



Arizona Child Fatality Review Team

Twenty-Eighth Annual Report

November 15, 2021

Mission: To reduce preventable child fatalities in Arizona through a systematic, multi-disciplinary, multi-agency, and multi-modality review process. Prevention strategies, interdisciplinary training, community-based education, and data-driven recommendations are derived from this report to aid legislation and public policy.





Letter from the Chair of the Arizona State CFR Team

The Arizona Child Fatality Review (CFR) Program's goal is to reduce child deaths in Arizona by conducting a comprehensive review of all child deaths to determine what steps could have been taken, if any, to prevent each child's death. In 2020, 838 children died in Arizona, an increase from the 777 deaths in 2019. The leading causes of death were prematurity, congenital anomalies, motor vehicle crashes, poisonings, and firearm injuries. Prematurity was the most common cause of death for neonates (infants less than 28 days old) while suffocation was the common cause of death among infants 28 days to less than 1 year of age.

The accidental injury death rate increased 31% from 2019 to 2020. The three most common causes of accidental death were motor vehicle crashes, poisoning, and suffocation. A child protective services history with the family, substance use and poverty were the most common risk factors for accidental deaths. The motor vehicle crash death rate increased 54% and the firearm injury mortality rate increased 41%. The most common risk factor contributing to a firearm injury death was access to firearms, with 86% of firearm injury deaths involving a handgun, and the child's parent as the owner accounted for 25% of the firearm injury deaths.

There was a 30% increase in the suicide rate from 2019 to 2020. Risk factors for suicide deaths included access to firearms, history of maltreatment and child mental health disorder. The substance use related death rate increased 32% from 2019 to 2020, and the most used substances contributing to a child's death were opiates and marijuana. The CFR teams determined that 47% (396) of the 2020 deaths could have been prevented. Motor vehicle crashes, poisonings, firearm injuries and suffocation were the four most common causes of preventable deaths. Most of the Sudden Unexpected Infant Deaths (SUIDs) were due to suffocation and unsafe sleep environments. Unsafe sleep environment was a factor in 100% of these deaths while objects in sleep environment was a factor in 92% of SUIDs.

There was a 5% decrease in abuse/neglect deaths from 2019 to 2020. Of the ninety-five children who died from abuse/neglect, 66% of the children had prior involvement with a CPS agency, and in 11% of these deaths, the families had an open case at the time of the child's death.

Prevention efforts are more likely to be effective if our recommendations are targeted to the children at greatest risk. While Black/African American children comprise only 6% of Arizona children, they comprised 13% of all child deaths and 16% of all infant deaths. Furthermore, American Indian/Native Alaskan children comprise only 5% of Arizona children, but they make up 10% of all child deaths and 8% of all infant deaths in Arizona in 2020. The underlying causes of these disparities needs to be addressed to decrease these deaths.

Due to the COVID-19 pandemic this report includes COVID-19 related child deaths where COVID-19 was the direct or indirect cause of death or if COVID-19 contributed to a child's death. The direct COVID-19 mortality rate in Arizona was 0.73 deaths per 100,000 children while the national direct COVID-19 mortality rate was 0.27 deaths per 100,000 children. Fifty-eight percent of direct COVID-19 deaths occurred in children less than 12 years old and fifty percent of the direct COVID-19 deaths were children living in a rural region. The most common



risk factor for direct COVID-19 deaths was poverty (58%). The fatality review team recognizes that COVID-19 likely is indirectly related to other child deaths and may have been a factor in the increases of child deaths due to suicide, firearm injuries and motor vehicle crashes included in this report.

Despite the COVID pandemic, our volunteers continued to meet virtually throughout the past year in order complete this annual report. I would like to thank all our volunteers as well as the Arizona Department of Health Services and the Arizona Chapter of the American Academy of Pediatrics for their support of the CFR program and its mission to prevent child deaths in Arizona.

Sincerely,

A handwritten signature in black ink that reads "Mary Ellen Rimsza M.D." in a cursive script.

Mary Ellen Rimsza, MD FAAP
Chair, Arizona Child Fatality State Team



Submitted to:

The Honorable Douglas A. Ducey, Governor, State of Arizona
The Honorable Karen Fann, President, Arizona State Senate
The Honorable Russell Bowers, 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:

Susan Newberry, Retired Maricopa County CFR Coordinator, who retired at the start of the 2020 child fatality reviews but volunteers countless hours offering support and quality assurance to the program. Her passion and hard work for the CFR program does not go unnoticed and she is a valuable resource for the program's success.

The ten local CFR teams and their coordinators in Arizona, whose persistent efforts, conducted 100% of child fatality reviews to aid in prevention recommendations. Because of their hard work and dedication to the program, over the last 28 years the CFR program has overall continued to decrease preventable deaths for our Arizona children.

This publication can be made available in alternative formats. Contact the CFR Program at (602) 364-1400 (voice) or call 1-800-367-8939 (TDD).

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Disclaimers and Changes to the Arizona Child Fatality Review Program

Disclaimers

Public Health and Vital Statistics:

Data in this report may differ from the data published by the [Bureau of Public Health Statistics \(BPHS\)](#). BPHS only reports data on Arizona residents whereas the Child Fatality Review (CFR) Program investigates and reports on the deaths of all children who die in Arizona regardless of state residency.

COVID-19 Arizona Dashboards:

Data in this report may be different from the data published in the [ADHS COVID-19 Dashboards](#). The dashboards utilize MEDSIS, the Arizona surveillance system, with a classification of confirmed or probable to determine if a death was COVID-19 related. The CFR Program utilized a different approach based on guidance from the [National Center for Fatality Review and Prevention](#). The approach is further described on page 49.

Department of Child Safety (DCS)/Child Protective Services (CPS):

Data in this report may differ from the data published by the Department of Child Safety/Child Protective Services as the CFR Program and DCS/CPS have different definitions of child abuse/neglect.

Race/Ethnicity Referencing:

Due to spacing issues, the figures throughout the report will refer to the following race/ethnicity groups: American Indian, Asian, Black, Hispanic, and White. However, please note, American Indian includes Alaska Native, Asian includes Pacific Islander, Black includes African American, and Hispanic includes Latino. All text accompanying the figures will be all-inclusive.

Racial Disparities:

Although portions of the report show progress in reducing child deaths in Arizona overall, racial disparities in mortality remain or have increased in recent years. American Indian/Native American and African American children are disproportionately affected by mortality at greater levels than White and Hispanic children despite both groups representing small proportions of the total Arizona population. Further investigation of these disparities can lead to evidence-based tailored public health programs and interventions to improve mortality rates for Arizona's American Indian/Native American and African American communities.



Changes to the 2021 Report

COVID-19 Pandemic Data:

Due to the global pandemic of COVID-19, a disease caused by SARS-CoV-2, this report includes a COVID-19 section. COVID-19 related deaths can only fall into one of the two categories: COVID-19 was the direct cause of death or COVID-19 indirectly caused or contributed to the death. See glossary for further explanation and definitions.

There is no comparison from year to year as the COVID-19 pandemic data collection began in 2020. ADHS collaborated with the National Child Fatality Review Center and the US Centers for Disease Control and Prevention to determine the best approach to review and categorize these deaths.

Mortality Rate Trend Table:

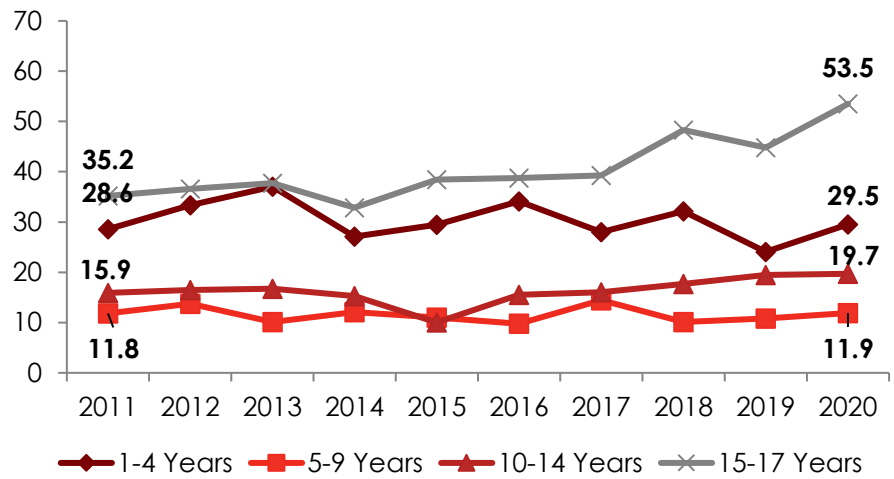
A data table was added to provide yearly percent increases/decreases calculations across multiple manners and causes of deaths for years 2016 to 2020. This allows for additional year to year comparisons while reducing the need to reference older published reports. The data table is located in page 81.



Report Highlights

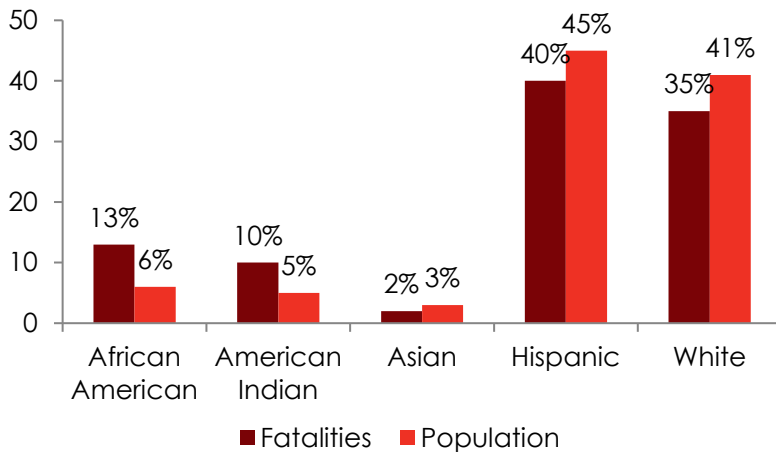
Total Deaths 838
Preventable Deaths 396 (47% of all deaths)
Infant Deaths (<1 Year) 399 (48% of all deaths)
Mortality Rate 28.1 per 100,000 (1-17 Years of Age)

Mortality Rates per 100,000 Children by Age Group, Ages 1-17 Years, Arizona, 2011-2020



Natural Causes	Accidents	Homicides	Suicides	Undetermined
57%	28%	6%	6%	3%
475 child deaths	232 child deaths	53 child deaths	49 child deaths	29 child deaths

Percentage of Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=838)



Leading Causes of Death:

1. Prematurity (n=207, 25%)
2. Congenital Anomaly (n=111, 13%)
3. Motor Vehicle Crash (n=93, 11%)
4. Poisoning (n=66, 8%)
5. Firearm Injury (n=51, 6%)

Of the **157** substance use related deaths, **57** were **fentanyl** poisonings

Boys were victim to **86%** of firearm deaths

73% of children who died of abuse/neglect were **less than five years of age**

100% of the SUIDs occurred in an **unsafe sleep environment**



Introduction

Injuries and medical conditions are among the leading causes of death for Arizona's children. Unlike diseases, most injuries do not occur randomly. A thorough examination of each death reveals factors that are both predictable and preventable. Historical data shows that infants are most often injured by suffocation resulting from an unsafe sleep environment, toddlers are more likely to drown, and older children are more vulnerable to motor vehicle or firearm injury. Analyzing risk factors allows injuries to be anticipated and thus prevented when the appropriate protective measures are in place.

The Arizona Child Fatality Review (CFR) Program was established to review all possible factors surrounding a child's death. The intent of the program is to identify ways of reducing preventable fatalities. Legislation was passed in 1993 (A.R.S. § 36-342, 36- 3501) authorizing the creation of the CFR Program. In 1994, the review process and data collection began. Today 10 local teams conduct initial reviews with oversight from the State Team and its two subcommittees.

This report provides a comprehensive review of fatalities occurring in Arizona among children less than 18 years of age. Descriptive statistics and trend analyses 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. The demographic and prevention information in this 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.

According to the National Center for Child Death Review, there are six basic steps to conduct an effective review meeting¹:

- 1 Share, question, and clarify all case information
- 2 Discuss the investigation
- 3 Discuss the delivery of services
- 4 Identify risk factors
- 5 Recommend systems improvements
- 6 Identify and take action to implement prevention recommendations



Methods

Review Process

Arizona has 10 Local CFR Teams who complete reviews and provide recommendations for prevention at the community level. Second level reviews of Sudden Unexpected Infant Deaths and Abuse/Neglect Deaths are done at the state level by subcommittees of the State Team. The State CFR Team provides oversight to Local CFR teams, prepares this annual report of review findings, and develops recommendations to reduce preventable child deaths. The review process begins when the death of a child less than 18 years old is identified through a vital records report. The CFR program sends a copy of the death certificate to a local CFR team that is based in the community where the deceased child lived. If the child was not a resident of Arizona, the local team in the community where the death occurred will conduct the review. 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. The State CFR Team reviews the statistics and prevention recommendations for the annual report and make final determinations on behalf of the local CFR teams. The report is written and reviewed by the Child Fatality Review Program housed in the Bureau of Women's and Children's Health.

Local Team Membership

These teams are located throughout the state and membership includes:

- County attorney's office
- County health department
- County medical examiner's office
- Department of Child Safety (DCS)
- Domestic violence specialist
- Local law enforcement
- Parent
- Pediatrician or family physician
- Psychiatrist or psychologist

Report Statistics

The descriptive statistics in this report summarize the information about these child deaths by manner, cause, age, gender, and race/ethnicity. Frequencies and cross-tabulation tables are shown throughout the report. The demographic and prevention information represented in this report are primarily used to help broadly inform public health initiatives and the community. In compliance with ADHS data suppression guidelines, all counts less than 6 will be suppressed and warnings for estimates that are based on counts less than 10.

Manner of Death versus Cause of Death

In this report, the manner of death includes natural (e.g., cancer), accident (e.g., accidental car crash), homicide (e.g., assault), suicide (e.g., self-inflicted intentional firearm injury), and undetermined. The cause of death includes abuse/neglect, COVID-19 related (direct and indirect), drowning, firearm injury, motor vehicle crash (MVC), prematurity, substance use related, and sudden unexpected infant death (SUID). 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 accidental. If it was intentional, then the manner of death was suicide or homicide. If it was accidental, 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.

Limitations

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.

Additionally, 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 American Indian 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.



