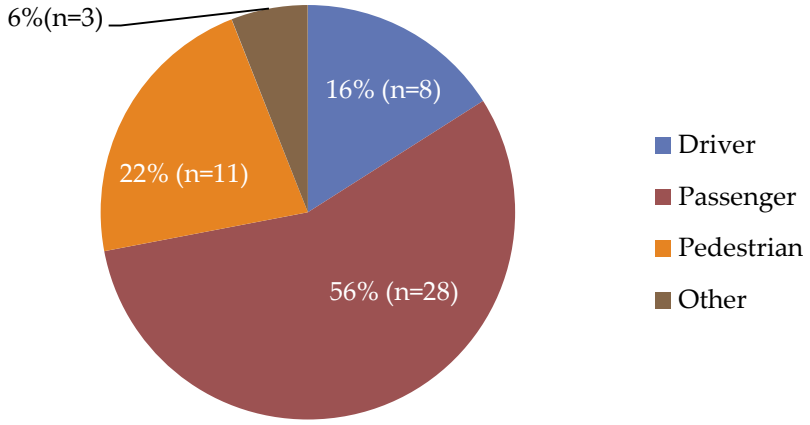
Teenagers 15 through 17 years old constituted more than 36 percent of all MVC and transport fatalities in 2015 (Figure 25). The total number of motor vehicle and transport deaths decreased by 11 percent from 2014 to 2015 and the number of deaths of youths 15 through 17 years decreased from 25 deaths in 2014 to 18 deaths in 2015. The second highest age group were those birth through four years of age accounting for 30 percent of all transport fatalities (n=15), followed by those five through nine years of age amounting to 18 percent of the deaths (n=9).

Figure 23. Number of Motor Vehicle and Other Transport Deaths by Age Group, Arizona, 2015 (n=50)



Of the 50 children who died in motor vehicle crashes and other types of transportation, 28 children were vehicle passengers, 11 children were pedestrians and eight teenagers were vehicle drivers. Among the passenger deaths, 11 children were seated in the vehicle's front seat and 11 children were seated in the back seat. In six child fatalities, the seating position within the vehicle was unknown.

Figure 24. Number and Percentage of Motor Vehicle Crash Deaths by Occupant Position, Arizona, 2015 (n=50)



The highest number of transport related deaths was due to lack of vehicle restraint; additional preventable risk factors associated with transport related deaths in Arizona include speeding, reckless driving, driver inexperience, driver distraction, and substance use (Table 10).

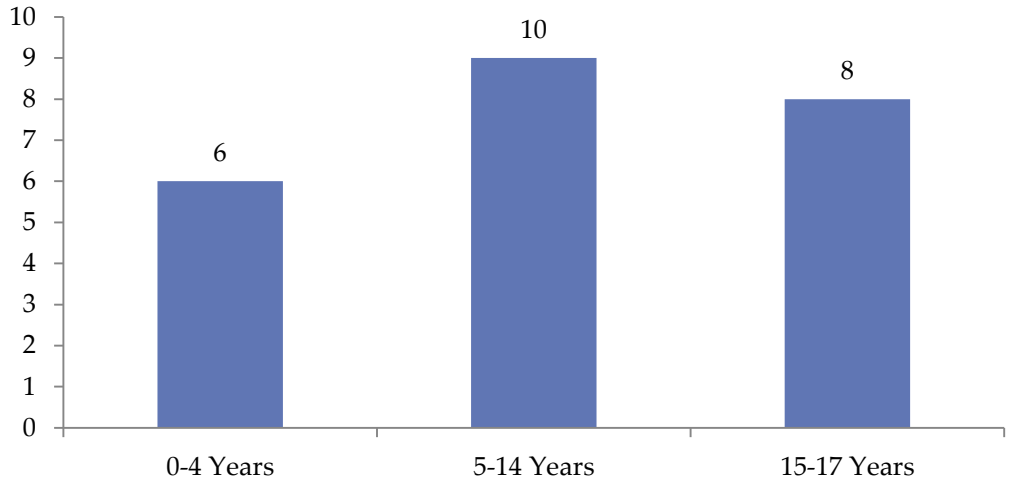
Table 10. Preventable Factors for Transportation-Related Deaths Among Children, Arizona, 2015

Factor*	Number	Percent
Lack of vehicle restraint	24	48
Excessive driving speed	17	34
Reckless driving	15	30
Drugs and/or alcohol	12	24
Driver distraction/ Driver fatigue	11	22
Driver inexperience	9	18
*More than one factor may have been identified for each death		

Each of above factors listed in Table 10 was determined to be 100 percent avoidable. They can be best addressed by strengthening protective factors such as using proper child restraints every time a vehicle is in operation;, wearing helmets, and following passenger safety and established motor vehicle laws. The continuation of targeted awareness and education efforts to the most at risk populations is essential.

Twenty four children were known to have been improperly restrained or unrestrained in vehicles (48 percent) (Figure 27). This indicates that while child safety restraint laws have reduced the number of motor vehicle crash fatalities, further prevention efforts are needed.

Figure 25. Number of Motor Vehicle and Other Transport Deaths with Improper or Unknown Restraint Use by Age Group, Arizona, 2015 (n=24)



Recommendations

For parents and caregivers

- Place children in the appropriate child safety restraints when operating a motor vehicle.
- Model good behavior by always wearing a seatbelt and never operate a vehicle while distracted or under the influence of alcohol or other drugs that impair driving.
- Parents should establish written teenager-parent contracts that place restrictions on the teen driver.

For the elected officials and other public administrators

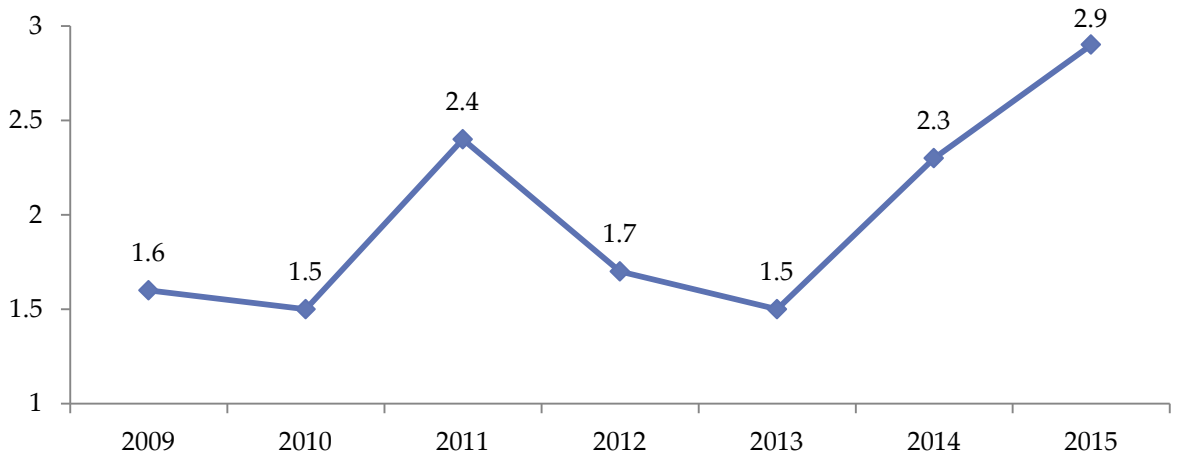
- Enact stricter distracted driving laws to include the prohibition of texting while driving.
- Enact a primary seat belt law to allow law enforcement officers to cite a driver and occupants for not wearing a seat belt in the absence of other traffic violations.
- Strengthen the graduated driver licensing system to build driving skills and experience among new drivers.
- Law enforcement officers should continue rigorous DUI enforcement and educate the community regarding the consequences of driving under the influence of alcohol and/or drugs.
- Promote awareness about child passenger and motorized vehicle safety and encourage participation in events such as car-seat checkups, safety workshops, and sports clinics.

Suicides

In 2015, there were 47 suicides among children in Arizona, accounting for six percent of all child deaths. This was a 26 percent increase from 2014 and an 81 percent increase since 2009. There are number of identifiable risk factors associated with suicide deaths.

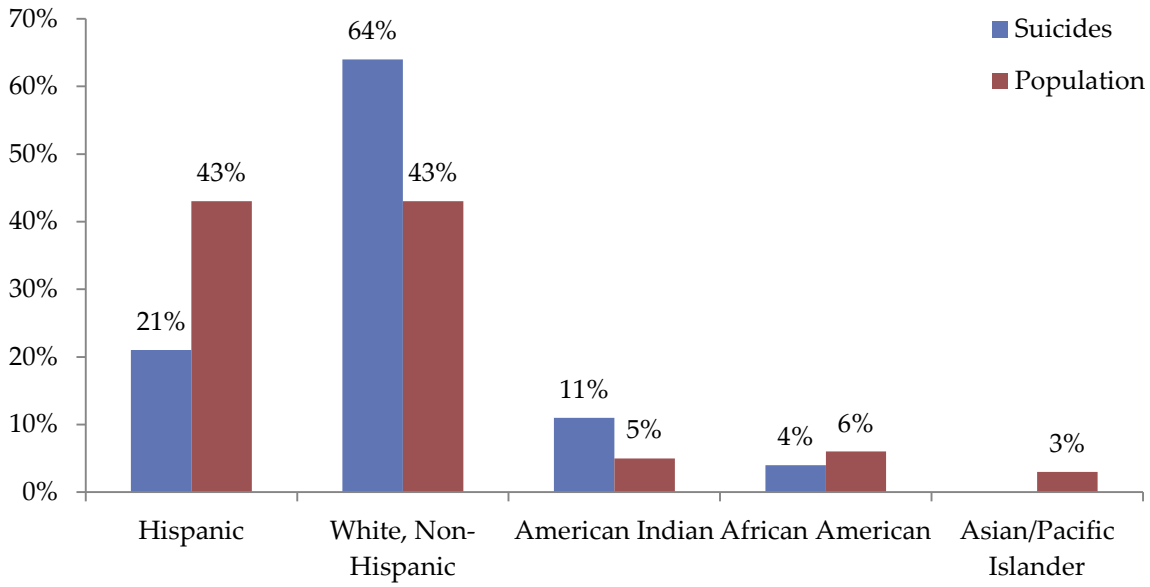
- Behavioral health issues and disorders, particularly mood disorders, depressant and anxiety disorders
- Substance use and abuse
- Impulsive and/or aggressive tendencies
- History of trauma or abuse
- Major physical illnesses
- Family history of suicide and previous suicide attempts
- Easy access to lethal means
- Lack of social support and a sense of isolation
- Stigma associated with asking for help
- Lack of health care, especially mental health and substance abuse treatment

Figure 26. Mortality Rates due to Suicide per 100,000 Children, Arizona, 2009-2015



The majority of suicide deaths historically occur in boys and the trend continued in 2015. Boys comprised 72 percent of the suicide deaths (n=34) compared to 28 percent (n=13) in girls. The distribution of suicide by race/ethnicity varies year by year. In 2015, White, non-Hispanic children made up 64 percent of the suicide deaths (n=30) and Hispanic children accounted for 21 percent (n=10) (Figure 29). White, non-Hispanic and America Indian children were overrepresented compared to their population and accounted for approximately 75 percent of the suicides.