Recommendations

In response to the summary data in the report, the State Child Fatality Review Team makes evidence-based recommendations to prevent child fatalities within the state. Highlights of the recommendations include the following:

- **Prematurity** was identified as the most common cause of death among neonates. Some prevention recommendations include, ensuring that pregnant women have access to quality and affordable prenatal care in addition to expanding telemedicine services to women who are living in area where there is no or limited access to obstetric care.
- **Motor vehicle cash** death rate increased drastically. Some prevention recommendations include, educating children, parents and caregivers on the safe pedestrian practices and avoid distracted walking, and strengthening law enforcement's capability to stop and cite vehicles with occupants that are not wearing seat belts by introducing a primary seat belt law because primary laws have been shown to result in higher seat belt usage than secondary laws.
- The mortality rate for **firearm injury** increased this year. Some prevention recommendations include removing firearms in households containing children and adolescents, and gun owners should practice safe storage of their firearms which requires keeping the gun unloaded and locked in a safe with ammunition stored separately from the firearm as this practice significantly reduces the risk of gun injury or death.
- The rate of **suicide** increased as well. Some prevention recommendations include increasing access to effective mental health care for Arizonans by adopting the Zero Suicide model statewide, implementing communication strategies using traditional and new media for school personnel that promotes suicide prevention, emotional well-being and mental health, and increasing public awareness of risk factors and warning signs (i.e. cutting, past attempts, drug use, school problems, sexuality and gender identify struggles, bullying, etc.) for suicide, and connect people in crisis to care including promotion of the national suicide hotline.
- **Substance use** related death rate increased this year. Some prevention recommendations for substance use include, expanding access to services for people with unstable housing and those that are experiencing homelessness because they are at higher risk for substance use, improving access to personalized substance use disorder treatment plans for children, and treatment plans based on individuals' strengths because it can keep children engaged in their care and increase the likelihood of a successful treatment and better health outcomes.

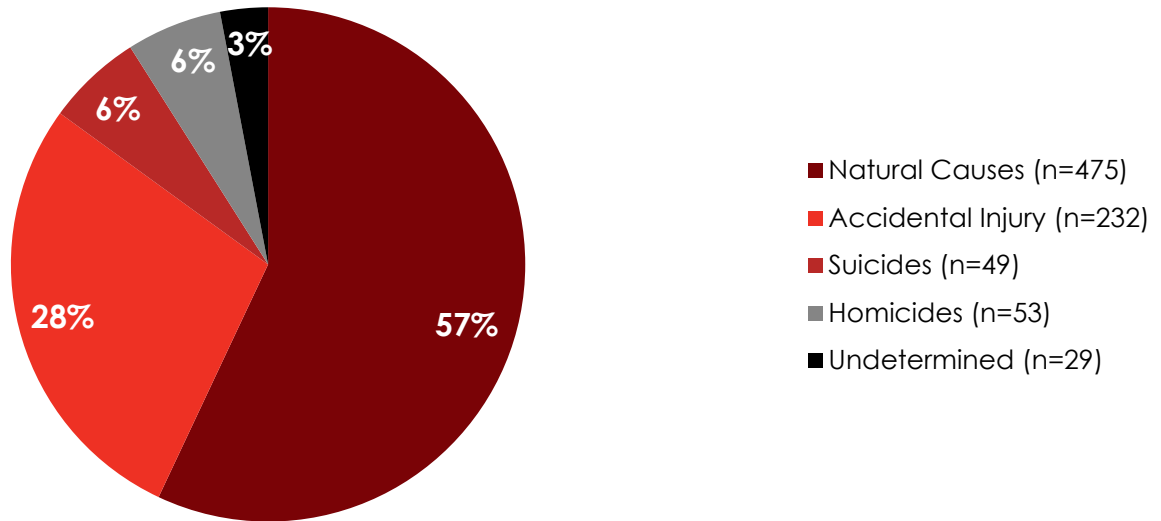
A more detailed list of these prevention recommendations begins on page 82.



Demographics: Child Mortality (0-17 Years)

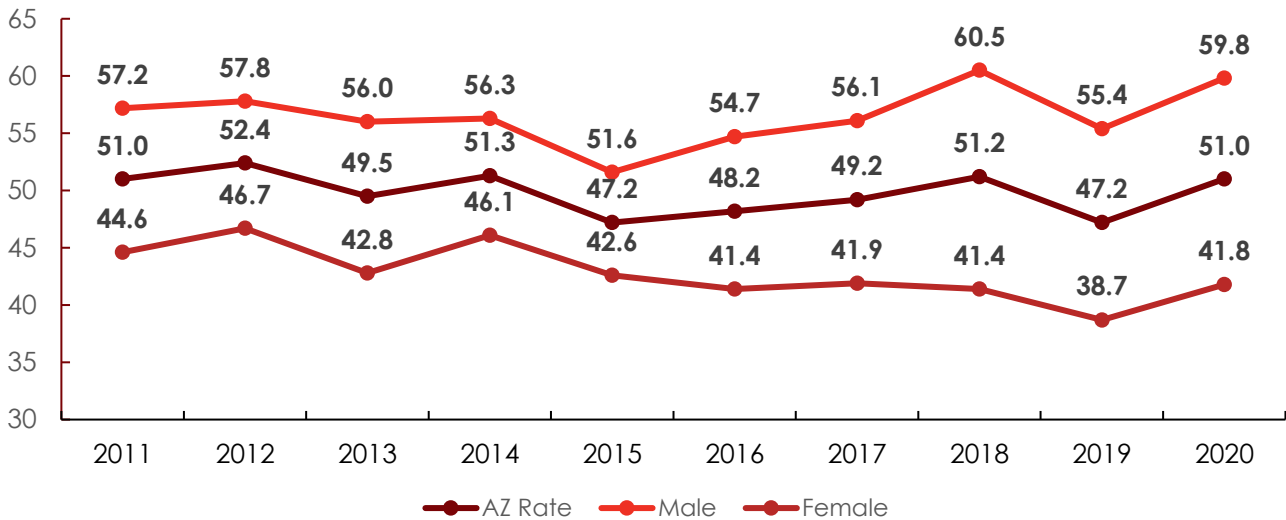
In 2020, the majority of child deaths were due to natural causes (57%) (Figure 1).

Figure 1. Number and Percentage of Deaths among Children by Manner of Death, Ages 0-17 Years, Arizona, 2020 (n=838)



Overall, Arizona's child mortality rate has remained relatively stable from 2011-2020 (Figure 2). Arizona's child mortality rate increased 8.1% from 47.2 deaths per 100,000 children in 2019 to 51.0 deaths per 100,000 children in 2020.

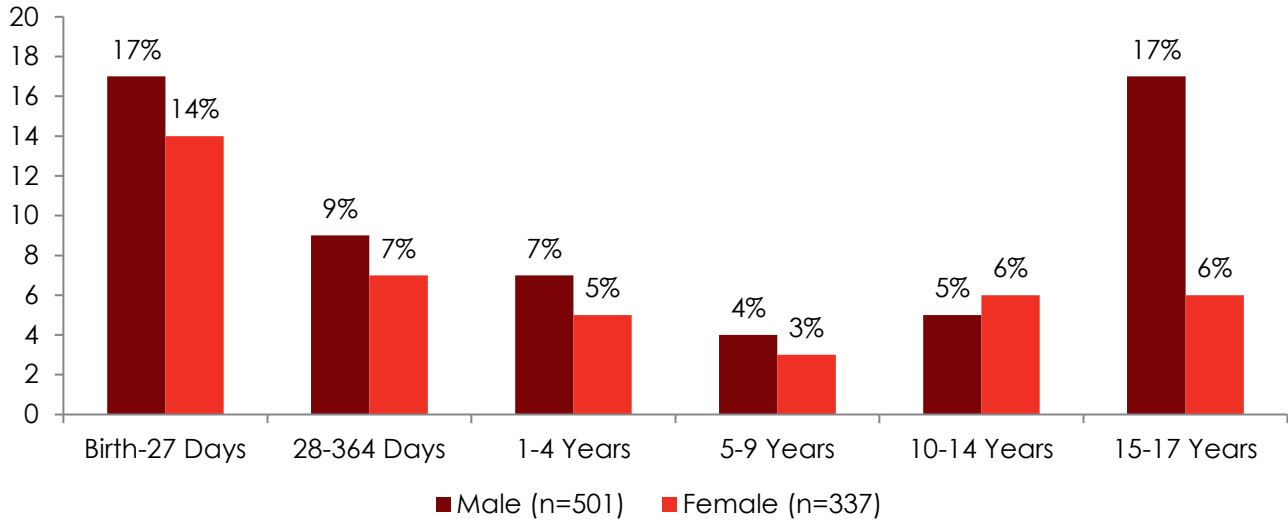
Figure 2. Mortality Rate per 100,000 Children, Ages 0-17 Years, Arizona, 2011-2020 (n=838)²⁻¹¹





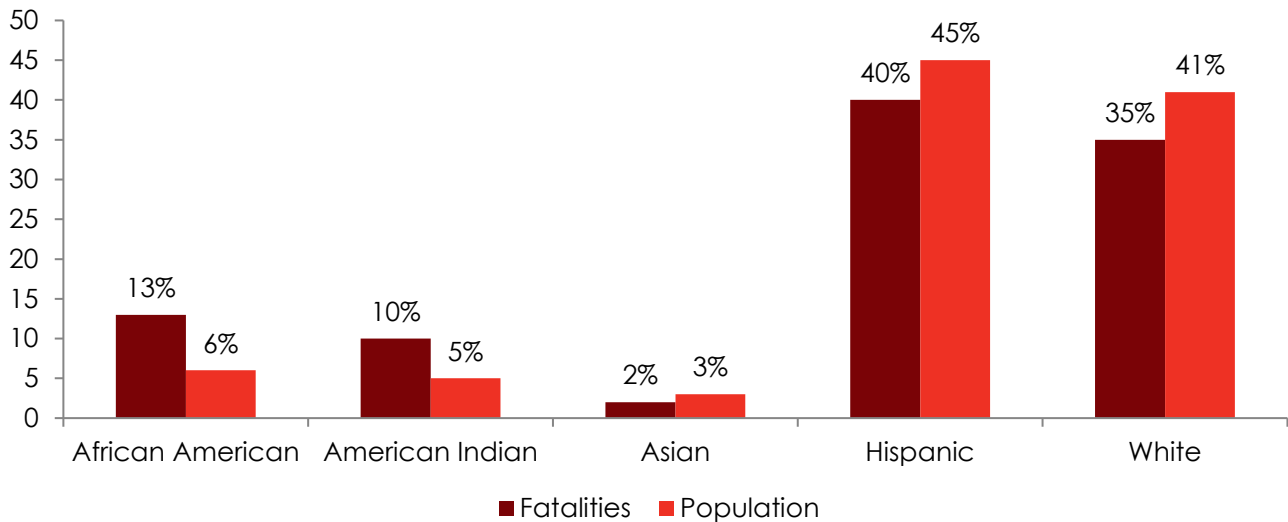
The majority of male child deaths occurred amongst those birth-27 days of age and 15-17 years of age while the majority of female child deaths occurred amongst those birth-27 days of age (Figure 3).

Figure 3. Percentage of Deaths among Children by Age Group and Sex, Ages 0-17 Years, Arizona, 2020 (n=838)



Black/African American and American Indian/Alaska Native children made up 13% and 10% of child deaths, respectively, but only make up 6% and 5% of the total population, respectively (Figure 4). The majority of child deaths were among Hispanic (40%) and White (35%) children.

Figure 4. Percentage of Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=838)²





Prematurity was the leading cause of death for infants 0-27 days while suffocation was the leading cause of death among infants 28 days to less than 1 year of age (Table 1). Among children ages 5-14 years, MVC was the leading cause of death. Among children 15-17 years, poisoning was the leading cause of death.

Table 1. Leading Causes of Child Death by Age Group, Arizona, 2020

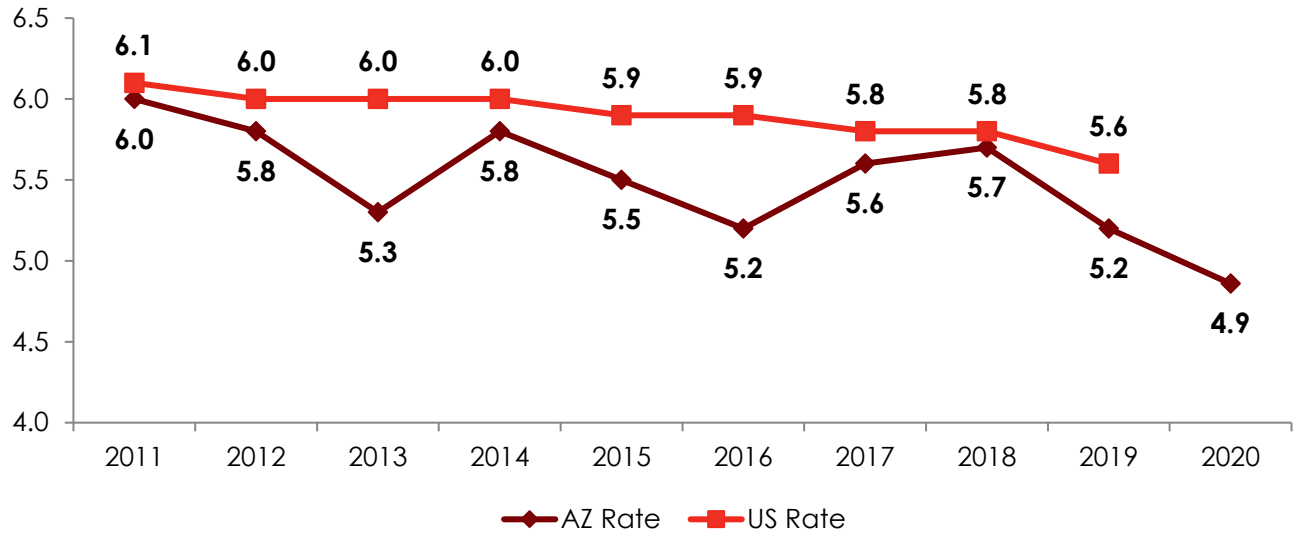
Age Group	Leading Causes of Child Death				
	1	2	3	4	5
0-27 Days (n=263)	Prematurity (n=181)	Congenital Anomaly (n=46)	Cardiovascular (n=12)	Other Perinatal Conditions (n=8)	Other Medical Condition (n<6)
28 Days - <1 Year (n=136)	Suffocation (n=39)	Congenital Anomaly (n=31)	Prematurity (n=23)	Undetermined (n=13)	Cardiovascular (n=6)
1-4 Years (n=103)	Drowning (n=21)	Cancer (n=12)	Congenital Anomaly (n=11)	Motor Vehicle Crash (n=10)	Other Infection (n=9)
5-9 Years (n=54)	Motor Vehicle Crash (n=17)	Neurological/ Seizure Disorder (n=8)	Congenital Anomaly (n=6)	Cancer (n<6)	Other Infection (n<6)
10-14 Years (n=94)	Motor Vehicle Crash (n=21)	Cancer (n=14)	Strangulation (n=12)	Firearm Injury (n=12)	Congenital Anomaly (n=9)
15-17 Years (n=188)	Poisoning (n=48)	Motor Vehicle Crash (n=40)	Firearm Injury (n=37)	Strangulation (n=13)	Congenital or Neurological Disorder (n=8)
All Deaths (n=838)	Prematurity (n=207)	Congenital Anomaly (n=111)	Motor Vehicle Crash (n=93)	Poisoning (n=66)	Firearm Injury (n=51)



Demographics: Infant Mortality (Less than 1 Year of Age)

Overall, Arizona's infant mortality rate remained stable from 2011-2018 (Figure 5). Since 2019, Arizona's infant mortality rate has decreased 6% from 5.2 deaths per 1,000 live births to 4.9 deaths per 1,000 live births. This is the lowest infant mortality rate reported since 2016 of 5.2 per 1,000 live births. The Arizona infant mortality rate has consistently been lower than the U.S. rate.

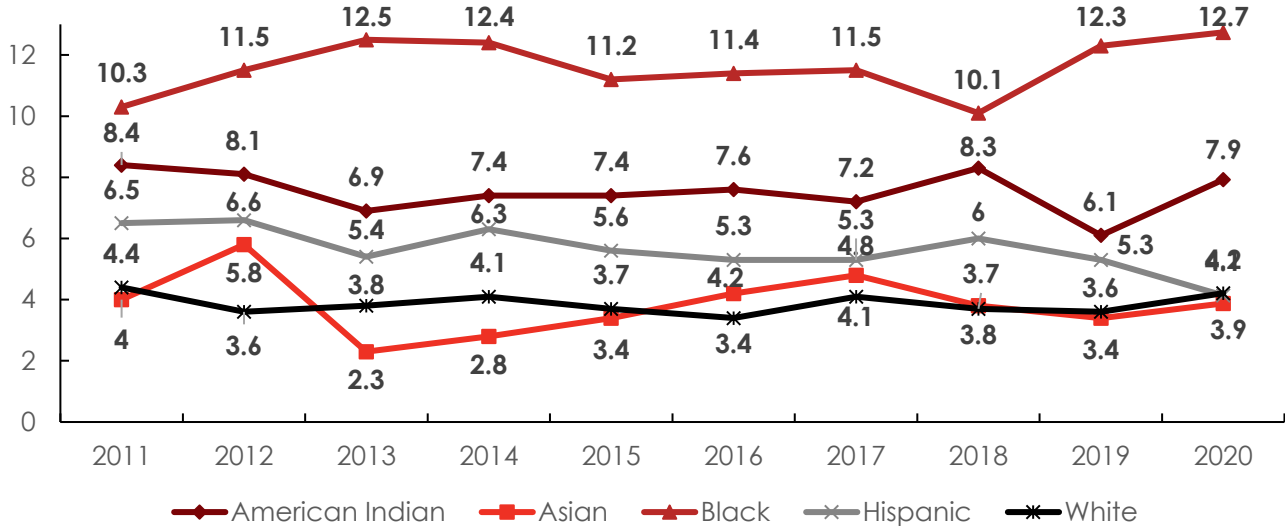
Figure 5. Infant Mortality Rates per 1,000 Live Births, Less than 1 Year of Age, Arizona & U.S., 2011-2020¹²⁻²²





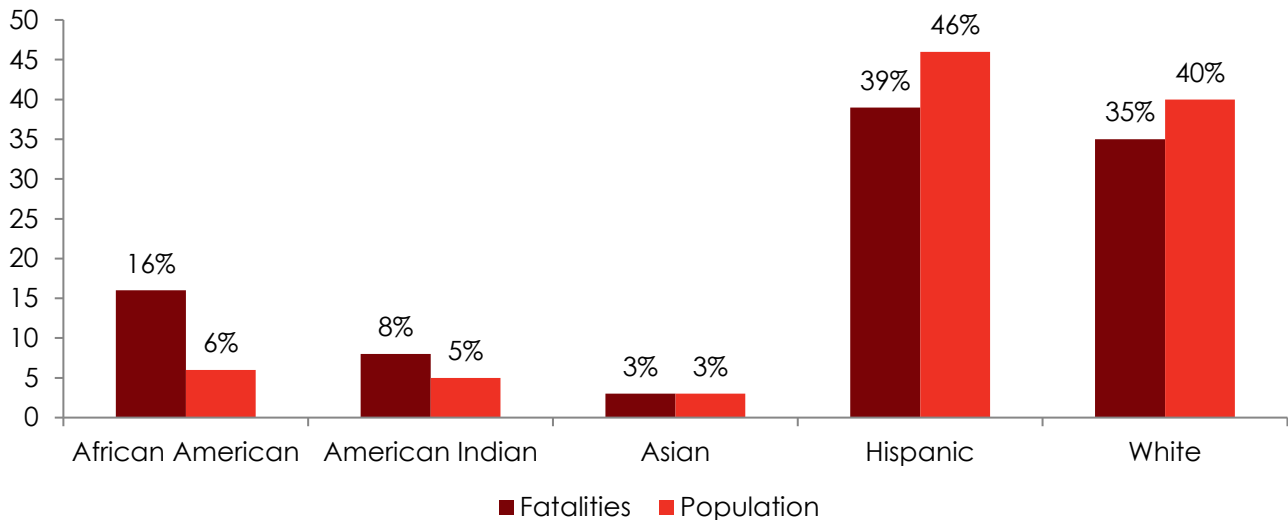
Black/African American and American Indian/Alaska Native infants have consistently had the highest rates of infant mortality from 2011-2020 (Figure 6). In 2020, the infant mortality rates for Black/African American and American Indian/Alaska Native were 12.7 and 7.9 deaths per 1,000 live births, respectively. In comparison, the infant mortality rates for Hispanic and White infants were 4.2 and 4.1 deaths per live births, respectively. All infant mortality rates, except for Hispanic infants, increased with the highest rate increase for American Indian infants of 29.5% from 2019 to 2020.

Figure 6. Infant Mortality Rates per 1,000 Live Births by Race/Ethnicity, Less than 1 Year of Age, Arizona, 2011-2020²⁴⁻²⁵



Black/African American and American Indian/Alaskan Native children made up 16% and 8% of infant deaths, respectively, but only make up 6% and 5% of the total population, respectively (Figure 7). The majority of child deaths were among Hispanic (39%) and White (35%) children.

Figure 7. Percentage of Deaths among Infants by Race/Ethnicity, Less than 1 Year of Age, Compared to Population, Arizona, 2020 (n=399)²⁵

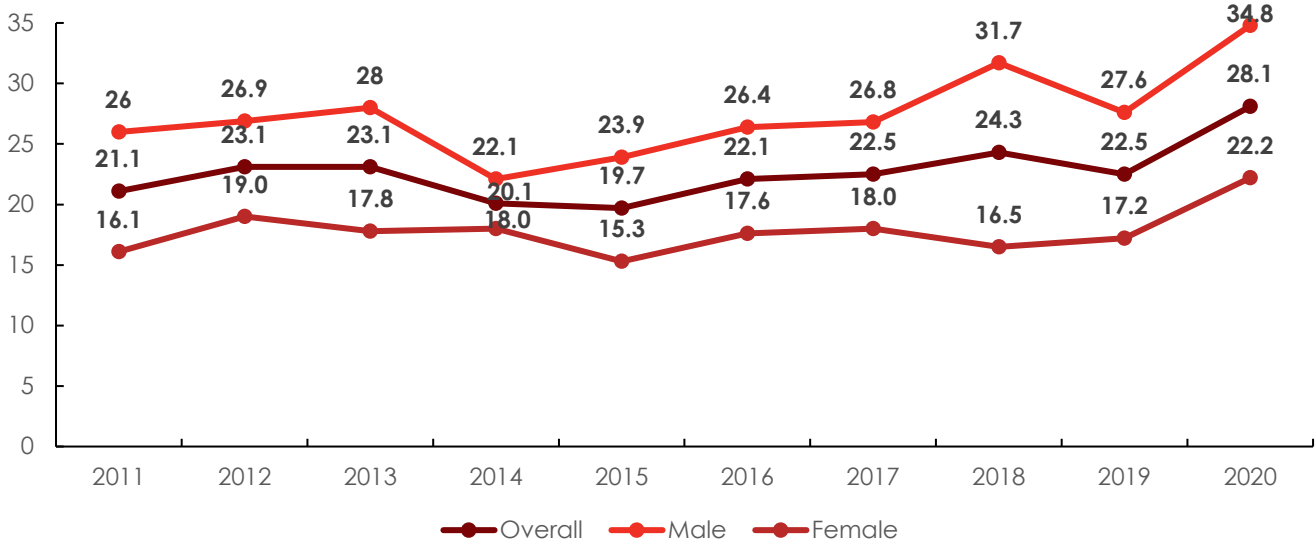




Demographics: Child Mortality (1-17 Years of Age)

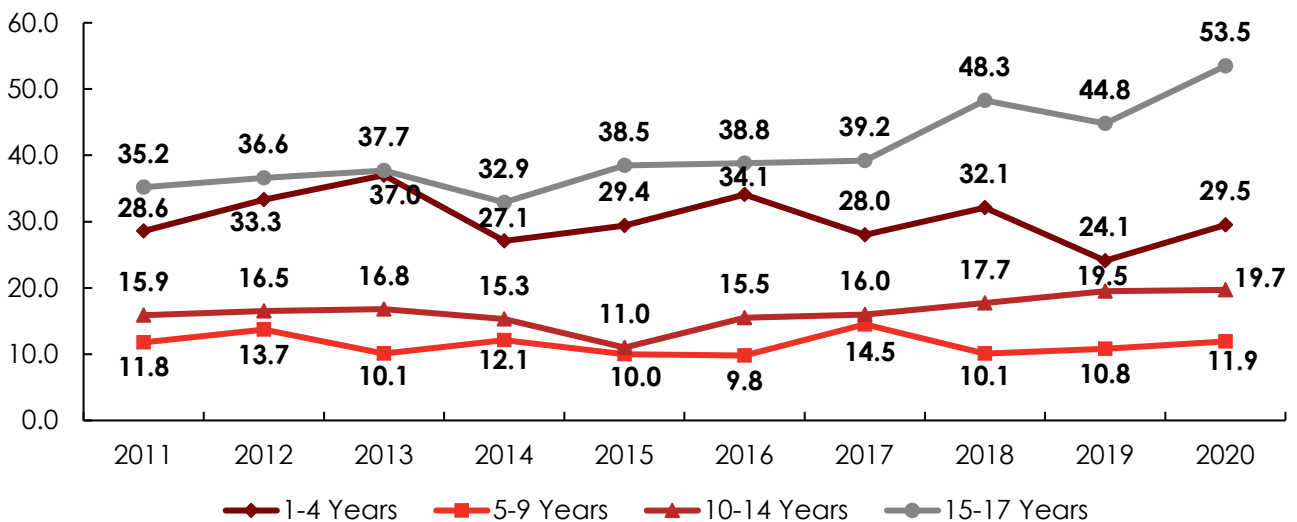
Arizona's child mortality rate increased 24% from 22.5 deaths per 100,000 children in 2019 to 28.1 deaths per 100,000 children in 2020 (Figure 8).

Figure 8. Mortality Rates per 100,000 Children, Ages 1-17 Years, Arizona, 2011-2020²



From 2019-2020, the Arizona's child mortality rate for children ages 15-17 increased by 19% from 44.8 deaths per 100,000 children in 2019 to 53.5 deaths per 100,000 children in 2020 (Figure 9).

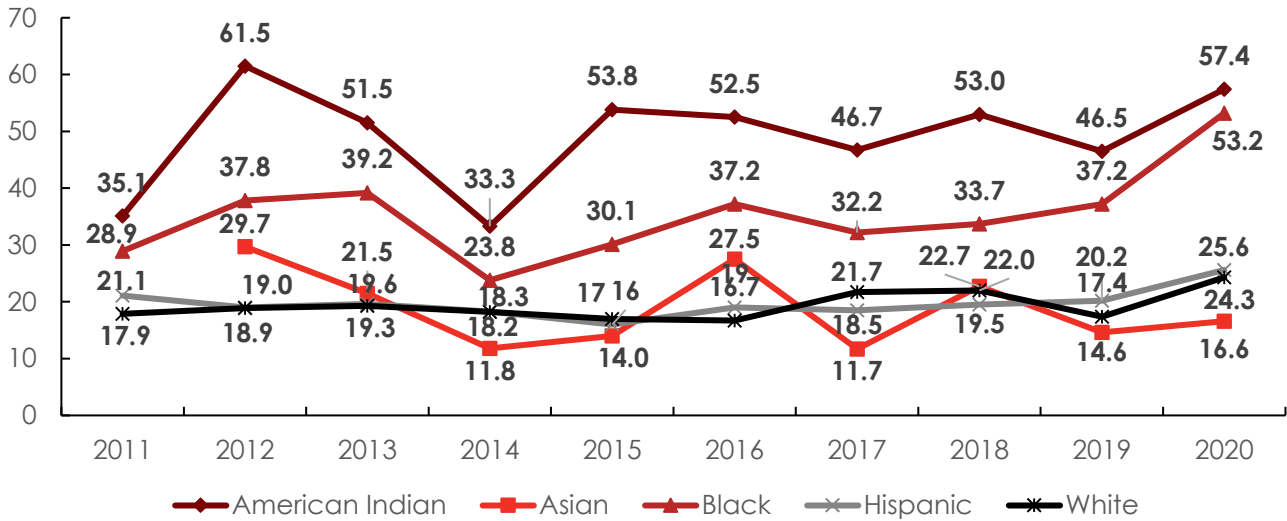
Figure 9. Mortality Rates per 100,000 Children by Age Group, Ages 1-17 Years, Arizona, 2011-2020²