Figure 27. Percentage of Suicide Deaths by Race/Ethnicity, Compared to Populations, Arizona, 2015 (n=47)



Youth ages 15 through 17 years remained at highest risk for suicide death accounting for 74 percent (n=35) of suicides followed by children 10 through 14 years of age (26 percent, n=12). This distribution of suicides by age group has remained consistent since 2009.

Causes of death from suicides included firearm injuries (36 percent) followed by hanging (34 percent). Objects used for hanging suicides included belts, rope, strings and electrical cords.

Prevention

As with other categories of death, understanding the circumstances, risk factors, and events leading up to the suicide aids in developing appropriate interventions for future prevention efforts. Several risk factors were identified by local CFR teams that may have contributed to the child's despondency prior to the suicide. The most common factors noted were that children were known to have a history of drug/alcohol use (40 percent); a history of family discord (38 percent) and a history of parent divorce (23 percent) (Table 11).

Table 11. Factors That May Have Contributed to the Child's Despondency Prior to Suicide, Arizona, 2015

Factor*	Percent
History of drug/alcohol use	40
History of family discord	38
History of parent divorce	23
Argument with parent	15
History/recent break-up	11
Failure in school	11

Victim of bullying	9
History of problems with the law	9
Argument with boyfriend or girlfriend	4
History of physical abuse	4
History of issues related to sexual orientation	4
History of sexual abuse	2
*More than one factor may have been identified for each death	

For many of the child suicides, important information regarding risk factors was unknown or unavailable to review teams, even after law enforcement records were available.

Local review teams determined 46 child suicides were preventable (98 percent). Of the top preventable risk factors for child suicides, the use of drugs was the most commonly identified (40 percent, n=19) followed by alcohol use (17 percent, n=8) (Table 12).

Table 12. Preventable Factors for Child Suicides, Arizona, 2015

Factor*	Number	Percent
Drug use	19	40
Alcohol use	8	17
*More than one factor may have been identified for each death.		

There are ways to help children, youth, and their families strengthen protective factors and prevent suicide. Some of these factors include seeking early treatment of effective clinical care for mental, physical and substance abuse issues; restricting access to lethal means of suicide; building strong family and support connections; gaining and retaining skills in problem solving, conflict resolution and stress management; having family, friends, and acquaintances taking any discussion of suicide seriously and seeking help.

Recommendations

For the Arizona public

- Arizona schools should collaborate with the Arizona Suicide Prevention Coalition to support and implement school and community prevention programs, such as Mental Health First Aid, that train teachers and students how to address suicide, bullying, and related behaviors.
- Increase awareness about suicide prevention and resources by connecting communities and families with these resources.

For parents and caregivers

- Monitor children with known behavioral problems (substance abuse and delinquency) or possible mental disorders (depression or impulse control problems) for signs and symptoms of suicide and immediately seek treatment and care.

- Completely remove firearms from homes where children or adolescents are showing signs of mental health issues, substance abuse, or suicide.
- Monitor your child's social media for any talk about suicide and take immediate action.
- Teen Lifeline provides a Peer Counseling Hotline for teens in crisis: 602-248-8336 (TEEN) for Maricopa county or statewide 800-248-8336 (TEEN).

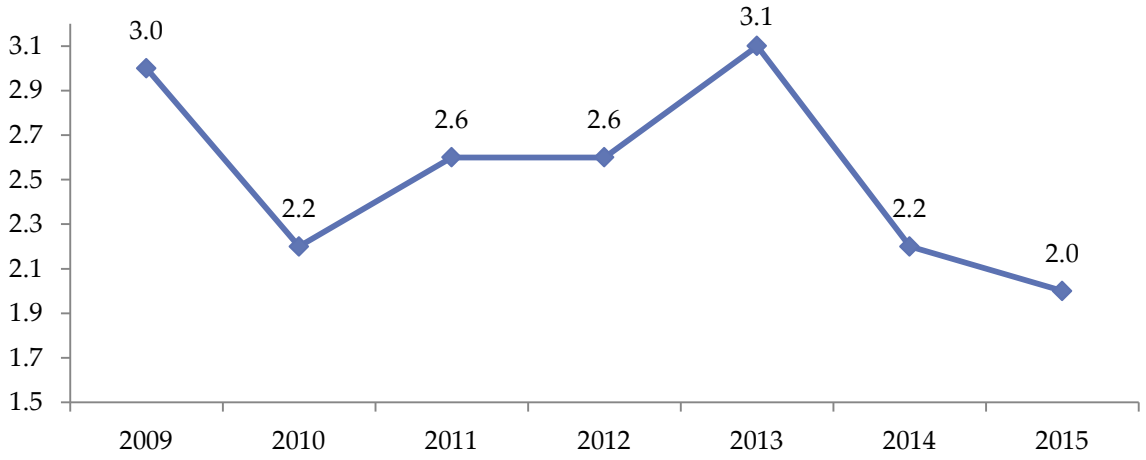
For the elected officials and other public administrators

- Schools should work closely with suicide prevention groups to expand and implement bullying awareness and prevention programs.
- Support funding for behavioral health and substance use assessment and treatment services for youth and their families**.**

Homicides

In 2015, thirty-two children were victims of homicide in Arizona accounting for four percent of all child deaths. The child homicide rate decreased between 2014 and 2015 by nine percent and 33 percent overall since 2009 (Figure 30).

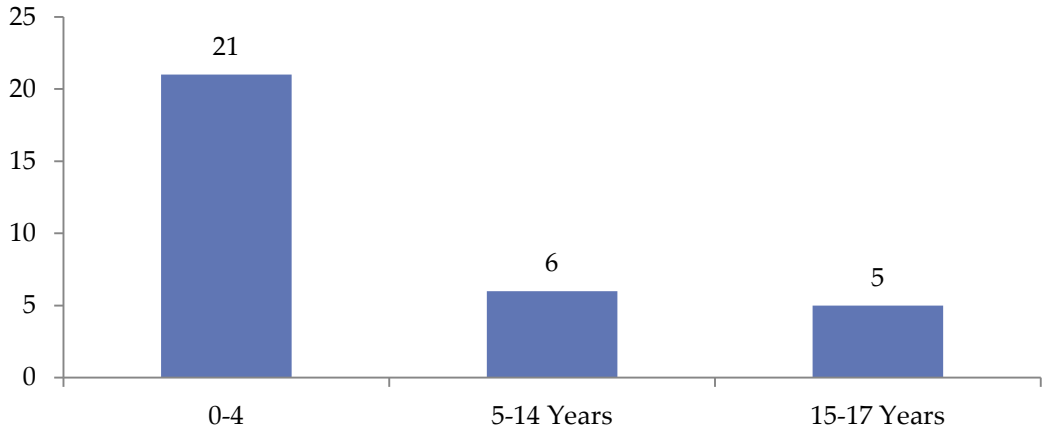
Figure 28. Mortality Rate due to Homicides per 100,000 Children, Arizona, 2009-2015



Similar to 2014, females accounted for the majority of homicides in 2015 (female, 56 percent n=18 vs. male, 44 percent, n=14). Hispanic children experienced the highest number of child homicides accounting for 31 percent of deaths (n=10) followed by 28 percent among White, non-Hispanics (n=9) and 28 percent among African Americans (n=9). The remaining 13 percent were American Indian and children of unknown race/ethnicity.

The number of homicides in some age groups has remained consistent since 2009 with an overall downward trend except in that birth through four years of age. Children aged 15-17 years experienced a decrease in the number of deaths from 25 homicides in 2013 to ten in 2014 and five deaths in 2015 (Figure 31).

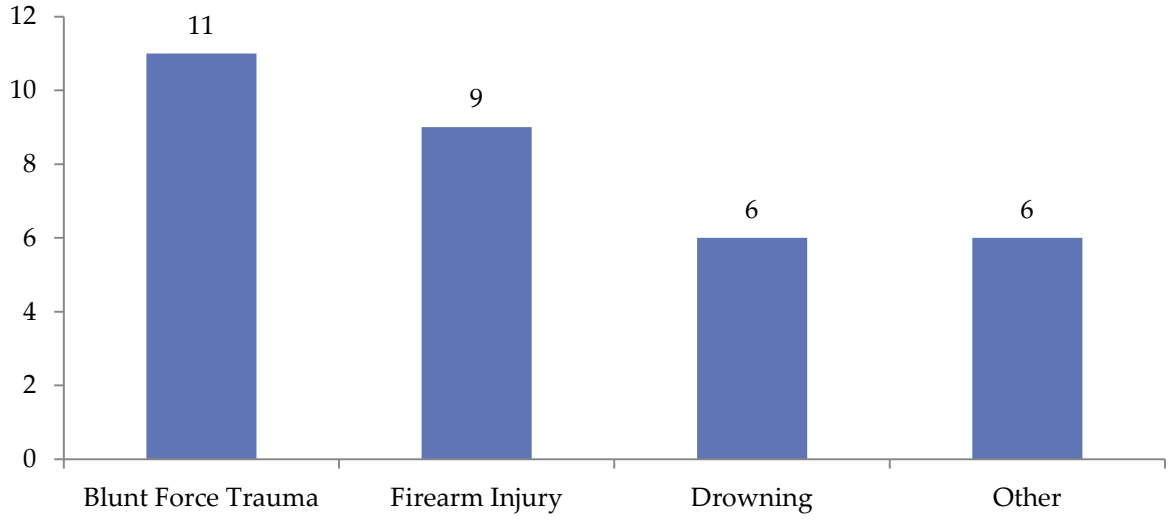
Figure 29. Number of Homicides among Children by Age Group, Arizona, 2015 (n=32)



Prevention

Local teams review the unique circumstances surrounding each child homicide in order to determine any patterns in the causes of death and identity of the perpetrator. In 2015, blunt force trauma remained the leading cause of death among child homicides (34 percent, n=11), decreasing approximately 20 percent from 2014. Firearm injuries were the second leading cause of homicide death accounting for 28 percent (n=9) (Figure 32).

Figure 30. Number of Homicides among Children by Cause of Death, Arizona, 2015 (n=32)



In 53 percent of child homicides, the perpetrator was the biological parent of the child. The mother's partner or step-parent was responsible for an additional 19 percent of the deaths and

the teams were unable to identify the nature of the relationship between the perpetrator and the child in nine percent of the deaths (Table 13).

Table 13. Homicides Among Children by Perpetrator, Arizona, 2015 (n=32)		
Perpetrator*	Number	Percent
Biological Parent	17	53
Step-Parent/Mother's Partner	6	19
*There may be more than one perpetrator for each death		

One hundred percent of child homicides were determined to have been preventable (n=32). The most common preventable factor was drug involvement, followed by alcohol use and access to firearms (Table 14).

Table 14. Preventable Factors for Child Homicides, Arizona, 2015		
Factors*	Number	Percent
Drugs	22	69
Alcohol	11	34
Access to Firearms	9	28
*More than one factor may have been identified for each death		

Recommendations

For parents and caregivers

- If feeling stressed or overwhelmed, parents and caregivers can seek assistance through the National Parent Helpline at 1-855-427-2736, the Birth to Five Helpline at 1-877-705-KIDS (Available Monday-Friday 8:00 am to 8:00 pm), the Fussy Baby Helpline at 1-877-705-KIDS ext. 5437 (Available Monday-Friday 8:00 am to 8:00 pm or Childhelp National Child Abuse Hotline at 1-800-4-A-CHILD (24 hours, 7 days per week). These resources offer crisis intervention, information, literature, and referrals to thousands of emergency, social service, and support resources. All calls are confidential.

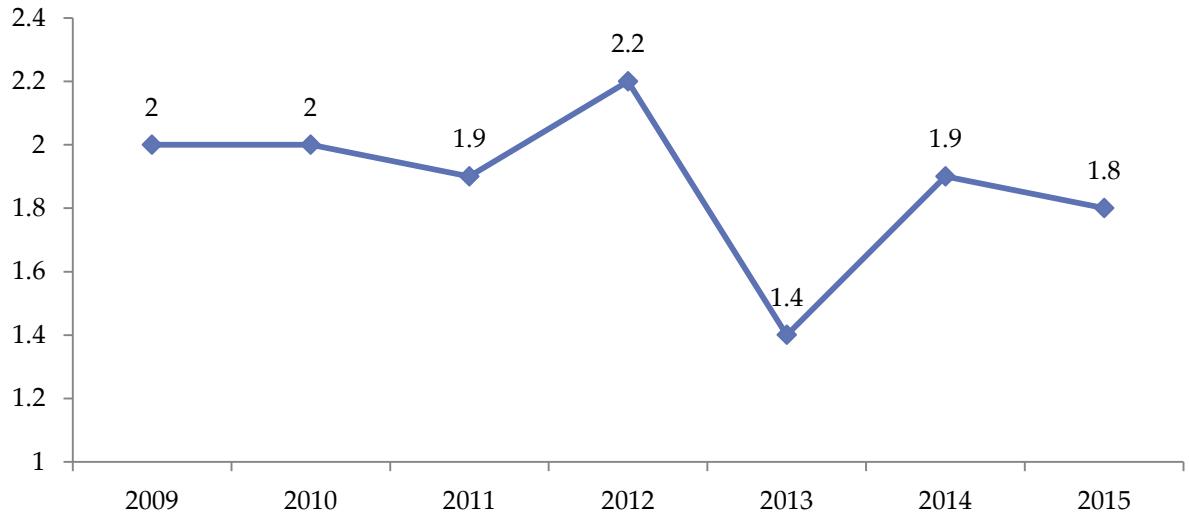
For the elected officials and other public administrators

- Support sufficient funding for behavioral health and substance use assessment and treatment services for children, youth and their families.

Drowning Deaths

Drowning accounted for 30 child deaths and four percent of all child deaths in Arizona in 2015. The drowning rate decreased by five percent from 1.9 deaths in 2014 to 1.8 deaths in 2015, and decreased by ten percent since 2009 (Figure 33). It is important to note that while some of the rates in the report appear to fluctuate quite drastically from year to year the differences are not significant due to small counts. Since slight increases or decreases in total number of deaths can impact mortality rates from year to year it is more important to look at five-year average rates or trends over time when determining whether the changes are significant or not.

Figure 31. Mortality Rate due to Drowning per 100,000 Children, Ages 0-17, Arizona, 2009-2015



Prevention

Drowning is a highly preventable cause of death with identifiable risk factors that can be recognized and addressed.

- *Sex*: males are twice as likely to drown as girls
- *Age*: children under the age of five are at highest risk for drowning
- Substance use or abuse: either by the caregiver or child
- Access to water: residential pools not adequately fenced

In 2015, review teams determined 97 percent of the 30 child drowning fatalities were preventable. There are three main preventable factors associated with child drowning in Arizona (Table 15). Access to water was the most commonly identified factor in 77 percent of

the drowning deaths (n=23), followed by lack of supervision in 50 percent (n=15) and substance use in 33 percent of the deaths.

Table 15. Preventable Factors for Child Drowning, Arizona, 2015		
Factor*	Number	Percent
Access to water	23	77
Lack of supervision	15	50
Drugs and/or alcohol	10	33
*More than one factor may have been identified for each death		

The group at highest risk of drowning are children aged one through four years accounting for 67 percent of the drowning deaths in 2015 (n=20). Twenty percent of the drowning deaths were among those five through nine years of age (n=6) and the remaining four deaths are evenly distributed among the other age groups. White, non-Hispanic children made up 53 percent of the deaths (n=16); Hispanic children composed an additional 33 percent of the drowning deaths (n=10) followed by African American children at 13 percent (n=<6).

Thirty-three percent (n=10) of children drowned in a pool, hot tub or spa. The second most prevalent place was in open bodies of water (Table 16).

Table 16. Location of Child Drowning Fatalities, Arizona, 2015 (n=30)		
Location	Number	Percent
Pool/hot tub/spa	10	33
Open water	8	27
Bathtub	6	20

Drowning fatalities in Arizona have been reduced overall in the past several years, but vigilance in promoting protective factors must continue. It is especially important because drowning deaths have increased over the last year, although, the number of fatalities to children ages one through four years remained fairly stable. Prevention strategies include removing the hazard by draining unnecessary accumulations of water i.e. pools and bathtubs; creating barriers by building and maintaining fencing around pools and other bodies of water when possible; and protecting children at risk: promote learning to swim, train lifeguards and practice proper supervision of children near water.

Lack of supervision and access to water are the leading risk factors in drowning deaths, so prevention efforts need to continue to promote proper supervision of young children around water and "touch supervision" of young non-swimmers. Touch supervision is defined as the adult who is responsible for supervising the non-swimmer remain within an arm's length of the child they are supervising.

Recommendations

For the Arizona public

- Teach children to swim and about water safety at an appropriate age.
- Never leave a young child alone and without "touch" supervision around all bodies of water.
- Seek training on child and infant CPR.
- Secure public and private pools by installing fencing and self-latching gates that are kept in good repair.
- Support public drowning prevention education including public service announcements and legislation regarding proper pool fencing.

For parents and caregivers

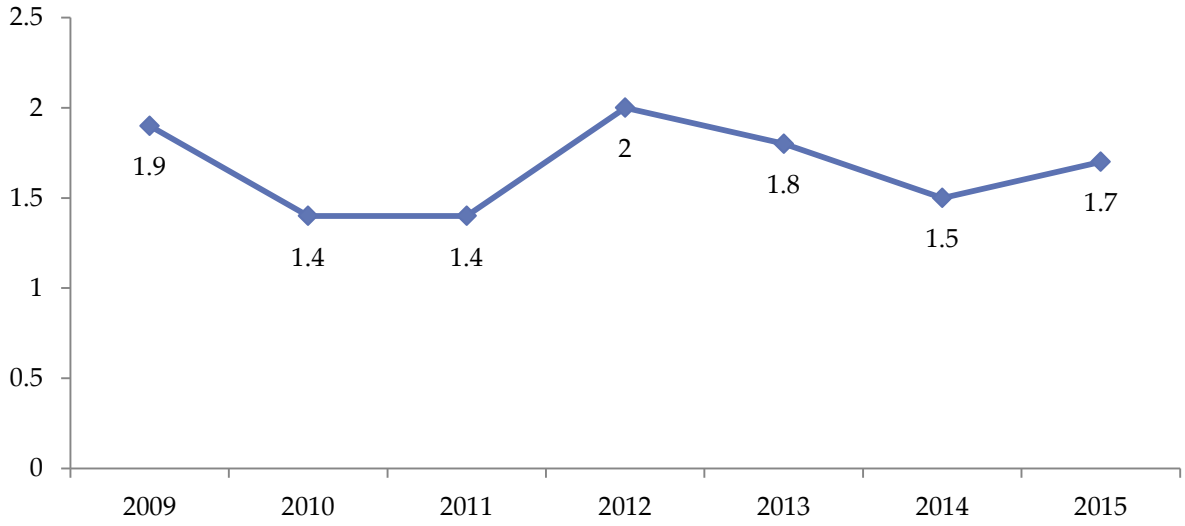
- To prevent drowning, parents and other caregivers should designate at least one responsible adult to monitor the pool area when children are present. They should also not rely solely on flotation devices to protect the child from drowning. Continue to use "touch supervision," where the adult can reach out and touch the child at all times.
- Have children wear life jackets in and around natural bodies of water, such as lakes or the ocean, even if they know how to swim. Life jackets can be used in and around pools for weaker swimmers too.

Firearm Deaths

There were 28 firearm-related fatalities in 2015, compared to 25 in 2014 and 29 in 2013. The percentage of firearm-related deaths for the year was less than four percent. The overall rate of firearm-related deaths has remained relatively stable since 2009 with only slight increases and decreases over time (Figure 34). As previously stated in this report, it is more important to look at the overall trend over time rather than slight differences between years.

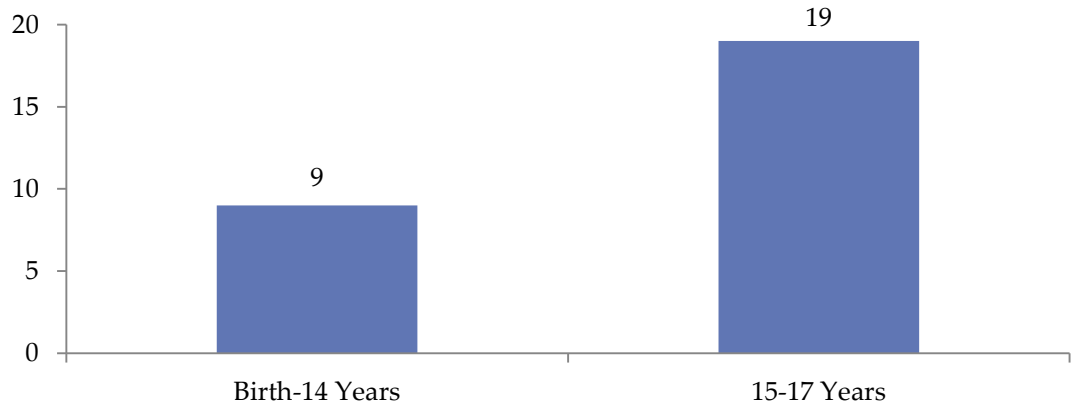
The number of males dying from firearm-related fatalities continually remains higher than the number of females; 68 percent of firearm-related deaths in 2015 were among males and the remaining 32 percent were among females. White, non-Hispanic children were the most affected by firearm fatalities representing 64 percent of the deaths, followed by Hispanic children with 21 percent. Historically, White, non-Hispanic children have had highest percentage of firearm fatalities among children.

Figure 32. Mortality Rates due to Firearms per 100,000 Children, Ages 0-17, Arizona, 2009-2015



In 2015, children 15 through17 years accounted for nineteen firearm-related deaths (68 percent) and those birth through 14 composed the remaining 32 percent (n=9) (Figure 35).

Figure 33. Number of Firearm-related Deaths Among Children by Age Group, Arizona, 2015 (n=28)



Suicides and homicides accounted for 93 percent of firearm-related deaths in 2015. Seventeen firearm-related deaths were a result of suicide (61 percent) and nine firearm-related deaths were homicides (32 percent).

Handguns accounted for 64 percent of the firearm-related fatalities in 2015 (n=18) (Table 17).

Table 17. Types of Firearms Involved in Child Deaths, Arizona, 2015 (n=28)		
Type	Number	Percent
Handgun	18	64
Other	10	36

When reviewing cases to see who owned the firearm used in the fatality incident the category showing the greatest percentage was a biological parent (43 percent). The other category includes a variety of other individuals including acquaintances, mother's partner, grandparent, friend, etc. (Table 18).