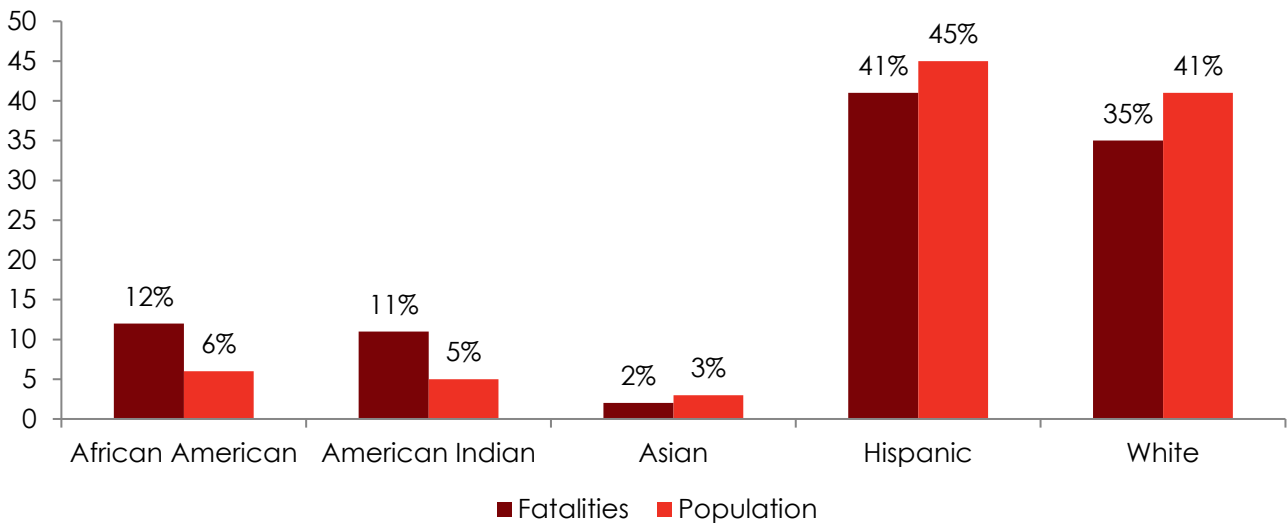
Overall, the mortality rate for all racial groups increased from 2019 to 2020. American Indian/Alaska Native and Black/African American children have consistently had the highest rates of child mortality from 2011-2020 (Figure 10). In 2020, the child mortality rate for American Indian/Alaska children was 57.4 deaths per 100,000 children and among Black/African American children was 53.2 deaths per 100,000 children.

Figure 10. Mortality Rates per 100,000 Children by Race/Ethnicity, Ages 1-17 Years, Arizona, 2011-2020²



American Indian/Alaska Native and Black/African American children made up 12% and 11% of child deaths, respectively, but only comprised 5% and 6% of the total population, respectively (Figure 11). The majority of child deaths were among Hispanic (41%) and White (35%) children.

Figure 11. Percentage of Deaths among Children by Race/Ethnicity, Ages 1-17 Years, Compared to Population, Arizona, 2020 (n=439)²





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" is used. Each multi-disciplinary team is composed of professionals who review the circumstances of a child's death by reviewing 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 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.

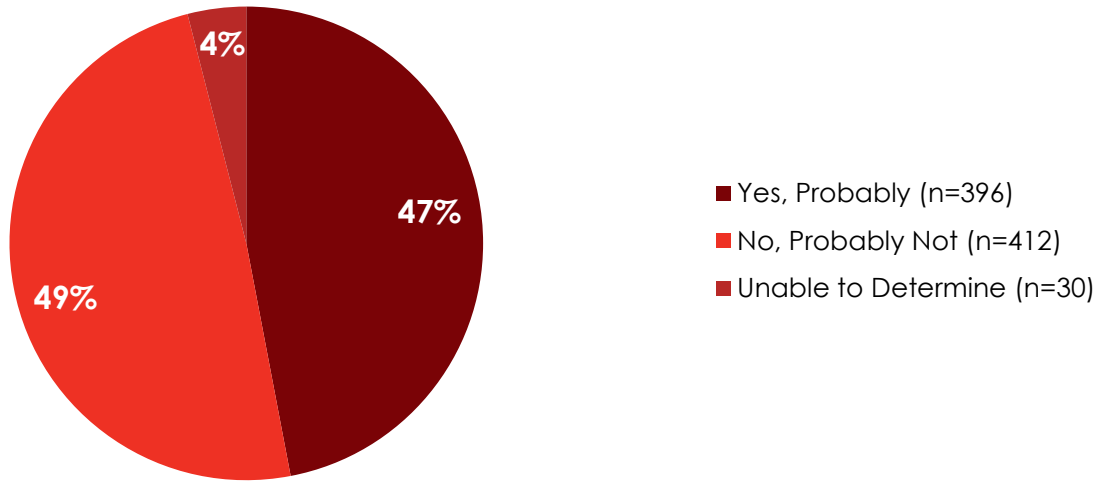
When discussing all deaths, the report is referring to the total 838 child deaths that took place in 2020. When the text refers to preventable deaths these are the fatalities that the review teams deemed to be preventable. The majority of the data discussed in this report are based on those fatalities determined as preventable by the teams. This is important so that efforts are targeted to the areas where prevention initiatives will be most effective.

In 2020, CFR teams determined 396 child deaths were probably preventable (47%), 412 child deaths were probably not preventable (49%) and could not determine the preventability in 30 deaths (4%) (Figure 12).



CFR teams determined 47% of child deaths were probably preventable, 49% of child deaths were probably not preventable, and could not determine the preventability in 4% of deaths (Figure 12).

Figure 12. Number and Percentage of Deaths among Children by Preventability, Ages 0-17 Years, Arizona, 2020 (n=396)



The leading cause of preventable deaths was motor vehicle crash deaths (23%) (Table 2).

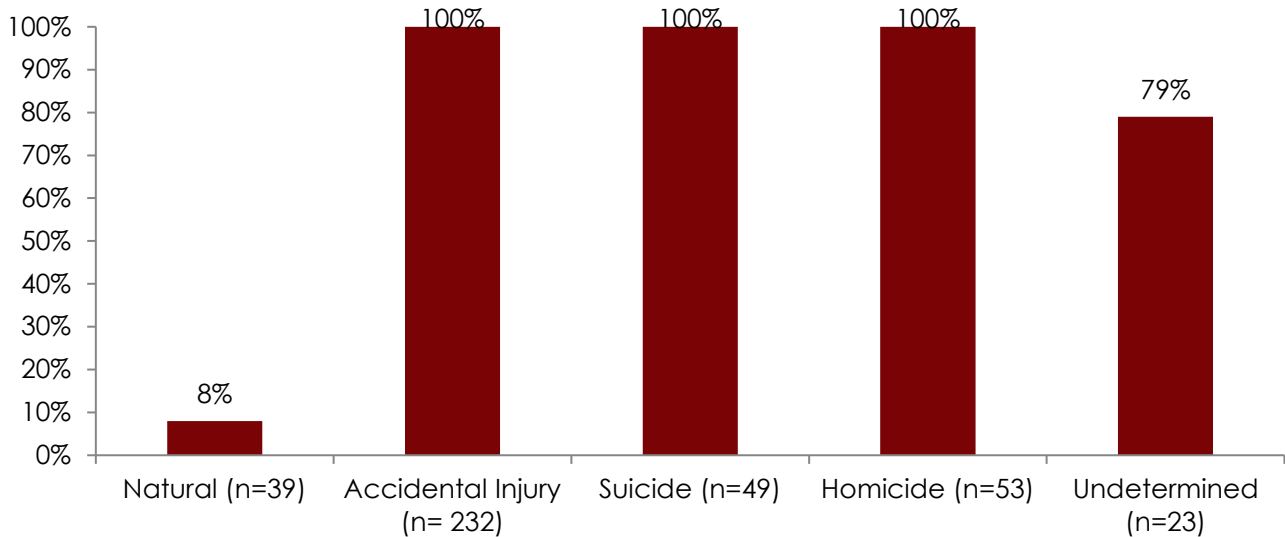
Table 2. Leading Causes of Preventable Deaths, Ages 0-17 Years, Arizona, 2020 (n=396)

Cause of Death	Number	Percent
Motor Vehicle Crash	93	23%
Poisoning	66	17%
Firearm Injury	51	13%
Suffocation	46	12%
Strangulation	25	6%



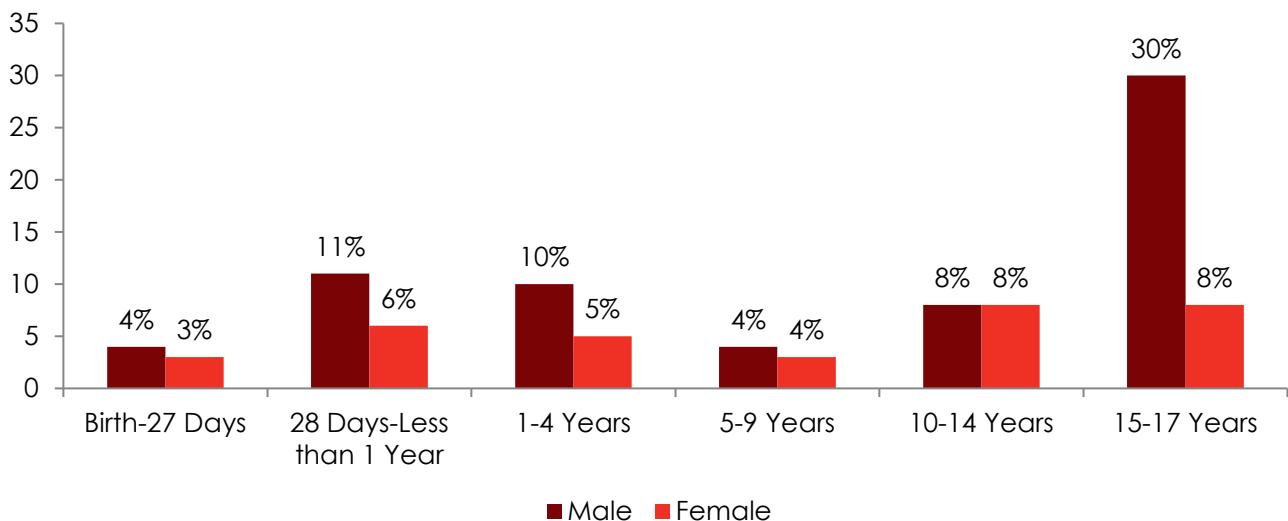
CFR teams determined 8% of natural deaths (n=39), 100% of accidental injury deaths (n=232), 100% of suicides (n=49), 100% of homicides (n=53), and 79% of undetermined deaths (n=23) were preventable (Figure 13).

Figure 13. Number and Percentage of Preventable Deaths among Children by Manner of Death, Ages 0-17 Years, Arizona, 2020 (n=396)



Infants between the ages of birth and 27 days (7%) and children ages 5-9 years (8%) had the lowest percentage of preventable deaths while children ages 15-17 years had the highest percentage of preventable deaths (38%), and male children ages 15-17 years made up a significant proportion of this demographic (Figure 14).

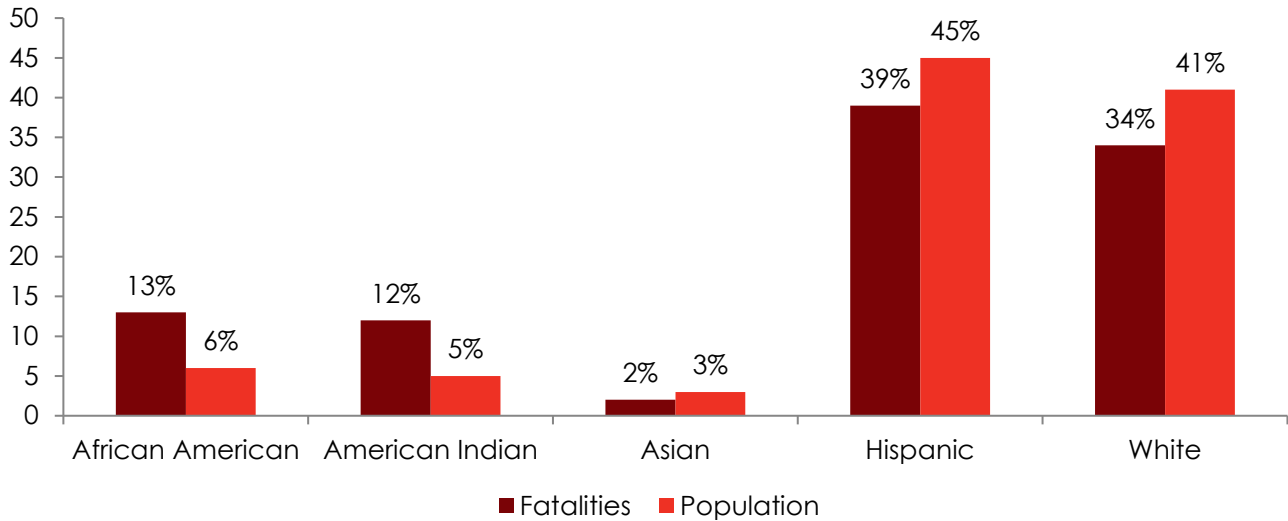
Figure 14. Percentage of Preventable Deaths among Children by Age Group and Sex, Ages 0-17 Years, Arizona, 2020 (n=396)





American Indian/Alaska Native and Black/African American children made up 12% and 13% of preventable child deaths, respectively, but only comprised 5% and 6% of the total population, respectively (Figure 15). The majority of child deaths were among Hispanic (39%) and White (34%) children.

Figure 15. Percentage of Preventable Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=396)³



The most commonly identified factor of preventable deaths was CPS history with the family (43%) followed by substance use (40%) (Table 3).

Table 3. Leading Risk Factors of Preventable Deaths, Ages 0-17 Years, Arizona, 2020

Risk Factors*	Number	Percent
CPS history with the family	172	43%
Substance Use	157	40%
Poverty	104	26%
Lack of Supervision	84	21%
Child History of Trauma	77	19%

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



Manner of Death



Accidental Injury Deaths

An injury that occurred when there was no intent to cause harm or death; an unintentional injury. See glossary for further explanation.



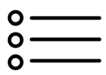
There were 232 accidental injury deaths in 2020.