Table 18. Owners of Firearms Involved in Child Deaths, Arizona, 2015 (n=28)	
Owner	Percent
Biological Parent	43
Other (e.g. acquaintance, mother's partner)	57
*other category the numbers are too small to separate	

In several firearm-related deaths, the storage location of the firearm was unknown to the review teams (39 percent, n=11). Eleven of the firearms were not stored in secured locations (39 percent) (Table 19).

Table 19. Locations of Firearms Involved in Child Deaths, Arizona, 2015 (n=28)		
Location	Number	Percent
Not Stored/Unlocked cabinet	11	39
Unknown	11	39
Other (e.g. under mattress)	6	22

Prevention

Local teams determined 100 percent of the firearm-related child deaths were preventable (n=28). Of the preventable risk factors for firearm-related deaths, drug and alcohol use were associated with 75 percent of deaths. Drug use was involved in 15 deaths (54 percent); and alcohol use factored into 6 deaths (21 percent) (Table 20).

Table 20. Preventable Factors for Firearm-Related Deaths Among Children, Arizona, 2015

Factor*	Number	Percent
Drug use	15	54
Alcohol use	6	21
*More than one factor may have been identified for each death		

Recommendations

For the Arizona public

- Collaborate with the firearm injury prevention programs to hold community events promoting gun safety education.
- Advocate for adequate pediatric mental health resources in both inpatient and outpatient settings, including the availability of prompt psychiatric consultation for emergency department psychiatric patients and school and community mental health services, including adequate mental health screening

For parents and caregivers

- Families with children should store all firearms unloaded, in a secure locked location.

Technical Appendix

Classifications

Injury deaths. Death certificates of all persons who died in Arizona are collected and maintained by the ADHS Bureau of Population Health and Vital Statistics. For the years 2009 through 2015, all deaths of Arizona residents and out-of-state residents aged birth through 17 were identified by underlying cause of death with International Classification of Disease codes, Version 10 (ICD-10; www.who.int/classifications/icd/en/ CFR local teams take the demographic and incident information from death certificates of children and youth aged birth through 17 for the purpose of completing comprehensive reviews and subsequent aggregate data analysis. To categorize injury intent and mechanism, teams followed a guideline similar to the National Center for Health Statistics ICD-10 external cause of injury matrix available at:

(www.cdc.gov/nchs/injury/injury_matrices.htm). Deaths caused by injuries where the intent is known are identified using the definitions below and related ICD-10 codes:

Unintentional injury. An injury or poisoning fatality that took place without any intent to cause harm or death to the victim, also referred to as an accident. These are identified using ICD-10 codes V01-X59.

Homicide. An intentional injury resulting in death from the injuries inflicted by an act of violence carried out by another individual whose action was intended to cause harm, fear, and/or death. Homicide deaths are identified using ICD-10 codes X85-Y09.

Suicide. An injury death caused by an individual's purposeful intent to die as a result of their actions. Suicides are identified using ICD-10 codes X60-X84.

Undetermined injury death. These can be injury death in which investigators and medical examiners have insufficient information available to fully determine a cause and/or manner of death. Undetermined injury deaths are identified using ICD-10 codes Y10–Y34.

Maltreatment. Maltreatment is a form of child abuse and neglect, an act or failure to act on the part of the parent or caregiver of a child resulting in the serious physical or emotional harm of the child. Some of the most common injuries CFR teams will encounter in maltreatment cases involve physical abuse which includes internal abdominal and blunt head injuries leading to fatalities. When looking at neglect cases, CFR teams determine if parents or caregivers failed to arrange for the child's daily necessities including clothing, food, safe shelter, medical care and appropriate supervision. Deaths attributed to neglect are typically failure to thrive, accidents resulting from unsafe environments and prenatal substance exposure. The circumstances

around these maltreatment deaths vary greatly, some fatalities are the result of long-term abuse and neglect, unintentional and intentional, but some are the result of a single incident.

To gain greater understanding of the contribution of abuse and neglect to child mortality, the Arizona CFR teams answers several questions regarding maltreatment during a review. Classification of a death due to maltreatment must meet the following four conditions:

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

The program also reports deaths classified as maltreatment in other categories by manner and cause of death. For example, one classifies a death from abusive head trauma caused by the use of blunt force as a homicide and a maltreatment death. Teams may also classify an accidental or natural death as a maltreatment death if the team concludes a caretaker's negligence or actions contributed to or caused the fatality. For example, the death of child in a motor vehicle crash due to the actions of a parent who drove while intoxicated would be considered a maltreatment fatality.

Examples of neglect contributing to a child's death include, but are not limited to the following:

- Any death in which intoxication by drugs (prescription, over-the-counter, legal or illegal) or alcohol of the parent, guardian, or caregiver contributed to the death.
- Sleep-related death if parent/guardian/caregiver co-sleeps with or places an infant into an unsafe sleep environment while under the influence of drugs (prescription, over-the-counter, legal or illegal) or alcohol or knowingly allows a child to be placed into an unsafe sleep environment under the care of someone under the influence of drugs (prescription, over-the-counter, legal or illegal) or alcohol.
- Natural deaths: If medical neglect contributed to the death including failure to comply with a prescribed treatment plan, failure to obtain treatment, and/or failure to provide necessary medications e.g. an asthma related death where a caregiver did not provide the child with an inhaler.
- Prenatal exposure to illicit drug use or alcohol that causes or contributes to the death of the child e.g. a child born prematurely due to prenatal drug exposure to methamphetamines.

- Motor Vehicle Crash (MVC):
- Parent/caregiver/supervisor drives under the influence of alcohol or drugs (prescription, over-the-counter, legal or illegal) with child passenger or knowingly allows child to be a passenger with driver under the influence.
- If a child under the age of five years was a passenger and was not properly restrained (situations where a child was placed in the right type of restraint but the seat may not have been properly installed are not included as maltreatment).
- Parent/caregiver/supervisor drives recklessly with child passenger and it was related to the child's death.
- Drowning:
- Parent/caregiver/supervisor leaves a child near or in a body of water such as a pool, lake, or river without sober and inadequate adult supervision. This is if the child's age, mental capacity, or physical capacity puts the child at risk of drowning e.g. child is under the age of 5, and/or is unable to swim.
- Parent/caregiver/supervisor leaves infant or toddler in a tub, unsupervised.
- **Gunshot wound**: Parent/caregiver/supervisor leaves loaded weapon unsecured where a child would have access to the weapon.
- **Exposure**: Parent/caregiver/supervisor leaves young a child/infant alone in a car or outdoors.
- **Poisoning**: Parent/caregiver/supervisor allows medication or dangerous household products to be accessible to a child or teen with known behavioral health issues e.g. If there is a teen in the household with history of substance abuse or suicidal ideation and prescription medication, such as opiates, are not in a secured location.
- **Suicide**: Parent/caregiver/supervisor failed to secure hazards e.g. unsecured weapon, prescription drugs or did not seek care for the child when aware of any suicidal ideation.

Reporting. The number of child maltreatment deaths presented in this report is not comparable to child maltreatment deaths reported by the Arizona Department of Child Safety (DCS) (Formerly Arizona Department of Economic Security Child Protective Services) 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 CFR teams may not have been reported to child protective services agencies or were within the jurisdiction of Tribal Nations or other states, these deaths would not be included in DCS' annual report to NCANDS. However, when a Local CFR team identifies a death due to maltreatment not previously reported to a child protective services agency, the Local CFR Program notifies child protective services of the team's assessment so they can initiate an investigation.

It is also important to note the differences in reporting of maltreatment numbers in this report compared to the number of maltreatment fatalities reported by DCS. DCS reports only those

deaths that have been investigated by DCS and substantiated as maltreatment. The CFR team reports all deaths related to maltreatment to DCS, if a report has not been previously generated.

Per A.R.S. § 8-807, DCS is required to post information on child fatalities due to abuse or neglect by the child's parent, custodian or caregiver. This information is posted after a final determination of the fatality due to abuse or neglect has been made by DCS. The determination is made by either a substantiated finding or specific criminal charges filed against a parent, guardian or caregiver for causing the fatality or near fatality.

Sudden unexpected infant deaths and sleep-related deaths. In Arizona, all sudden unexpected infant deaths (SUID) are determined using a protocol based on the CDC's SUID guidelines. Based upon these guidelines, review teams will follow the protocol to determine if unsafe factors were in place at the time of the child's death. If any such factors are identified then the death will be classified as one of the following:

(1) With sufficient evidence, including death scene reenactment photos, death checklist information, and autopsy results, it will be deemed as asphyxia or suffocation with an accidental manner;

(2) If there is not enough evidence to determine intent, but the cause of death of suffocation is clear then it will be labeled with an undetermined manner of death.

(3) If all evidence is reviewed and cause of death is suspected, but there is not enough information to fully determine the cause or manner then the death will be labeled as undetermined for both cause and manner.

Sleep-related injury deaths in this report are identified by reviewing all potential cases of children less than one year with causes and manners of death using the ICD-10 codes of W75, W84 (suffocation injuries) and Y33, Y34 (injuries of undetermined cause and intent). A death is considered to be sleep related if the child was found in a sleep environment or the last time they were seen alive was while they were asleep.

Limitations. Data is based upon vital records information and information from local jurisdictions. Arizona has a medical examiner system with each county having its own jurisdiction. Law enforcement also varies around the state. Arizona is home to 22 different Native American tribes each of whom has their own sovereign laws and protocols. Jurisdiction and records sharing for each tribal government varies. These intricate relationships and individual jurisdictions mean that sources and information may vary.

Factors impacting protocols to certify SUID and sleep related deaths include death scene investigation by trained investigators and law enforcement, completion of the death scene

investigation form, and the final determination of death by a certified forensic pathologist. The Arizona CFR program works to mitigate these limitations by providing statewide training to law enforcement on the statutorily required AZ Infant Death Checklist, and completing both local and state level reviews of all identified SUID cases. In 2015, out of 250 deaths where a death scene investigation was completed, authorities filled out a death checklist in 59 of the cases. The cases in this report use the final cause and manner of death that are determined by the state SUID Review Team. This expert panel reviews all available information to determine the certification. However, this methodology accounts for the differences between the numbers in the report and the numbers reported by vital records and medical examiners.

Limitations of the overall data. It is significant to note that the report has certain limitations. While every child death is important the small numbers in some areas of preventable deaths reduce the ability to examine some trends in detail. The numbers are used to inform public health efforts in a broader sense, but the sample size reduces the ability to make true statements about statistical significance in any differences or causal relationships. It is also of note that much of the collected data is done through qualitative methods such as the collection of witness reports on child injury deaths. This means that there is always the potential for bias when the information is taken. Other variables that may not be captured on the death certificate or other typical records may include family dynamics, mental health issues, or other hazards.

CFR team meetings. Local CFR team review meetings are closed to the public. All team members must sign a confidentiality statement before participating in the review process. The confidentiality statement specifically defines the conditions of participation and assures that members will not divulge information discussed in team meetings. To further maintain confidentiality, identifying information in data and research reports has been omitted.

All cases reviewed by the CFR team are kept completely confidential. Information shared in the meetings is protected under ARS 36-3502 and cannot be shared with anyone outside the meeting. Every effort is made in this report to keep information private, and is intended only to provide summary statistics of all child deaths in Arizona.

State CFR team review the aggregated data from the review and makes recommendations. These meetings are open to the public

Substance Use. In Arizona, substance use and abuse are a contributing factor in some preventable child deaths. In previous annual reports this was a separate section, but to be clearer about when substance use and abuse are a contributing factor in a child death this information has been moved and is now noted in the prevention portion of each section of the report.