There was a 31% increase in the accidental injury death rate from 2019 to 2020.



100% of accidental injury deaths were preventable.



#1 cause: Motor Vehicle Crash (n= 90)
#2 cause: Poisoning (n= 58)
#3 cause: Suffocation (n= 42)



Of the accidental injury deaths, 63% were male and 37% were female.



38% of accidental injury deaths occurred in children ages 15-17 years.



American Indian/ Alaska Native children were disproportionately affected. American Indian/ Alaska Native children made up 11% of accidental injury deaths but only make up 5% of the total population.

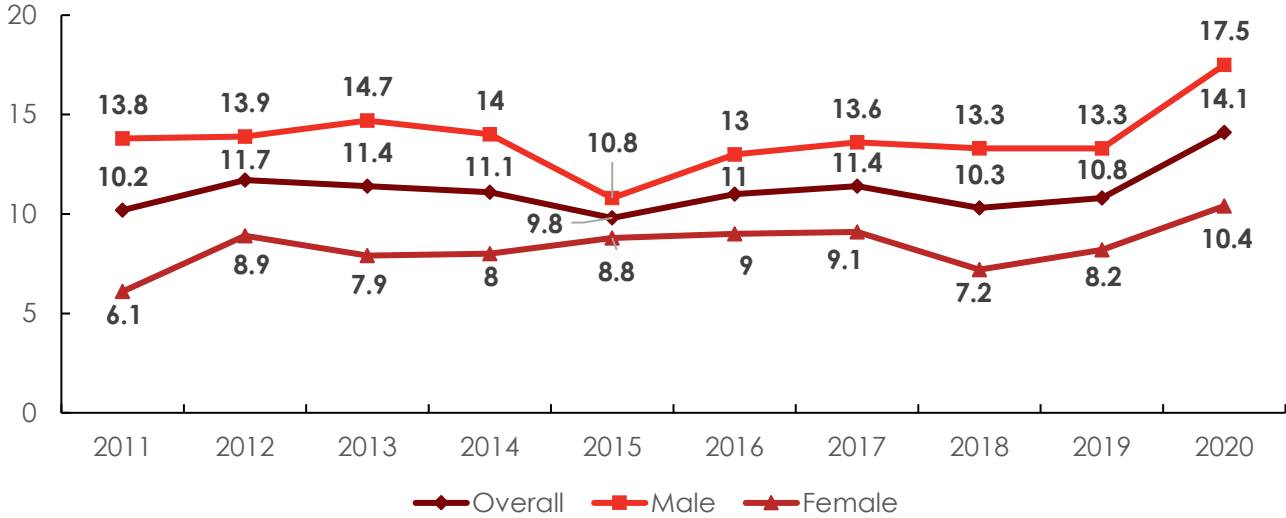


39% of accidental injury deaths involved substance use.



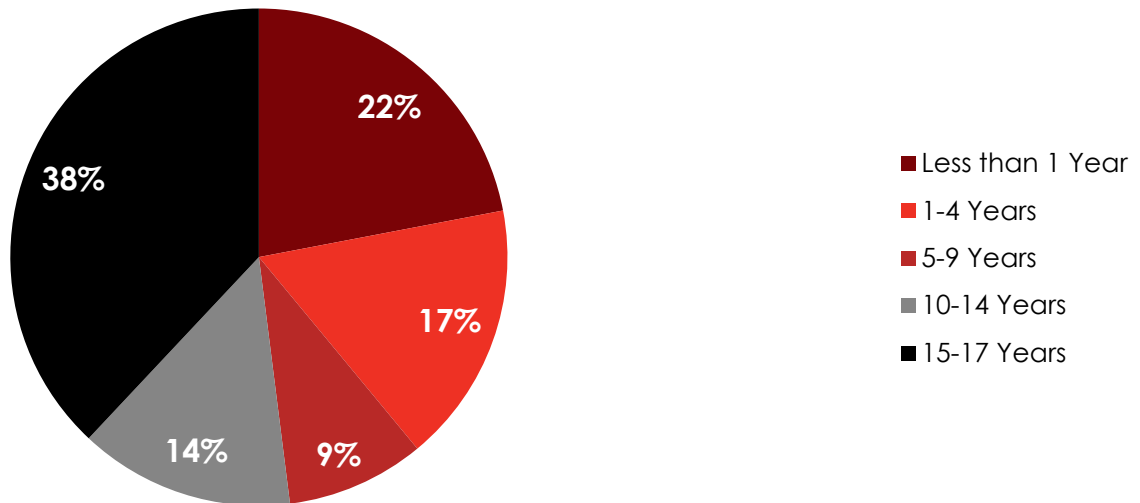
Overall, Arizona's accidental injury mortality rate has increased by 31% from 10.8 deaths per 100,000 children in 2019 to 14.1 deaths per 100,000 children in 2020 (Figure 16). Males have consistently had a higher accidental injury mortality rate compared to females.

Figure 16. Mortality Rate per 100,000 Children due to Accidental Injury by Gender, Ages 0-17 Years, Arizona, 2011-2020³⁻¹²



The majority of accidental injury deaths occurred among children ages 15-17 (38%) and children less than 1 year of age (22%) (Figure 17).

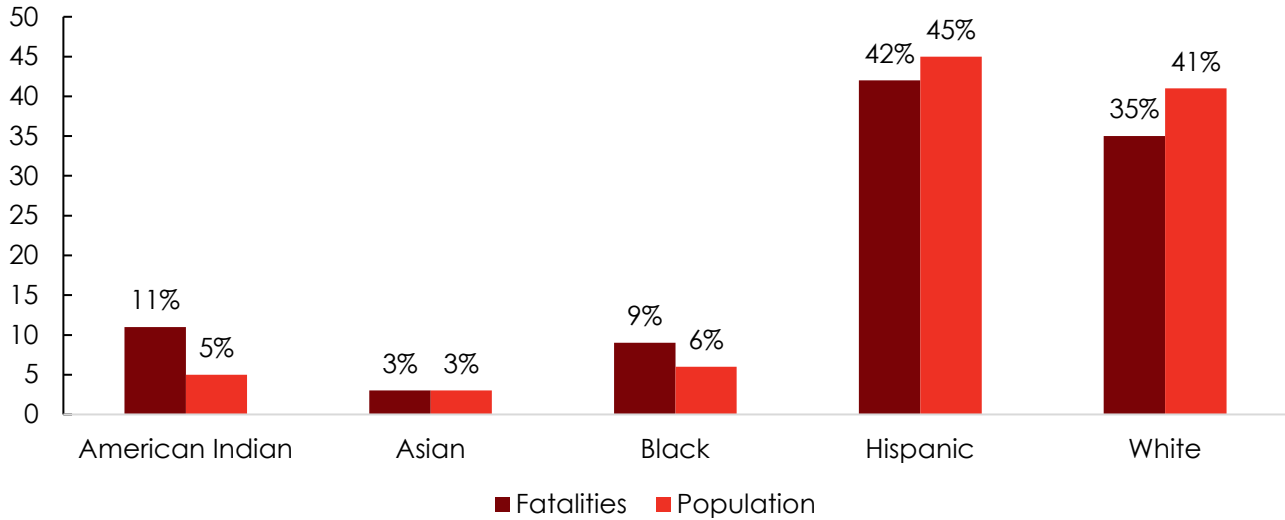
Figure 17. Number and Percentage of Accidents among Children by Age Group, Ages 0-17 Years, Arizona, 2020 (n=232)





Black/African American and American Indian/Alaskan Native children made up 9% and 11% of accidental injury deaths, respectively, but only comprised 6% and 5% of the total population, respectively (Figure 18). The majority of child deaths were among Hispanic (42%) and White (35%) children.

Figure 18. Percentage of Accidental Injury Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=232)³



Among accidental injury deaths, motor vehicle crash (39%) was the leading cause of death for children ages 0-17 years (Table 4).

Table 4. Leading Causes of Accidental Injury Deaths, Ages 0-17 Years, Arizona, 2020

Cause of Death	Number	Percent
Motor Vehicle Crash	90	39%
Poisoning	58	25%
Suffocation	42	18%
Drowning	22	9%
Other Injury	16	7%

While there are numerous preventable risk factors that contribute to accidental injury deaths, CPS history with the family (40%) was the most commonly identified risk factor (Table 5).

Table 5. Risk Factors of Accidental Injury Deaths, Ages 0-17 Years, Arizona, 2020

Risk Factors*	Number	Percent
CPS History with the Family	92	40%
Substance Use	90	39%
Lack of Supervision	62	27%
Poverty	58	25%
Child History of Trauma	34	15%

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



Homicides

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



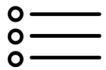
There were 53 homicides in 2020.



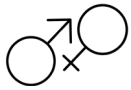
There was an 11% decrease in the homicide rate from 2019 to 2020.



100% of homicides were preventable.



#1 cause: Firearm (n= 28)
 #2 cause: Blunt Force Trauma (n= 13)
 #3 cause: Other Injury (n= 8)



Of the homicides, 77% were male and 23% were female.



47% of homicides occurred in children ages 15-17 years.



African American and American Indian children were disproportionately affected. African American children made up 30% of homicides but only make up 6% of the total population. Similarly, American Indian children made up 11% of homicides but only make up 5% of the total population.

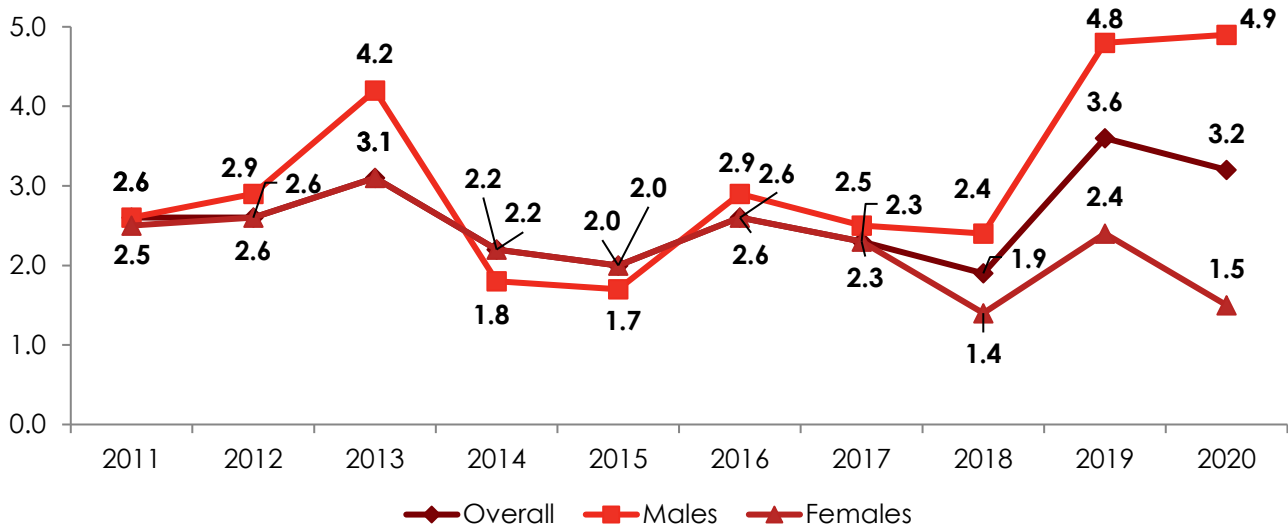


53% of homicides involved substance use.



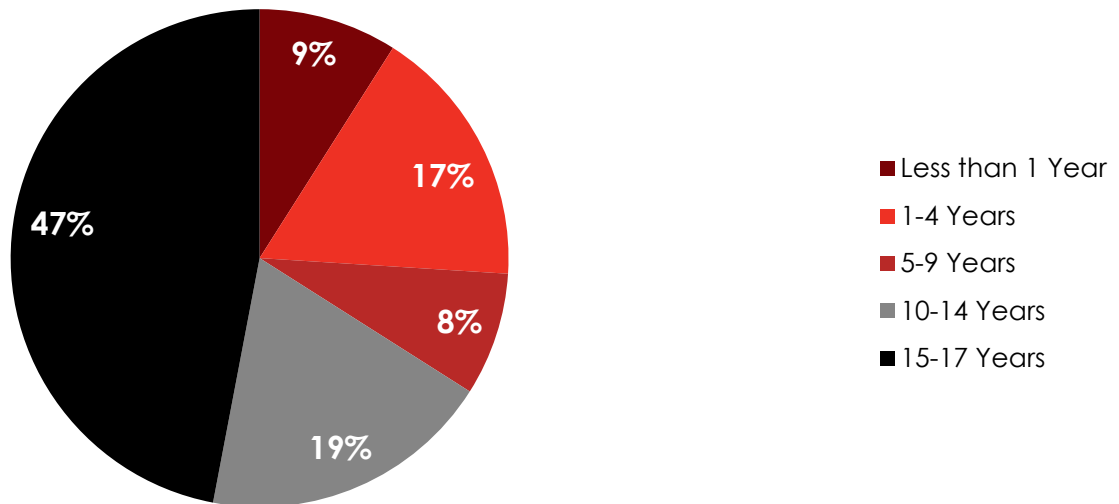
Overall, Arizona's homicide rate has increased from 2011 to 2020 (Figure 19). Since 2016, males have had a higher homicide rate compared to females. Arizona's homicide rate decreased by 11% from 3.6 deaths per 100,000 children in 2019 to 3.2 per 100,000 children in 2020.

Figure 19. Mortality Rate per 100,000 Children due to Homicide by Gender, Ages 0-17 Years, Arizona, 2011-2020³⁻¹²



The majority of homicides occurred among children 15-17 years (47%), followed by children less than 10-14 years (Figure 20).