Review Process

Case reviews take place throughout the year. Once the local team coordinator or chairperson receives the death certificate they send out requests for relevant documents, which may include the child's autopsy report, hospital records, DCS records, law enforcement reports, and any other information that may provide insight into the death. Additionally, the birth certificate is reviewed when the child is younger than one year of age at the time of death. Legislation requires that hospitals and state agencies release this information to the Arizona CFR Program's local teams. **Note: Team members are required to maintain confidentiality and prohibited from contacting the child's family.**

During the review, team members from representing agencies provide information on each case. If an agency representative is unable to attend a meeting the pertinent information is collected by the local team coordinator and presented at the review meeting.

Information collected during the review is then entered into the National Child Death Review Database. The data is entered by the local team staff using a collection tool developed by the National Center for Child Death Review. The form is formatted using a wide variety of variables so all possible detailed information is collected using specific questions about the demographics of the child, the supervisor of the child at the time of the fatality incident, caregiver, the family, and the circumstances surrounding the fatality. There are several variables present on the form, but not all such specific information will be available to teams.

The form is regularly reviewed and updated by the National Center and the State CFR Program Office to ensure it is as effective as possible in capturing the most relevant information for preventing future fatalities. This county level data is then put through a system of quality assurance checks by the State CFR Program Office. The resulting dataset is used to produce the statistics found in this report.

An independent state level team meets annually to review the analysis of these findings, and is required to include statutorily mandated representatives from a variety of community and governmental agencies including:

- Attorney's General Office
- Bureau of Women's and Children's Health in the Arizona Department of Health Services
- Division of Behavioral Health in the Arizona Department of Health Services
- Division of Developmental Disabilities in the Arizona Department of Economic Security
- Division of Children, Youth and Families in the Arizona Department of Economic Security
- Governor's Office of Youth, Faith, and Family

- Administrative Office of the Courts
- Arizona Chapter of the American Academy of Pediatrics
- Medical Examiner's Office
- Maternal Child Health Specialist who works with members of Tribal Nations
- Private nonprofit organization of Tribal Governments
- The Navajo Nation
- United States Military Family Advocacy Program
- Prosecuting Attorney's Advisory Council
- Law Enforcement Officer's Advisory Council with experience in child homicide
- Association of County Health Officers
- Child Advocates not employed by the state or a political subdivision of the state
- A member of the public

The statute authorizes the state team to study the adequacy of existing statutes, ordinances, rules, training and services in order to determine the need for changes. Second, the state team is responsible for raising awareness and educating the public on the causes and number of fatalities and by providing recommendations for prevention strategies. Adoption of the recommendations has often occurred as a result of the experience and expertise of the team. Reviewing 100 percent of the deaths allows for multi-year outcome comparisons and trend identification.

In Arizona, the 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.

After a person dies, the county medical examiner or other appointed medical authority will determine both a cause and manner of death and write it on the deceased's death certificate. **However, it is important to note since CFR teams review all records related to a fatality, because of this comprehensive, multidisciplinary approach, the teams' determinations of cause and manner of death may differ from those recorded on the death certificate. Their determination of cause and manner are what is used in this report.**

In the report, deaths are counted once in each applicable section based upon team consensus of the cause and manner of death. For example, a homicide involving a firearm injury perpetrated by an intoxicated caregiver would be counted in the sections addressing firearm injuries,

homicides and maltreatment fatalities. Frequencies and cross-tabulations are used, but due to the small sample size, tests for statistical significance are not always done. In several instances the subset of cases discussed in the report are too small to make accurate statements about statistical significance.

All cases reviewed by the Child Death Review Team are kept completely confidential. Information shared in the meetings is protected under ARS 36-3502 and cannot be shared with anyone outside the meeting. Every effort is made in this report to keep information private, and is intended only to provide summary statistics and trends of all child deaths taking place in Arizona.

Appendix of Summary Tables: Age Group, Cause and Manner of Death

The following section of this report provides data on the cause and manner of child deaths by age group. Individuals and agencies can use the information provided for each age group to guide prevention efforts within each stage of child development. For the past ten years, teams' completed review of 100 percent of Arizona child fatalities and data from 2010 through 2015 are included in the following tables in order to provide comparison data. [13]

Table 21. Number and Percentage of Deaths Among Children by Age Group, Arizona, 2010-2015

Age Group	2010		2011		2012		2013		2014		2015	
0-27 Days	334	38%	334	40%	325	38%	298	37%	341	41%	287	38%
28-365 Days	192	22%	175	21%	171	20%	156	19%	183	22%	178	23%
1-4 Years	119	14%	106	13%	120	14%	130	16%	95	11%	101	13%
5-9 Years	58	7%	54	6%	63	7%	47	6%	56	7%	51	7%
10-14 Years	66	8%	72	9%	75	9%	77	9%	70	8%	46	6%
15-17 Years	93	11%	96	11%	100	12%	103	13%	89	11%	104	13%
Total	862		837		854		811		834		768	

Table 22. Mortality Rates per 100,000 Population Among Children by Age Group, Arizona, 2010-2015

Age Group	2010	2011	2012	2013	2014	2015
<1 Year*	6.0	5.9	5.8	5.3	6.0	5.5
1-4 Years	32.3	28.6	33.6	37.0	27.1	29.1
5-9 Years	12.8	11.8	13.7	10.1	12.1	11.0
10-14 Years	14.7	15.9	16.5	16.9	15.3	10.0
15-17 Years	34.3	35.2	37.0	37.7	32.5	38.1
Total	52.9	51.0	52.4	49.5	51.3	47.3
*deaths in the neonatal and post-natal periods have been combined and are rates per 1,000 births						

Table 23. Number and Percentage of Deaths Among Children by Race/Ethnicity, Arizona, 2010-2015

	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	68	8	65	8	73	9	78	10	75	9	68	9
American Indian	74	9	80	10	91	11	76	9	66	8	68	9
Asian	32	4	19	2	30	4	16	2	14	2	17	2
Hispanic	393	45	374	45	376	44	343	42	366	44	332	43
White, non-Hispanic	289	33	293	35	268	31	280	35	285	34	253	33
Total	856		831		838		793		806		738	

[13] For all tables in Appendix A, 2013, 2014, 2015 data with a count less than six are denoted as <6 and are suppressed due to concern with individual identification.

Table 24. Mortality Rates per 100,000 Children by Race/Ethnicity, Arizona, 2010-2015*						
Race/Ethnicity	2010	2011	2012	2013	2014	2015
African American	89.1	77.3	96.9	103.3	67.3	74.4
American Indian	75.1	64.7	92.5	76.7	53.4	78.6
Asian	72.8	39.6	69.0	35.7	22.3	32.0
Hispanic	58.1	55.5	55.0	49.6	57.7	46.9
White, non-Hispanic	42.6	41.2	36.8	38.5	41.0	36.7
*Does not include 32 cases for the category for 2 or more races						

Table 25. Number and Percentage of Deaths Among Children by County of Residence, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
County	#	%	#	%	#	%	#	%	#	%	#	%
Apache	12	1	15	2	9	1	17	2	15	2	17	2
Cochise	20	2	15	2	17	2	14	2	12	1	15	2
Coconino	26	3	19	2	20	2	17	2	14	2	20	3
Gila	12	1	9	1	14	2	9	1	12	1	6	<1
Graham	6	<1	4	<1	6	1	7	<1	6	1	<6	<1
Greenlee	2	<1	5	<1	1	<1	<6	<1	<6	<1	<6	<1
La Paz	2	<1	3	<1	8	1	<6	<1	<6	<1	<6	<1
Maricopa	486	56	478	57	500	59	477	59	501	60	445	58
Mohave	22	3	23	3	21	2	15	2	24	3	19	2
Navajo	23	3	26	3	28	3	23	3	20	2	21	3
Pima	130	15	109	13	91	11	102	13	112	13	85	11
Pinal	40	5	51	6	48	6	46	6	46	6	52	7
Santa Cruz	9	1	4	<1	9	1	<6	<1	<6	<1	<6	<1
Yavapai	20	2	14	2	24	3	20	2	21	3	20	3
Yuma	31	4	33	4	26	3	27	3	26	3	34	4
Outside AZ	21	2	29	3	32	4	25	3	19	2	24	3
Total	862		837		854		810*		834		768	

Table 26. Mortality Rates per 100,000 Children by Cause of Death, Arizona 0-17 Year Olds, 2010-2015						
Cause	2010	2011	2012	2013	2014	2015
SUID*	1.31	1.33	0.95	.87	.98	.91
Motor Vehicle Crashes	3.6	3.7	3.9	3.5	3.0	2.8
Drowning	2.0	1.9	2.2	1.4	1.9	1.8
Suicide	1.5	2.0	1.7	1.5	2.3	2.9
Homicide	2.2	2.6	2.6	3.1	2.2	2.0
Maltreatment	4.3	4.3	4.3	5.6	4.6	5.3
Firearms	1.4	1.4	2.0	1.8	1.5	1.7
Home Safety-Related	9.5	8.2	7.4	7.3	8.0	7.9
*SUID rates are per 1,000 births						

Table 27. Number of Child Deaths by Age Group and Manner, Arizona, 2015 (n=768)						
Manner	Birth-27 Days	28-365 Days	1-4 Years	5-9 Years	10-14 Years	15-17 Years
Natural	279	94	40	26	20	28
Accident	<6	53	39	18	12	33
Homicide	0	<6	18	<6	<6	<6
Suicide	0	0	0	0	12	35
Undetermined	<6	28	<6	<6	<6	<6
Total	287	178	101	51	46	105

Table 28. Number and Percentage of Deaths Among Children Birth Through 17 Years by Manner, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Manner	#	%	#	%	#	%	#	%	#	%	#	%
Natural	565	66	537	64	542	63	513	63	546	66	487	64
Accident	160	19	167	20	190	22	186	23	180	22	160	21
Undetermined	74	9	52	6	45	5	36	5	34	4	42	5
Homicide	36	4	42	5	43	5	51	6	36	4	32	4
Suicide	24	3	38	5	33	4	25	3	38	5	47	6
Total	859*		836*		853*		811		834		768	

Table 29. Number of Deaths Among Children Birth to 17 Years by Cause and Manner, Arizona, 2015						
Cause	Natural	Accident	Suicide	Homicide	Undetermined	Total
Medical*	310	0	0	0	0	310
Prematurity	177	0	0	0	0	177
Transport	0	48	<6	0	<6	50
Firearm	0	<6	17	9	0	28
Suffocation	0	63	0	<6	<6	65
Drowning	0	24	0	6	0	30
Blunt Force Trauma	0	0	0	11	0	11
Hanging	0	0	16	<6	0	17
Undetermined	5	0	0	<6	37	43
Other Non-Medical	0	<6	0	0	<6	<6
Poisoning	0	9	<6	<6	<6	15
Fire/Burn	0	<6	<6	0	0	<6
Exposure	0	6	0	0	0	6
Fall/Crush	0	4	0	0	0	<6
Other Injury	0	<6	9	<6	0	12
Total	487	160	47	32	42	768

*Excluding SIDS and prematurity

Table 30. Number and Percentage of Deaths Among Children Birth Through 17 Years by Cause, Arizona, 2010-2015