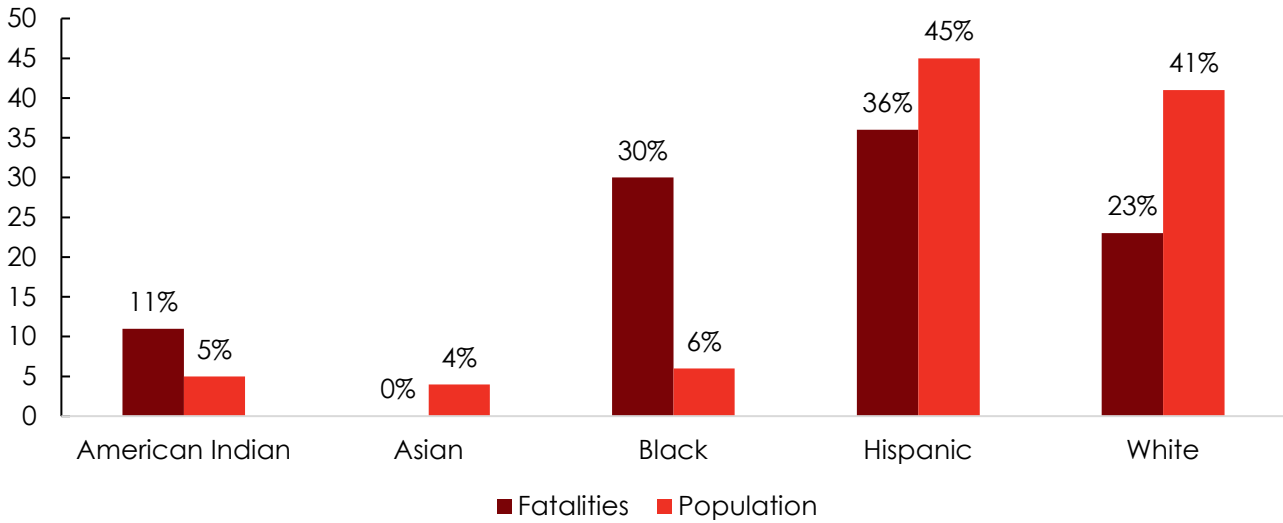
Figure 20. Percentage of Homicides among Children by Age Group, Ages 0-17 Years, Arizona, 2020 (n=53)





American Indian/Alaska Native and Black/African American children made up 11% and 30% of homicides, respectively, but only comprised 5% and 6% of the total population, respectively (Figure 21). The majority of child deaths were among Hispanic (36%) and Black (30%) children.

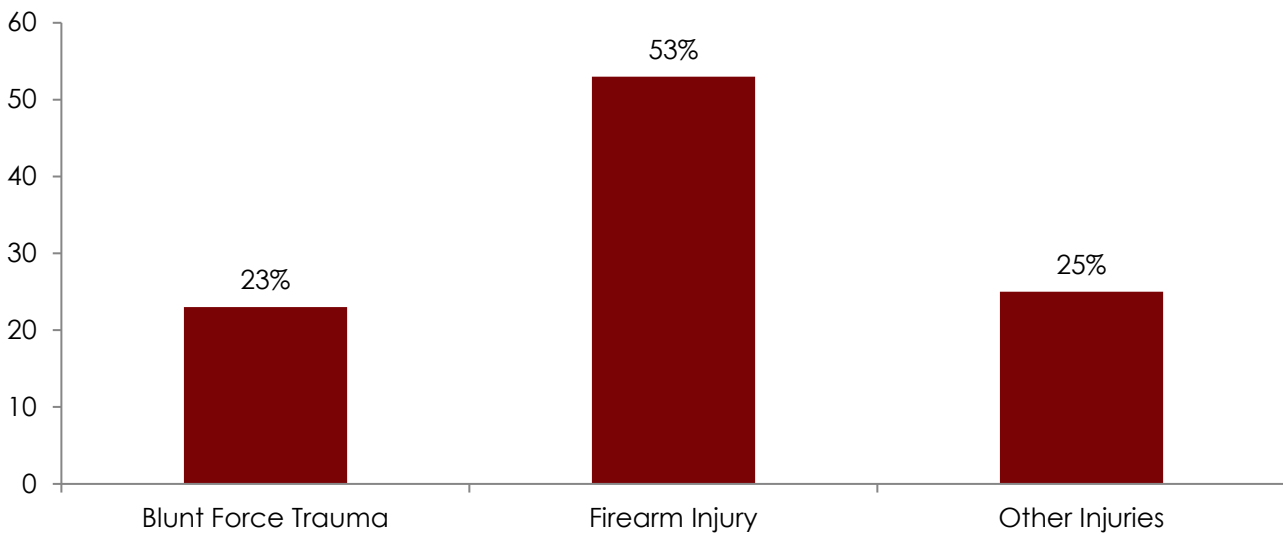
Figure 21. Percentage of Homicides among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=53) *3



*There is no comparison of fatalities for Asian in 2020 as (n=0).

Among homicides, firearm injury (53%) was the #1 cause of death for children ages 0-17 years followed by other injuries (25%) and blunt force trauma (23%) (Figure 22).

Figure 22. Percentage of Homicides among Children by Cause of Death, Ages 0-17 Years, Arizona, 2020 (n=53)





In 32% of the homicides, the perpetrators were classified as other (Table 6).

Table 6. Perpetrators involved among Homicides, Ages 0-17 Years, Arizona, 2020

Perpetrator*	Number	Percent
Other	17	32%
Stranger	14	26%
Mother	12	23%
Acquaintance/Friend/ Boyfriend/ Girlfriend	11	21%
Father	7	13%

*There may be more than one perpetrator in each death

While there are numerous preventable risk factors that contribute to homicides, CPS history with family was the most commonly identified risk factor (57%) (Table 7).

Table 7. Risk Factors of Homicide Deaths, Ages 0-17 Years, Arizona, 2020

Risk Factors*	Number	Percent
CPS History with the Family	30	57%
Criminal Activity	29	55%
Access to Firearms	28	53%
Substance Use	28	53%
Child History of Trauma	24	45%

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



Natural Deaths

In Arizona and nationally, deaths classified as natural deaths due to a medical condition account for the largest percentage of child deaths every year. See glossary for further explanation.



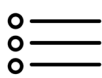
There were 475 natural deaths in 2020.



There was a 3% increase in the natural death rate from 2019 to 2020.



7% of natural deaths were preventable.



#1 cause: Prematurity (n= 172)
 #2 cause: Congenital Anomaly (n= 111)
 #3 cause: Other Perinatal Condition (n= 45)



Of the natural deaths, 54% were male and 46% were female.



53% of natural deaths occurred in neonates (infants less than 28 days).
 15% of natural deaths occurred in post-neonates (infants 28 days and older but less than 1 year of age).



Black/African American children were disproportionately affected.
 Black/African American children made up 13% of natural deaths but only make up 6% of the total population.

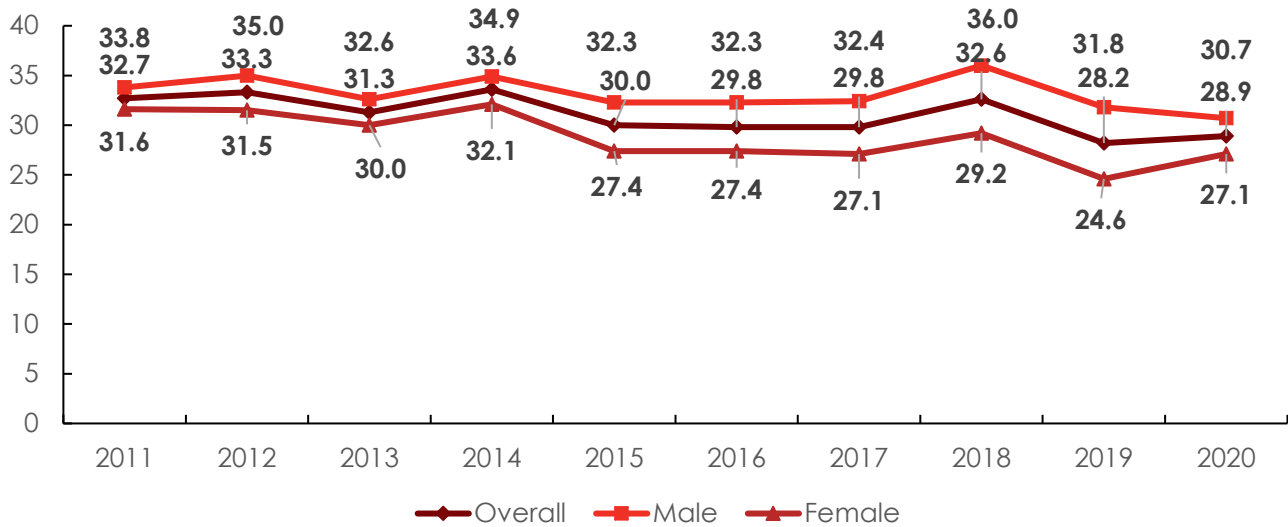


4% of natural deaths involved substance use.



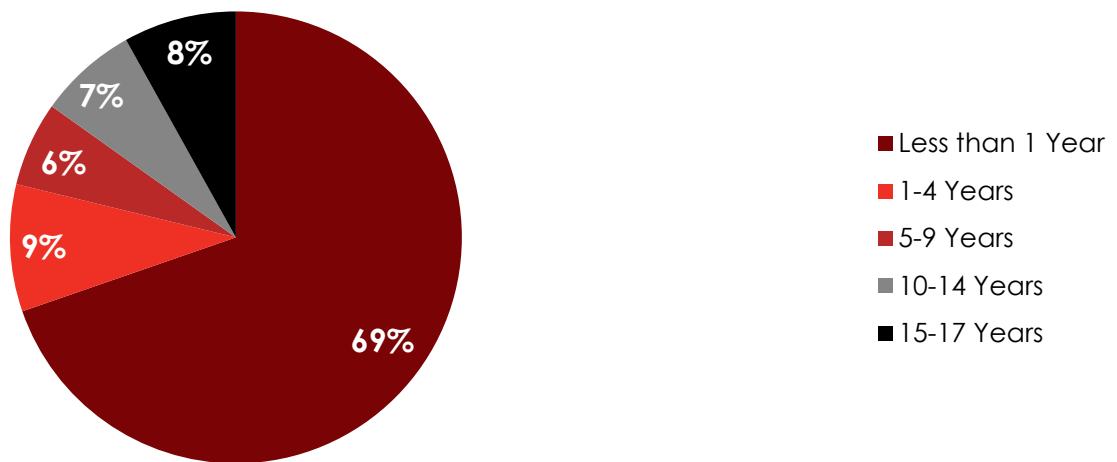
Overall, Arizona's natural mortality rate has decreased from 2011 to 2020 (Figure 23). Males have consistently had a higher natural mortality rate compared to females. Arizona's natural mortality rate increased by 3% from 28.2 per 100,000 children in 2019 to 28.9 per 100,000 children in 2020.

Figure 23. Mortality Rates per 100,000 Children due to Natural Causes by Gender, Ages 0-17 Years, Arizona, 2011-2020³⁻¹²



The majority of natural deaths occurred among children less than 1 year of age (69%), followed by children ages 1-4 years (9%) and children ages 15-17 years of age (8%) (Figure 24).

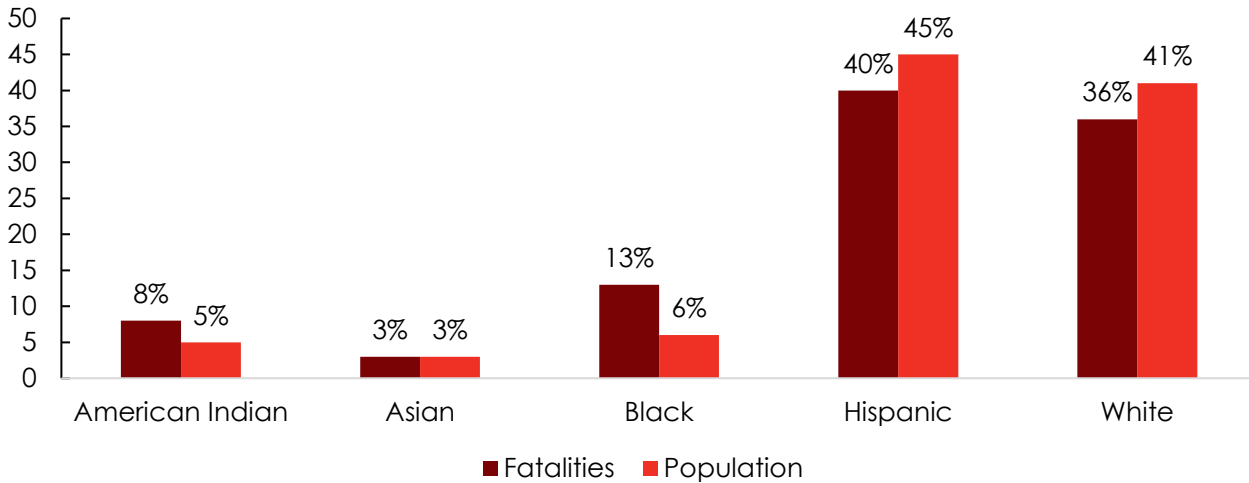
Figure 24. Number and Percentage of Natural Deaths among Children by Age Group, Ages 0-17 Years, Arizona, 2020 (n=475)





Black/African American and American Indian/Native Alaskan children make up 13% and 8% of natural deaths, respectively, but only comprised 6% and 5% of the total Arizona population, respectively (Figure 25). The majority of child deaths were Hispanic (40%) and White (36%) children.

Figure 25. Percentage of Natural Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=475)³



Among natural deaths, prematurity (44%) was the leading cause of death for children ages 0-17 years (Table 8).

Table 8. Leading Causes of Natural Deaths, Ages 0-17 Years, Arizona, 2020

Cause of Death	Number	Percent
Prematurity	207	44%
Congenital Anomaly	111	23%
Cancer	40	8%
Cardiovascular Disease	34	7%
Other Medical condition (e.g. Asthma, Malnutrition/Dehydration, Influenza)	18	4%

The most commonly identified risk factor for natural deaths was poverty (45%) (Table 9).

Table 9. Risk Factors of Natural Deaths, Ages 0-17 Years, Arizona, 2020

Risk Factors*	Number	Percent
Poverty	216	45%
Chronic Medical Condition	185	39%
CPS History with Family	83	17%
Substance Use	21	4%
Caregiver Non-English Speaking	19	4%

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



Suicides

A death that is due to a self-directed intentional behavior where the intent is to die because of that behavior. See glossary for further explanation.



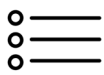
There were 49 suicides in 2020.



There was a 30% increase in the suicide rate from 2019 to 2020.



100% of suicides were preventable.



#1 cause: Strangulation (n= 25)

#2 cause: Firearm Injury (n= 18)

#3 cause: Poisoning (n= 4)



Of the suicides, 71% were male and 29% were female.



65% of suicides occurred in children ages 15-17 years.



American Indian/Alaskan Native, Black/African American and White children were disproportionately affected. American Indian/Alaskan Native, Black/African American and White children made up 16%, 8% and 43% of suicides but only make up 6%, 5% and 41% of the total population, respectively.