	2010		2011		2012		2013		2014		2015	
Cause	#	%	#	%	#	%	#	%	#	%	#	%
Medical*	359	42	342	41	353	41	303	37	326	39	310	40
Prematurity	197	23	199	24	192	22	210	26	222	27	177	23
Transport	61	7	70	8	88	10	80	10	57	7	50	6
Firearm	22	3	23	3	32	4	29	4	25	3	28	4
Suffocation	25	3	50	6	53	6	48	6	72	9	65	8
Drowning	33	4	32	4	36	4	23	3	31	4	30	4
Blunt Force Trauma	11	1	26	3	19	2	28	3	19	2	11	1
Hanging	19	2	27	3	20	2	18	2	14	2	17	2
Undetermined	74	9	46	6	40	5	35	4	31	4	43	6
Other Non-Medical	-	-	-	-	1	<1	<6	<1	<6	<1	<6	<1
Poisoning	18	2	10	1	7	1	14	2	9	1	15	2
Fire/burn	6	<1	6	1	5	1	<6	<1	6	<1		<1
Exposure	11	1	0	0	1	<1	7	<1	<6	<1	6	1
Fall/crush	4	<1	4	<1	5	1	6	<1	7	<1	<6	<1
Other Injury	21	2	0	0	1	<1	6	<1	8	1	12	2
SIDS	1	<1	2	<1	0	0	<6	<1	0	0	0	0
Total	862		837		853		811		834		768	
*Excluding SIDS and prematurity												

Table 31. Number and Percentage of Natural Deaths Among Children by Age Group, Arizona, 2010-2015

	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
0-27 Days	324	57	318	59	315	58	289	56	332	61	279	58
28-365 Days	109	19	91	17	84	16	79	15	89	16	94	19
1-4 Years	52	9	40	8	57	11	62	12	40	7	40	8
5-9 Years	32	6	26	5	37	7	25	5	29	5	26	5
10-14 Years	30	5	34	6	36	6	36	7	37	7	20	4
15-17 Years	18	3	27	5	13	2	22	4	19	4	27	6
Total	565		536		542		513		546		487	

Table 32. Number and Percentage of Natural Deaths Among Children by Race/Ethnicity, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	50	9	43	8	48	9	52	10	48	9	42	9
American Indian	40	7	42	8	45	8	38	7	34	6	40	8
Asian/Pacific Islander	24	4	13	2	20	4	10	2	12	2	14	3
Hispanic	280	50	256	48	266	49	234	46	252	46	235	48
White, non-Hispanic	170	30	179	33	152	28	169	33	178	33	135	28
Total	565		536		542		513		546		487	

Table 33. Number and Percentage of Unintentional injury deaths Among Children by Age Group, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
0-27 Days	<6	<2	7	4	<6	2	6	3	6	3	5	3
28-365 Days	25	16	38	23	48	25	44	23	63	35	53	33
1-4 Years	52	33	47	28	39	21	46	25	36	20	39	24
5-9 Years	20	13	22	13	22	12	20	11	21	12	18	11
10-14 Years	18	11	22	13	27	14	24	13	17	9	12	8
15-17 Years	43	27	31	19	50	26	46	25	37	21	33	21
Total	160		167		190		186		180		160	

Table 34. Number and Percentage of Unintentional injury deaths Among Children by Race/Ethnicity, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	<6	<3	12	7	13	7	15	8	18	10	12	8
American Indian	20	13	20	12	24	13	21	11	25	14	17	11
Asian	6	4	<6	<3	7	4	<6	<3	<6	<2	<6	2
Hispanic	57	36	62	37	69	36	70	38	71	39	62	39
White, non-Hispanic	70	44	69	41	75	39	70	38	62	34	60	38
Total	160		167		190		186		180		160	

Table 35. Number and Percentage of Home Safety Related Deaths Among Children by Age Group, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
0-27 Days	6	4	11	8	6	5	6	5	8	6	7	6
28-365 Days	70	45	67	49	70	58	67	56	84	65	75	58
1-4 Years	45	29	36	27	7	22	33	28	21	16	24	19
5-9 Years	8	5	7	5	7	6	<6	<1	6	5	<6	4
10-14 Years	9	6	5	4	<6	2	<6	<2	6	5	<6	3
15-17 Years	17	11	10	7	8	7	11	9	<6	4	13	10
Total	155		136		121		120		130		128	

Table 36. Number and Percentage of Home-Safety Related Deaths Among Children by Race/Ethnicity, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	11	7	10	7	11	9	13	11	14	11	11	9
American Indian	10	7	12	9	11	9	12	10	14	11	9	7
Asian	<6	<2	<6	<3	<6	<3	<6	<2	0	0	<6	<2
Hispanic	54	35	57	42	44	36	40	33	52	40	47	37
White, non-Hispanic	75	48	53	39	50	41	50	42	47	36	53	41
Total	155		136		121		120		130		128	

Table 37. Number of Sudden Unexplained Infant Deaths Among Children by Age Group, Arizona, 2010- 2015												
Age Group	2010		2011		2012		2013		2014		2015	
< 1 year	114		114		81		74		85		77	

Table 38. Number and Percentage of Sudden Unexplained Infant Deaths Among Children by Race/Ethnicity, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	13	11	13	11	8	10	11	15	8	9	7	9
American Indian	16	14	13	11	7	9	6	8	9	11	<6	4
Asian	<6	<1	0	0	<6	<4	0	0	0	0	0	0
Hispanic	45	39	50	44	31	38	22	30	36	42	65	42
White, non-Hispanic	36	32	38	35	31	38	34	46	29	34	30	39
Total	114		114		81		74		85		77	

Table 39. Number and Percentage of Maltreatment Deaths Among Children by Age Group, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
0-27 Days	17	24	7	10	9	13	13	14	10	13	10	11
28-365 Days	20	29	29	40	23	33	29	32	26	35	29	33
1-4 Years	18	26	22	30	23	33	31	34	23	31	31	36
5-9 Years	10	14	7	10	7	10	<6	<6	9	12	8	9
10-14 Years	<6	<5	<6	5	<6	<3	11	12	7	9	<6	4
15-17 Years	<6	<3	<6	5	<6	<8	<6	<4	0	0	6	7
Total	70		73		69		92		75		87	

Table 40. Number and Percentage of Maltreatment Deaths Among Children by Race/Ethnicity, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	8	11	6	8	<6	<6	11	12	8	11	11	13
American Indian	7	10	<6	15	13	19	15	16	8	11	13	15
Asian	<6	<3	<6	<2	0	0	<6	<2	0	0	0	0
Hispanic	27	39	34	47	29	42	34	37	29	39	31	36
White, non-Hispanic	25	36	21	29	21	30	27	29	29	39	31	36
Total	70		73		69		92		75		87	

Table 41. Number and Percentage of Motor Vehicle Deaths Among Children by Age Group, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
0-27 Days	<6	<2	0	0	<6	<4	0	0	0	0	<6	2
28-365 Days	<6	<2	<6	<6	<6	<4	<6	<2	<6	<2	<6	2
1-4 Years	19	31	15	21	11	13	18	23	10	18	13	26
5-9 Years	10	16	13	19	12	14	17	21	12	21	9	18
10-14 Years	12	20	17	24	21	24	20	25	9	16	8	16
15-17 Years	18	30	21	30	38	43	24	30	25	44	18	36
Total	61		70		88		80		57		50	

Table 42. Number and Percentage of Motor Vehicle and Other Transport Deaths Among Children by Race/Ethnicity, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
American Indian	11	18	13	19	18	21	12	15	10	18	12	24
Hispanic	26	43	28	40	32	36	28	35	23	40	20	40
White, non-Hispanic	20	33	24	34	29	33	29	36	17	30	10	20
Other	4	6	5	7	9	10	11	14	7	12	8	16
Total	61		70		88		80		57			

Table 43. Number and Percentage of Suicides Among Children by Age Group, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
<10 Years	0	0	1	3	0	0	<6	<1	0	0	0	0
10-14 Years	9	37	13	33	9	27	8	32	11	29	12	26
15-17 Years	15	63	25	64	24	73	17	68	27	71	35	74
Total	24		39		33		25		38		47	

Table 44. Number and Percentage of Suicides Among Children by Race/Ethnicity, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
American Indian	6	25	7	18	9	27	<6	20	<6	8	<6	9
Hispanic	8	33	10	26	5	15	8	32	13	34	10	31
White, non-Hispanic	9	38	19	49	17	52	9	36	21	55	9	28
Other	1	4	3	7	-	-	<6	8	<6	3	<6	3
African American	-	-	-	-	2	6	<6	4	0	0	9	28
Total	24		39		33		25		38		47	

Table 45. Number and Percentage of Homicides Among Children by Age Group, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
0-27 Days	1	3	1	2	2	5	<6	4	0	0	0	0
28-365 Days	8	22	12	29	10	23	7	14	7	19	<6	9
1-4 Years	6	16	12	29	17	40	16	31	14	39	18	56
5-9 Years	6	16	4	9	3	7	<6	2	<6	14	<6	16
10-14 Years	4	11	2	5	2	5	9	18	<6	1	<6	3
15-17 Years	11	31	11	26	9	21	16	31	6	17	<6	16
Total	36		42		43		51		36		32	

Table 46. Number and Percentage of Homicides Deaths Among Children by Race/Ethnicity, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	<6	<3	<6	<10	<6	<12	<6	<6	<6	<12	9	28
American Indian	<6	<3	<6	<15	<6	<12	9	18	<6	<9	<6	9
Asian	<6	<3	<6	<3	<6	<3	0	0	0	0	0	0
Hispanic	21	58	23	55	19	44	23	45	18	50	10	31
White, non-Hispanic	7	19	8	19	11	26	14	27	10	28	9	28
Total	36		42		43		51		36		32	

Table 47. Number and Percentage of Drowning Deaths Among Children by Age Group, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
0-27 Days	0	0	0	0	0	0	<6	<1	0	0	0	0
28-365 Days	2	6	3	9	4	11	<6	<1	<6	6	<6	7
1-4 Years	22	67	18	56	18	50	19	83	18	58	20	67
5-9 Years	4	12	7	22	5	14	<6	4	<6	13	6	20
10-14 Years	2	6	2	6	4	11	<6	<1	<6	13	<6	3
15-17 Years	3	9	2	6	5	14	<6	13	<6	10	<6	3
Total	33		32		36		23		31		30	

Table 48. Number and Percentage of Drowning Deaths Among Children by Race/Ethnicity, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	0	0	<6	<4	<6	<9	<6	<5	6	19	<6	13
American Indian	<6	<7	<6	<7	<6	<12	0	0	<6	<4	0	0
Asian	<6	<7	<6	<10	<6	<9	<6	13	0	0	0	0
Hispanic	10	30	11	9	9	25	14	61	7	23	10	33
White, non-Hispanic	19	58	15	17	17	47	<6	22	17	55	16	53
Total	33		32		36		23		31		30	

Table 49. Number and Percentage of Firearm-Related Deaths Among Children by Age Group, Arizona 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
<10 Years	7	32	5	22	6	19	<6	10	<6	20	<6	11
10-14 Years	8	36	3	13	4	13	<6	17	6	24	6	21
15-17 Years	7	32	15	65	22	69	21	73	14	56	19	68
Total	22		23		32		29		25		28	