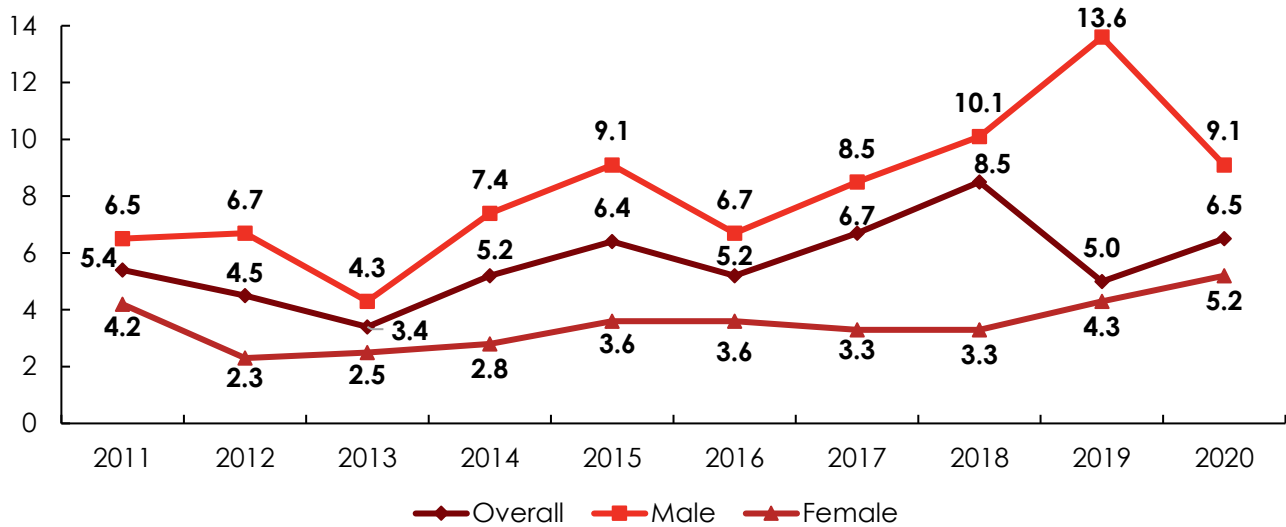


20% of suicides involved substance use.



Overall, Arizona's suicide rate has increased from 2011 to 2020 (Figure 26). Males have consistently had a higher suicide rate compared to females. Arizona's suicide rate increased 30% from 5.0 per 100,000 children in 2019 to 6.5 per 100,000 children in 2020 (Figure 26). The male suicide rate decreased 33% from 13.6 in 2019 to 9.1 in 2020, the female suicide rate increased 21% from 4.3 in 2019 to 5.2 in 2020.

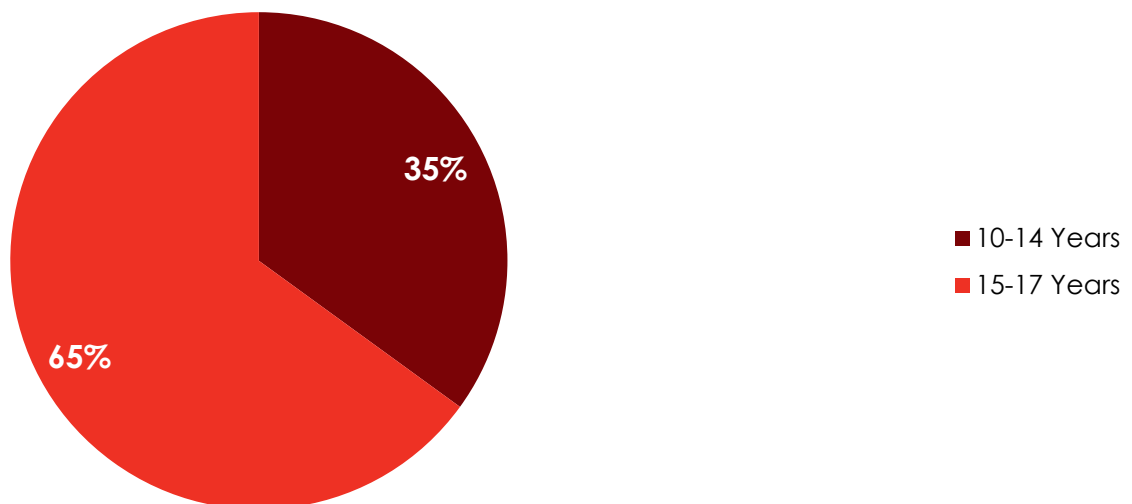
Figure 26. Mortality Rate per 100,000 Children due to Suicide by Gender, Ages 10-17 Years, Arizona, 2011-2020*²⁶



*There are select years where children less than 10 are included in the rate.

The majority of suicides occurred among children ages 15-17 years (65%) (Figure 27).

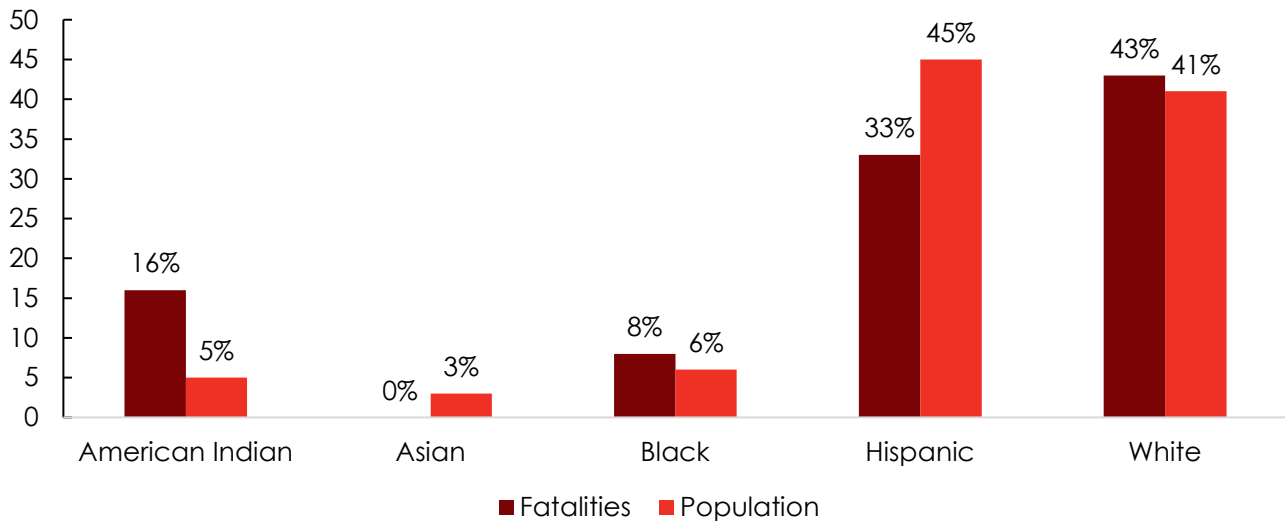
Figure 27. Number and Percentage of Suicide Deaths by Age Group, Ages 10-17 Years, Arizona, 2020 (n=49)





American Indian/Alaska Native children made up 16% of suicides, but only comprised 5% of the total population (Figure 28). Similarly, Black/African American children made up 8% of suicides, but only comprised 6% of the total population. Furthermore, White children made up 43% of suicides, but only comprised 41% of the total population. The majority of child deaths were among White (43%) and Hispanic (33%) children.

Figure 28. Percentage of Suicide Deaths among Children by Race/Ethnicity, Ages 10-17 Years, Compared to Population, Arizona, 2020 (n=49)²⁶



Among suicides, strangulation (51%) was the leading cause of death for children ages 10-17 years followed by firearm injury deaths (37%) (Table 10).

Table 10. Causes of Suicide, Ages 10-17 Years, Arizona, 2020 (n=49)

Cause of Death	Number	Percent
Strangulation	25	51%
Firearm Injury	18	37%
Poisoning	<6	**
Suffocation	<6	**
Motor Vehicle Crash	<6	**

** Percentage suppressed due to count less than 6.



While there are numerous risk factors that can contribute to suicide, the most commonly identified risk factors were relationship problems (69%), access to firearms (37%), history of maltreatment (37%) and child mental health disorder (37%) (Table 11).

Table 11. Factors that may have contributed to the Child’s Despondency Prior to Suicide, Arizona, 2020

Risk Factors*	Number	Percent
Relationship Problems	34	69%
Access to Firearm	18	37%
History of Maltreatment	18	37%
Child Mental Health Disorder	18	37%
School Issues	16	33%

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



Undetermined Deaths

A death that the medical examiner is unable to decide whether the manner of death was natural, accident, homicide, or suicide. See glossary for further explanation.



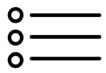
There were 29 undetermined deaths in 2020.



There was a 18% decrease in the undetermined death rate from 2019 to 2020.



79% of undetermined deaths were preventable.



#1 cause: Undetermined (n= 24)

#2 cause: Other (i.e. poisoning, motor vehicle crash, firearm injury) (n= 5)



Of the undetermined deaths, 72% were male and 28% were female.



48% of undetermined deaths occurred in children ages 28 days to 1 year.



Black/African American children were disproportionately affected.

Black/African American made up 24% of abuse/neglect deaths but only make up 6% of the total population

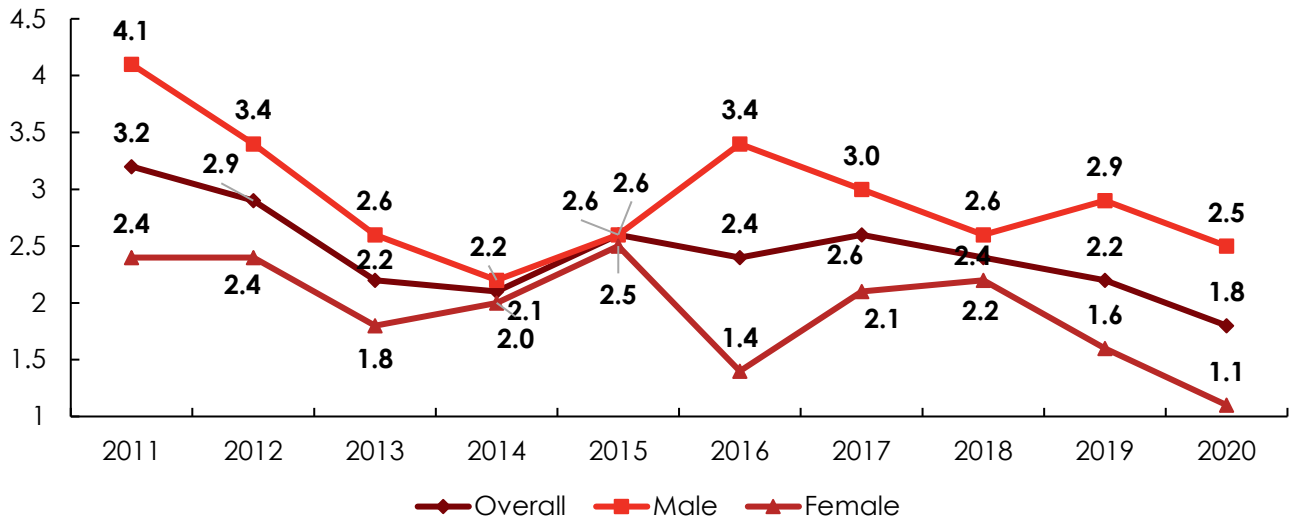


28% of undetermined deaths involved substance use.



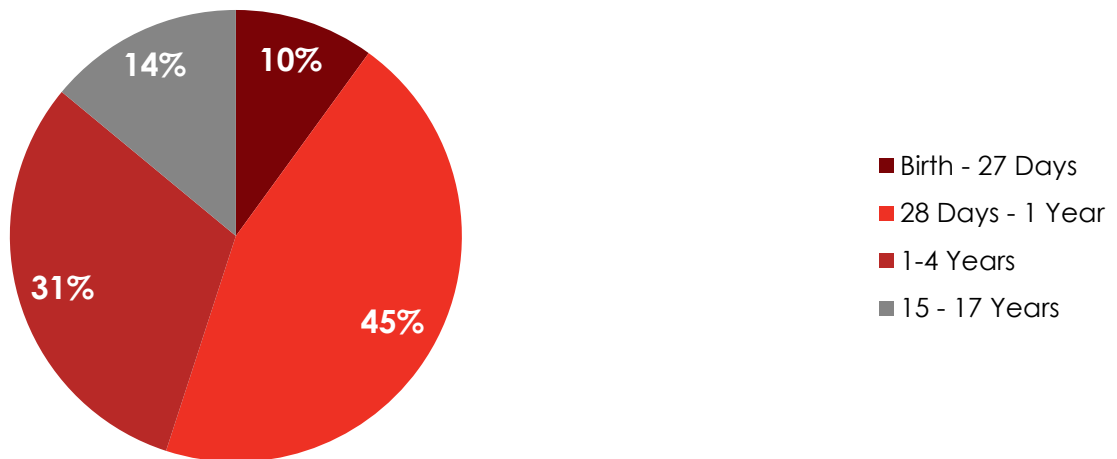
Overall, Arizona's undetermined death rate has decreased from 2011 to 2020. Furthermore, Arizona's undetermined death rate has decreased 18% from 2.2 deaths per 100,000 children in 2019 to 1.8 deaths per 100,000 children in 2020 (Figure 29).

Figure 29. Mortality Rate per 100,000 Children due to Undetermined by Gender, Ages 10-17 Years, Arizona, 2011-2020*3



The majority of undetermined deaths occurred among infants 28 days to 1 year of age (45%) followed by 1-4 years of age (31%) (Figure 30).