Table 50. Number and Percentage of Firearm-Related Deaths Among Children by Race/Ethnicity, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Race/Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	0	0	<6	<5	<6	<10	<6	<7	0	0	<6	4
American Indian	0	0	<6	<5	<6	<7	<6	<4	<6	4	<6	11
Asian	0	0	0	0	0	0	<6	<4	0	0	0	0
Hispanic	9	41	14	61	9	28	15	52	10	40	6	21
White, non-Hispanic	13	59	7	30	18	56	9	31	14	56	18	64
Total	22		23		32		29		25		28	

Appendix of Child Deaths by Age Group

The following section of this report provides data on the cause and manner of child deaths by age group. Individuals and agencies can use the information provided for each age group to guide prevention efforts within each stage of child development. For the past nine years, teams' completed review of 100 percent of Arizona child fatalities and data from 2010 through 2015 are included in the following tables in order to provide comparison data. [14]

The Neonatal Period, Birth through 27 Days

Table 51. Number of Deaths Among Children Ages Birth Through 27 Days by Cause and Manner, Arizona, 2015

Cause	Natural	Accident	Suicide	Homicide	Undetermined	Total
Medical*	126	0	0	0	0	126
Prematurity	152	0	0	0	0	152
MVC	0	<6	0	0	0	<6
Suffocation	0	<6	0	0	0	<6
Undetermined	0	0	0	0	<6	<6
Other	<6	0	0	0	<6	<6
Total	282	<6	0	0	<6	288
*Excluding SIDS and prematurity						

Table 52. Number and Percentage of Deaths Among Children Ages Birth Through 27 Days by Cause, Arizona, 2010- 2015

	2010		2011		2012		2013		2014		2015	
Cause	#	%	#	%	#	%	#	%	#	%	#	%
Prematurity	180	54	181	54	172	53	188	63	195	57	152	52
Medical*	145	43	143	43	143	44	102	34	138	40	128	44
Undetermined	6	2	5	2	5	2	<6	<1	<6	<1	<6	1
SIDS	0	0	0	0	0	0	<6	<1	0	0	0	0
MVC/Transport	1	<1	0	0	3	1	<6	<1	0	0	<6	<1
Other	0	0	1	<1	0	0	<6	<1	<6	<1	<6	1
Suffocation	1	<1	5	1	2	1	<6	<1	<6	<2	<6	1
Exposure	1	<1	0	0	0	0	<6	<1	0	0	0	0
Drowning	0	0	0	0	0	0	<6	<1	0	0	0	0
Total	334		334		325		298		341		288	
*Excluding SIDS and Prematurity												

[14] For all tables in Appendix A, 2015 data with a count less than six are denoted as <6 and are suppressed due to concern with individual identification.

Table 53. Number and Percentage of Deaths Among Children Ages Birth Through 27 Days by Manner, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Manner	#	%	#	%	#	%	#	%	#	%	#	%
Natural	324	97	318	95	315	58	289	97	332	97	280	97
Undetermined	7	2	8	2	4	9	<6	<6	<6	<1	<6	1
Accident	2	1	7	2	4	2	6	2	6	2	<6	2
Homicide	1	<1	1	<1	2	5	<6	<6	0	0	0	0
Suicide	0	0	0	0	0	0	<6	<1	0	0	0	0
Total	334		334		325		298		341		288	

The Post-Neonatal Period, 28 Days through 365 Days

Table 54. Number of Deaths Among Children Ages 28 Days Through 365 Days by Cause and Manner, Arizona, 2015						
Cause	Natural	Accident	Suicide	Homicide	Undetermined	Total
Medical	68	0	0	0	0	68
Prematurity	25	0	0	0	0	25
MVC/Transport	0	<6	0	0	0	<6
Suffocation	0	49	0	<6	<6	51
Drowning	0	<6	0	0	0	<6
Blunt Force Trauma	0	0	0	<6	0	<6
Undetermined	<6	0	0	0	26	27
Poisoning	0	0	0	0	<6	<6
Exposure	0	<6	0	0	0	<6
Total	94	53	0	<6	28	178

Table 55. Number and Percentage of Deaths Among Children Ages 28 Days Through 365 Days by Cause, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Cause	#	%	#	%	#	%	#	%	#	%	#	%
Medical	82	43	75	43	68	40	60	38	64	35	68	38
Prematurity	17	9	17	10	17	10	18	12	25	14	25	14
MVC/Transport	<6	<1	<6	2	<6	<2	<6	<1	<6	<1	<6	<1
Firearm	0	0	<6	<1	<6	<1	<6	<1	<6	<1	0	0
Suffocation	22	11	34	19	44	26	41	26	59	32	51	29
Drowning	<6	1	<6	<2	<6	2	0	0	<6	1	<6	1
SIDS	<6	<1	<6	1	0	0	0	0	0	0	0	0
Blunt Force Trauma	6	3	9	5	6	4	6	4	6	3	<6	1
Hanging	0	0	0	0	<6	<1	<6	<1	0	0	0	0
Undetermined	56	29	29	17	26	15	26	17	23	13	27	15
Poisoning	<6	<1	0	0	0	0	0	0	0	0	<6	1
Fire/Burn	0	0	0	0	0	0	0	0	<6	<1	0	0
Exposure	<6	<1	0	0	<6	<1	<6	1	<6	<1	<6	1
Fall/Crush	0	0	0	0	0	0	0	0	0	0	0	0
Other Injury	<6	<2	6	<1	0	0	0	0	0	0	0	0
Total	192		175		171		156		183		178	

Table 56. Number and Percentage of Deaths Among Children Ages 28 Days Through 365 Days by Manner, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Manner	#	%	#	%	#	%	#	%	#	%	#	%
Natural	109	57	92	53	84	49	79	51	89	49	94	53
Undetermined	50	26	32	18	29	17	26	17	24	13	28	16
Accident	25	13	38	22	48	28	44	28	63	34	53	30
Homicide	8	4	12	7	10	6	7	4	7	4	<6	2
Suicide	0	0	0	0	0	0	<6	<1	0	0	0	0
Unknown	0	0	1	<1	0	0	<6	<1	0	0	0	0
Total	192		175		171		156		156		178	

Children, One through Four Years of Age

Table 57. Number of Deaths Among Children Ages One Through Four Years by Cause and Manner, Arizona, 2015						
Cause	Natural	Accident	Suicide	Homicide	Undetermined	Total
Medical*	40	0	0	0	0	40
MVC/Transport	0	13	0	0	0	13
Suffocation	0	6	0	0	0	6
Drowning	0	14	0	6	0	20
Blunt Force Trauma	0	0	0	9	0	9
Hanging	0	0	0	<6	0	<6
Undetermined	0	0	0	0	<6	<6
Other Non-Medical	0	<6	0	0	0	<6
Poisoning	0	<6	0	<6	0	<6
Exposure	0	<6	0	0	0	<6
Fall/Crush	0	<6	0	0	0	<6
Other Injury	0	<6	0	<6	0	<6
Total	40	39	0	18	<6	101
* Excluding SIDS and Prematurity						

Table 58. Number and Percentage of Deaths Among Children Ages One Through Four Years by Cause, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Cause	#	%	#	%	#	%	#	%	#	%	#	%
Medical*	52	44	40	38	57	48	62	48	40	42	40	40
Drowning	22	18	18	17	18	15	19	15	18	19	20	20
MVC/Transport	19	16	15	14	11	9	18	14	10	11	13	13
Other non-Medical	7	6	0	0	1	1	<6	<1	<6	1	<6	1
Undetermined	6	5	5	5	4	3	6	5	26	4	<6	4
Blunt Force Trauma	4	3	10	9	9	8	14	11	10	11	9	9
Firearm	2	2	1	1	4	3	<6	<1	<6	1	0	0
Poisoning	0	0	1	1	1	1	<6	<1	0	0	<6	2
Exposure	2	2	0	0	0	0	<6	<1	<6	2	<6	1
Fire/burn	2	2	2	2	1	1	<6	<1	0	0	0	0
Fall/crush	2	2	2	2	2	2	<6	<1	<6	2	<6	2
Hanging	1	<1	3	3	3	3	<6	<1	0	0	<6	1
Prematurity	0	0	1	1	3	3	<6	<1	<6	1	0	0
Suffocation	0	0	8	8	5	4	<6	<1	<6	5	6	6
Other Injury	-	-	-	-	1	1	<6	<1	<6	1	<6	2
Total	119		106		120		130		95		101	
*Excluding SIDS and Prematurity												

Table 59. Number and Percentage of Deaths Among Children Ages One Through Four Years by Manner, Arizona, 2010- 2015												
	2010		2011		2012		2013		2014		2015	
Manner	#	%	#	%	#	%	#	%	#	%	#	%
Natural	52	44	40	38	57	48	62	48	40	42	40	40
Accident	52	44	47	44	39	33	46	35	36	38	39	39
Undetermined	8	7	7	7	7	6	6	5	<6	5	<6	<6
Homicide	6	5	12	11	17	14	16	12	14	15	18	18
Suicide	0	0	0	0	0	0	<6	<1	0	0	0	0
Unknown	1	<1	0	0	0	0	<6	<1	0	0	0	0
Total	119		106		120		130		95		101	

Children, Five through Nine Years of Age

Table 60. Number of Deaths Among Children Ages Five Through Nine Years by Cause and Manner, Arizona, 2015						
Cause	Natural	Accident	Suicide	Homicide	Undetermined	Total
Medical*	25	0	0	0	0	25
MVC/Transport	0	5	0	0	<6	9
Firearm	0	0	0	<6	0	<6
Drowning	0	6	0	0	0	6
Undetermined	<6	0	0	<6	<6	<6
Fire/Burn	0	<6	0	0	0	<6
Exposure	0	<6	0	0	0	<6
Fall/Crush	0	<6	0	0	0	<6
Other Injury	0	0	0	<6	0	<6
Total	26	18	0	<6	<6	51
*Excluding SIDS and prematurity						

Table 61. Number and Percentage of Deaths Among Children Ages Five Through Nine Years by Cause, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Cause	#	%	#	%	#	%	#	%	#	%	#	%
Medical	31	53	26	48	37	59	24	51	30	54	25	49
Prematurity	0	0	0	0	0	0	<6	<1	0	0	0	0
MVC/Transport	10	17	13	34	12	19	17	36	12	21	9	18
Other	2	3	0	0	0	0	<6	<1	<6	<2	<6	2
Drowning	4	7	7	13	5	8	<6	<1	4	7	9	12
Fire/Burn	2	3	1	2	3	5	<6	<1	0	0	<6	4
Hanging	0	0	1	2	0	0	<6	<1	<6	2	0	0
Firearm	5	9	3	6	1	2	<6	<1	<6	5	<6	6
Undetermined	1	2	1	2	1	2	<6	<1	0	0	<6	6
Fall/Crush	2	3	0	0	2	2	<6	<1	<6	4	<6	2
Blunt Force Trauma	0	0	1	2	2	2	<6	<1	<6	4	0	0
Suffocation	1	2	1	2	0	0	<6	<1	<6	2	0	0
Poisoning	0	0	0	0	0	0	<6	<1	0	0	0	0
Total	58		54		63		47		56		51	
*Excluding SIDS and Prematurity												

Table 62. Number and Percentage of Deaths Among Children Ages Five Through Nine Years by Manner, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Manner	#	%	#	%	#	%	#	%	#	%	#	%
Natural	32	55	26	48	37	59	25	53	29	52	26	51
Accident	20	34	22	41	22	35	20	43	21	38	18	35
Undetermined	0	0	1	2	1	2	<6	<6	<6	2	<6	4
Homicide	6	10	4	7	3	5	<6	<6	<6	9	<6	10
Suicide	0	0	1	2	0	0	0	0	0	0	0	0
Total	58		54		63		47		56		51	

Children, 10 through 14 Years of Age

Table 63. Number of Deaths Among Children Ages 10 Through 14 Years by Cause and Manner, Arizona, 2015						
Cause	Natural	Accident	Suicide	Homicide	Undetermined	Total
Medical*	19	0	0	0	0	19
MVC/Transport	0	7	<6	0	0	8
Firearm Injury	0	0	<6	<6	0	6
Suffocation	0	<6	0	0	0	<6
Drowning	0	<6	0	0	0	<6
Hanging	0	0	<6	0	0	<6
Undetermined	<6	0	0	0	<6	<6
Poisoning	0	<6	0	0	0	<6
Exposure	0	0	0	0	0	<6
Other Injury	0	0	<6	0	0	<6
Total	20	12	12	<6	<6	46

Table 64. Number and Percentage of Deaths Among Children Ages 10 Through 14 Years by Cause, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Cause	#	%	#	%	#	%	#	%	#	%	#	%
Medical*	29	44	34	47	35	47	34	44	36	51	19	41
MVC/Transport	12	18	17	24	21	28	20	26	9	13	8	17
Firearm	8	12	3	4	4	5	<6	6	6	9	6	13
Hanging	7	11	10	14	7	9	7	9	<6	6	<6	11
Other Injury	1	2	0	0	0	0	<6	<6	<6	1	<6	2
Fall/Crush	0	0	0	0	0	00	<6	<6	<6	1	0	0
Poisoning	1	2	0	0	0	0	<6	<6	<6	3	<6	2
Blunt Force Trauma	0	0	2	3	0	0	<6	<6	<6	1	0	0
Exposure	1	2	0	0	0	0	<6	<1	0	0	<6	2
Suffocation	0	0	1	1	1	1	<6	<1	<6	1	<6	4
Drowning	2	2	2	3	4	5	<6	<1	<6	6	<6	2
Undetermined	3	5	1	1	2	3	<6	<6	<6	3	<6	4
Fire/burn	2	2	2	3	1	1	<6	<6	<6	3	0	0
Total	66		72		75		77		70		46	
*Excluding SIDS and Prematurity												

Table 65. Number and Percentage of Deaths Among Children Ages 10 Through 14 Years by Manner, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Manner	#	%	#	%	#	%	#	%	#	%	#	%
Natural	30	45	34	47	36	48	36	47	37	53	20	44
Accident	18	27	22	31	27	36	24	31	17	24	12	26
Suicide	9	14	13	18	9	12	8	20	11	16	12	26
Homicide	4	6	2	3	2	3	9	23	<6	<6	<6	2
Undetermined	5	8	1	1	1	1	<6	<1	<6	1	<6	2
Total	66		72		75		77		70		46	

Children, 15 through 17 Years of Age

Table 66. Number of Deaths Among Children Ages 15 Through 17 Years by Cause and Manner, Arizona, 2015

Cause	Natural	Accident	Suicide	Homicide	Undetermined	Total
Medical*	25	0	0	0	0	25
MVC/Transport	0	18	0	0	0	18
Firearm	0	<6	12	<6	0	19
Suffocation	0	<6	0	0	0	<6
Drowning	0	<6	0	0	0	<6
Hanging	0	0	11	0	0	11
Undetermined	<6	0	0	0	<6	<6
Poisoning	0	7	<6	0	<6	11
Fire/Burn	0	0	<6	0	0	<6
Exposure	0	<6	0	0	0	<6
Fall/Crush	0	<6	0	0	0	<6
Other Injury	0	0	8	0	0	8
Total	27	33	35	<6	<6	104

*Excluding SIDS and prematurity

Table 67. Number and Percentage of Deaths Among Children Ages 15 Through 17 Years by Cause, Arizona, 2010-2015

	2010		2011		2012		2013		2014		2015	
Cause	#	%	#	%	#	%	#	%	#	%	#	%
Firearm	7	8	15	16	22	22	21	20	14	16	19	18
MVC/Transport	18	19	21	22	38	38	24	23	25	28	18	17
Medical*	20	22	25	26	13	13	21	20	18	20	25	24
Hanging	11	12	13	14	9	9	10	10	9	10	11	11
Poisoning	16	17	9	9	6	6	12	12	7	8	11	11
Other	8	9	0	0	1	1	<6	<1	<6	6	8	8
Exposure	6	6	0	0	0	0	<6	<1	<6	2	<6	2
Drowning	3	3	2	2	5	5	<6	<1	<6	<3	<6	1
Undetermined	2	2	4	4	2	2	<6	<1	0	0	<6	5
Fall/Crush	0	0	2	2	1	1	<6	<1	<6	2	<6	1
Blunt Force Trauma	1	1	3	3	2	2	<6	<1	0	0	0	0
Fire/Burn	0	0	1	1	0	0	<6	<1	<6	3	<6	1
Suffocation	1	1	1	1	1	1	<6	<1	<6	1	<6	2
Total	93		96		100		103		89	93	104	

*Excluding SIDS and Prematurity

Table 68. Number and Percentage of Deaths Among Children Ages 15 Through 17 Years by Manner, Arizona, 2010-2015												
	2010		2011		2012		2013		2014		2015	
Manner	#	%	#	%	#	%	#	%	#	%	#	%
Accident	43	46	31	32	50	50	46	45	37	42	33	32
Natural	18	19	27	28	13	13	22	21	19	21	28	26
Homicide	11	12	11	11	9	9	16	16	6	7	<6	4
Suicide	15	16	25	26	24	24	17	17	27	30	35	34
Undetermined	4	4	2	2	3	3	<6	<1	0	0	<6	4
Unknown	2	2	0	0	-	-	<6	<1	0	0	0	0
Total	93		96		100		103		89		105	

Appendix of Population Denominators for Arizona Children

The population denominators shown below were used in computing the rates presented in this report. Denominators for 2011 through 2015 were provided by the Arizona Department of Health Services Bureau of Public Health Statistics.

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

Population estimates for 2014 and forward were modified from previous years by applying county level demographic proportions in the census estimates for 2013 to the 2014 county population totals published by ADOA Department of Demography. This was done in order to determine the county-level proportions by race/ethnicity, gender, and age.

Table 69. Population of Children Ages Birth Through 17 Years by County of Residence, Arizona, 2010-2015

County	2010	2011	2012	2013	2014	2015
Apache	22,660	22,808	21,843	21,493	21,271	21,132
Cochise	30,250	30,099	30,434	30,621	29,190	28,906
Coconino	31,788	31,716	31,310	31,463	31,097	30,902
Gila	11,471	11,451	11,317	11,351	11,062	11,091
Graham	10,575	10,718	10,623	10,818	10,871	10,874
Greenlee	2,463	2,463	2,408	3,016	2,952	2,967
La Paz	3,678	3,682	3,685	3,708	3,682	3,693
Maricopa	1,007,861	1,014,790	1,008,347	1,015,472	1,016,044	1,021,299
Mohave	41,265	41,301	40,338	39,786	39,076	38,404
Navajo	31,973	31,901	31,551	31,463	30,868	30,682
Pima	225,316	226,652	223,677	223,639	222,413	2,208,66
Pinal	99,700	101,929	102,591	103,403	99,111	99,049
Santa Cruz	14,560	14,752	14,396	14,369	14,304	14,243
Yavapai	40,269	40,305	39,602	39,417	38,243	37,841
Yuma	55,185	56,547	56,415	57,367	56,542	56,255
Total	1,629,014	1,641,114	1,628,537	1,637,386	1,626,726	1,628,204

Table 70. Population of Children Ages 0 through 17 by Race/Ethnicity, Arizona, 2010-2015

Race/Ethnicity	2010	2011	2012	2013	2014	2015
African American	73,298	84,112	75,371	75,491	111,448	91,399
American Indian	98,555	123,712	98,426	99,014	123,657	86,548
Asian	43,969	47,936	43,452	44,838	62,673	53,073
Hispanic	75,146	673,462	683,843	691,459	634,110	707,456
White, non-Hispanic	677,752	711,892	727,446	726,558	694,838	689,731
Total	1,629,014	1,641,108	1,628,539	1,637,386	1,626,726	1,628,204

Table 71. Population of Children Ages 0 Through 17 Years by Age Group, Arizona, 2010-2015						
	2010	2011	2012	2013	2014	2015
<1 Year	87,557	88,211	87,184	89,196	84,342	86,222
1-4 Years	368,158	370,926	356,828	351,077	350,065	346,443
5-9 Years	453,680	457,080	459,232	464,622	462,931	463,564
10-14 Years	448,664	451,989	454,826	459,528	458,488	458,966
15-17 Years	270,955	272,914	270,469	272,963	270,900	273,009
Total	1,629,014	1,641,108	1,628,539	1,637,386	1,626,726	1,628,204

Table 72. Number of Resident Births, Arizona, 2010-2015					
2010	2011	2012	2013	2014	2015
86,945	85,142	85,675	84,963	86,648	85,024

Table 73. Number of Births by Race/Ethnicity, Arizona, 2010-2015						
Race/Ethnicity	2010	2011	2012	2013	2014	2015
African American	4,230	4,290	4,674	4,726	4,522	4,361
American Indian	5,746	5,787	5,547	5,476	5,145	4,984
Asian	3,284	3,493	4,674	3,466	3,169	3,235
Hispanic	34,059	32,217	33,030	33,075	33,715	34,264
White, non-Hispanic	39,626	39,355	38,800	38,220	40,097	38,180
Total	86,945	85,142	85,675	84,963	86,648	85,024

Appendix: Arizona Local CFR Teams

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Casa Grande Police Department

Detective Ashley Walker
Criminal Investigations Division
Coolidge Police Department

Lindsey Wicks
Pinal County Public Health Services

Yavapai County CFR Team

Chair/Coordinator
Barbara Jorgensen, MSN, RN
Yavapai County Community Health Services

Administrative Specialist
Carol Espinosa
Yavapai County Community Health Services

Members

Jerry Bruen
Law Enforcement,
Yavapai County Attorney's Office

Sue Carlson
Mental Health/ Counselor

Kathryn Chapman
Family Advocacy Center

Karen Dansby, MD
Pediatrician, retired
Consultant

Dawn Kimsey
DCS Representative

Joseph Lopez
Yavapai County Medical Examiner's Office

Kathy McLaughlin
Community at large – Family advocacy

Joe Odell
Community at Large

Kathy Swope, RN
School Nurse

Yuma County CFR Team

Chair
Patti Perry, MD
Yuma Regional Medical Center/Cactus Kids

Coordinator
Ryan Butcher
Yuma County Health District

Members

Chelsea Aldridge
Intern
YRMC and Dr. Perry

Jason Amon
Deputy
Yuma County Sheriff's Office

Jay Carlson
Yuma County Sheriff's Office

Kevin Davis
Intern
YRMC and Dr. Perry

Simi Dhillon
Intern
YRMC and Dr. Perry

Maria Estrada
Division of Children, Youth and Families
Arizona Department of Economic Security

Theresa Fox
County Attorney
Yuma County

Martin Loaiza
Behavioral Health Counselor
Behavioral Analysis
Counseling & Consulting

Chip Schneider
Amberly's Place

Jennifer Stanton
Yuma Regional Medical Center

Robert Vigil
Medical Examiner's Office
Yuma County Sheriff's Office