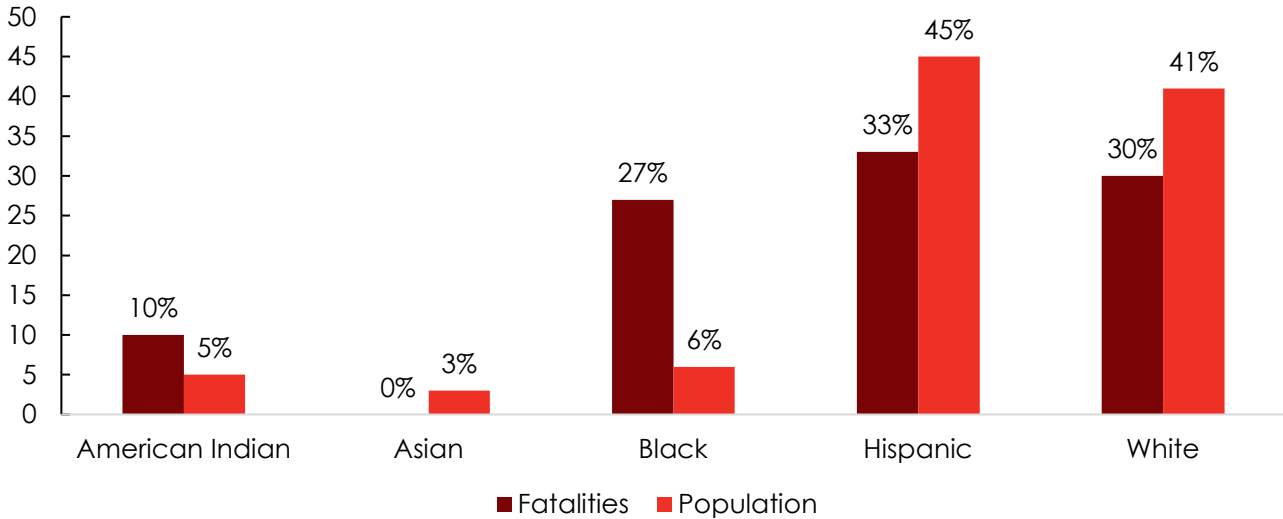
Figure 30. Number and Percentage of Undetermined Deaths among Children by Age Group, Ages 0-17 Years, 2020 (n=29)





Black/African American and American Indian/Alaskan Native children made up 27% and 10% of undetermined deaths, respectively, but only comprise 6% and 5% of the total population (Figure 31). The majority of child deaths were among Hispanic (33%) and White (30%) children.

Figure 31. Percentage of Undetermined Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=29)



Among undetermined deaths, undetermined (83%) was the leading cause of death for children ages 0-17 years (Table 12).

Table 12. Causes of Undetermined Deaths, Ages 0-17 Years, Arizona, 2020 (n=29)

Cause of Death	Number	Percent
Undetermined	24	83%
Other (i.e. Strangulation, Poisoning)	<6	**
** Percentage suppressed due to count less than 6		

The most commonly identified risk factor for undetermined deaths was poverty (62%) (Table 13).

Table 13. Risk Factors for Undetermined Deaths, Ages 0-17 Years, Arizona, 2020 (n=29)

Risk Factors*	Number	Percent
Poverty	18	62%
History of Maltreatment	17	59%
Unsafe Sleep Environment	12	41%
Housing Insecurity	8	28%
History of Trauma	6	2%
*More than one risk factor may have been identified for each death		



Main Causes and Contributing Factors of Death



Abuse/Neglect Deaths

An act of physical abuse or neglect against a child. See glossary for further explanation.



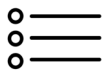
There were 95 abuse/neglect deaths in 2020.



There was a 5% decrease in the abuse/neglect death rate from 2019 to 2020.



100% of abuse/neglect deaths were preventable.



#1 cause: Prematurity or other Perinatal Conditions (n= 18)

#2 cause: Poisoning (n= 14)

#3 cause: Blunt Force Injury (n= 11)



Of the abuse/neglect deaths, 37% were male and 63% were female.



44% of abuse/neglect deaths occurred in children less than 1 year of age.



American Indian/Native Alaskan and Black/African American children were disproportionately affected. American Indian/Native Alaskan made up 18% of abuse/neglect deaths but only make up 5% of the total population. Similarly, Black/African American made up 17% of abuse/neglect deaths but only make up 6% of the total population

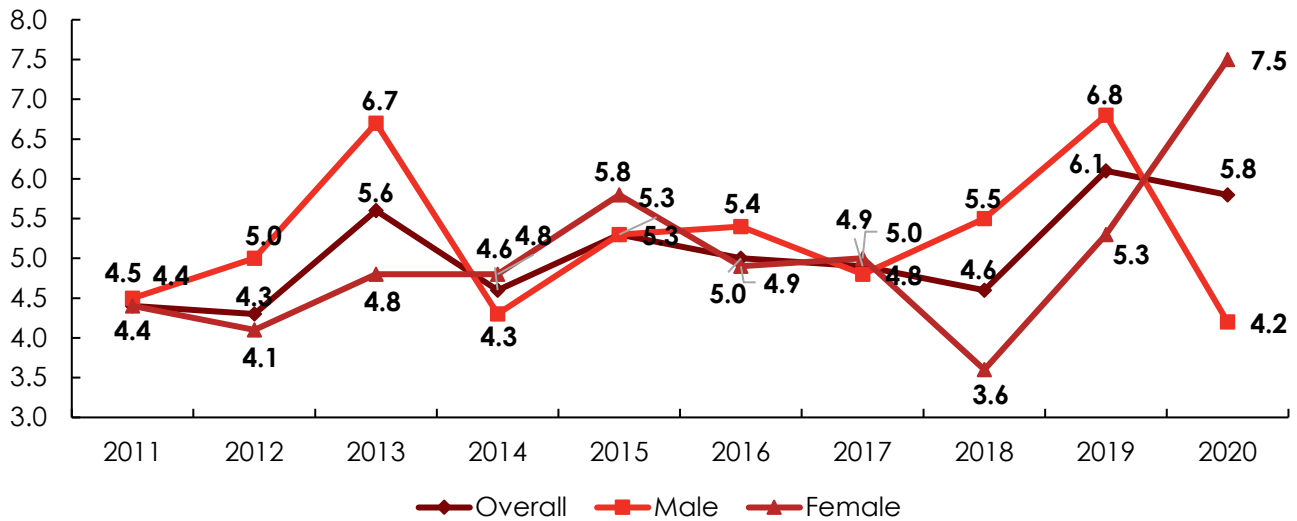


62% of abuse/neglect deaths involved substance use.



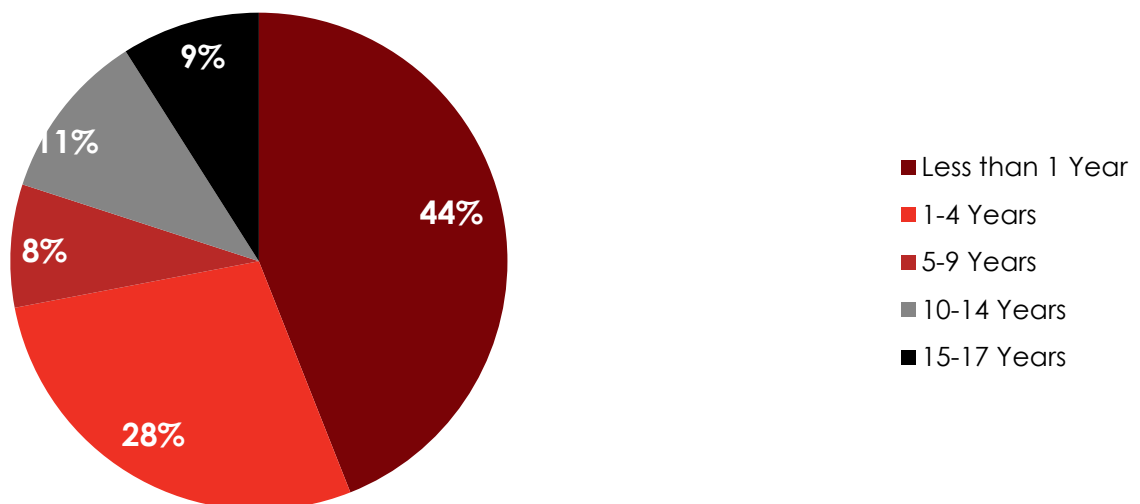
Overall, Arizona's abuse/neglect mortality rate has increased from 2011 to 2020 (Figure 31). Since 2018, Arizona's female abuse/ neglect mortality rate has increased 108% from 3.6 deaths per 100,000 female children to 7.5 death per 100,000 female children. Arizona's abuse/neglect mortality rate decreased 5% from 6.1 per 100,000 children in 2019 to 5.8 per 100,000 children in 2020 (Figure 32).

Figure 32. Mortality Rate per 100,000 Children due to Abuse/Neglect by Gender, Ages 0-17 Years, Arizona, 2011-2020³⁻¹²



The majority of abuse/neglect deaths occurred among children less than 1 year of age (44%), followed by children ages 1-4 years (28%) (Figure 33).

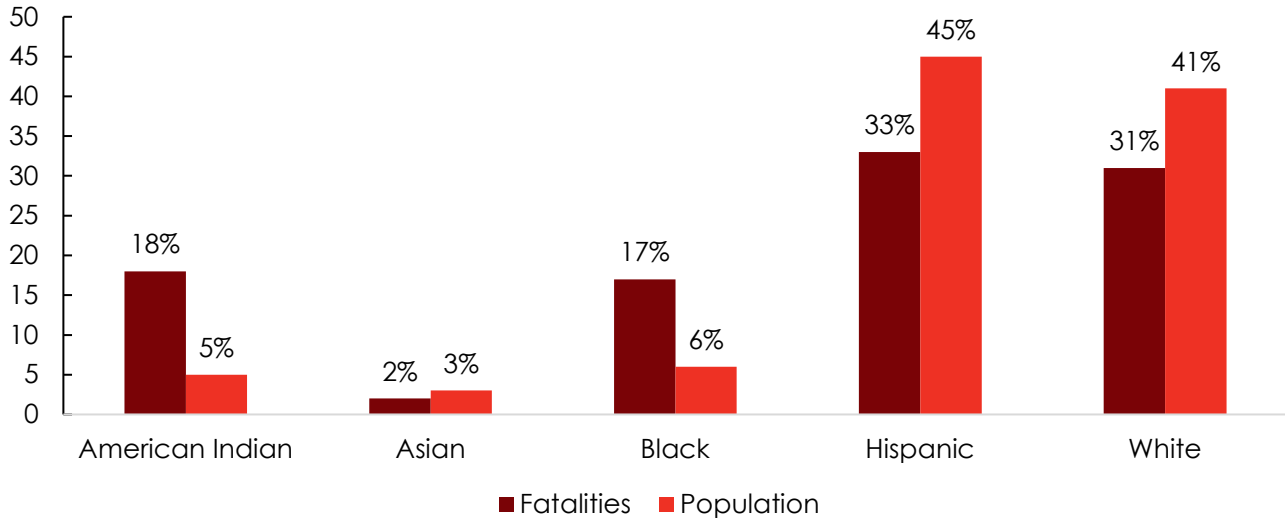
Figure 33. Number and Percentage of Abuse/Neglect Deaths among Children by Age Group, Ages 0-17 Years, Arizona, 2020 (n=95)





American Indian/Alaska Native and Black/African American children made up 18% and 17% of abuse/neglect deaths, respectively, but only comprised 5% and 6% of the total population, respectively (Figure 34). The majority of child deaths were among Hispanic (33%) and White (31%) children.

Figure 34. Percentage of Abuse/Neglect Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=95)³

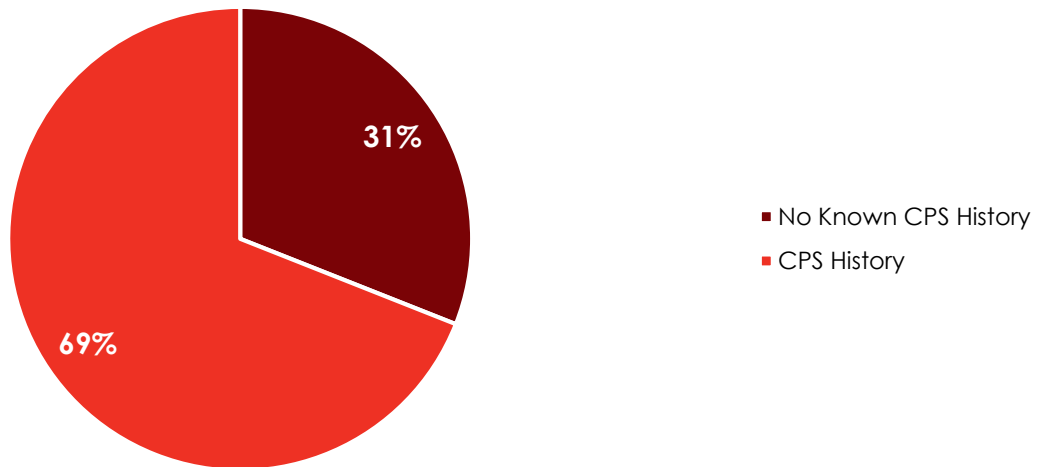




Local CFR teams attempt to obtain records from child protective services (CPS) agencies, including Department of Child Safety (DCS) and CPS agencies in other jurisdictions, such as tribal authorities and agencies in other states. Review teams consider a family as having previous involvement with a CPS agency if the agency investigated a report of abuse/neglect for any child in the family before the incident leading to the child's death. Unsubstantiated reports of abuse/neglect are also included in this definition; however, calls to DCS that did not meet criteria to be made into a report, and were taken as "information only", are not included.

In 2020, 95 deaths were due to child abuse/neglect (Figure 35). In 66 of the 95 deaths, there was current or past history of involvement between the families and a CPS agency. In 16 of these 95 deaths the families had an open case at the time of the child's death.

Figure 35. Number and Percentage of Abuse/Neglect Deaths among Children by Family's Involvement with any Child Protective Services Agency, Ages 0-17 Years, Arizona, 2020 (n=95)



The child's mother was a perpetrator in 72% of abuse/neglect deaths, and the child's father was a perpetrator in 34% of the abuse/neglect deaths (Table 14).

Table 14. Perpetrators Involved Child Abuse/Neglect Deaths, Ages 0-17 Years, Arizona, 2020

Perpetrator*	Number	Percent
Mother	69	72%
Father	32	34%
Parent's Partner	9	9%
Other Relative	7	7%
Step Parent	<6	**

*There may be more than one perpetrator in each death
 ** Percentage suppressed due to count less than 6



Among abuse/neglect deaths, prematurity was the leading cause of death for children ages 0-17 years (16%) (Table 15).

Table 15. Leading Causes of Child Abuse/Neglect Deaths, Ages 0-17 Years, Arizona, 2020

Cause of Death	Number	Percent
Prematurity	15	16%
Poisoning	14	15%
Blunt Force Injury	11	12%
Suffocation	10	11%
Motor Crash Vehicle	9	9%

While there are numerous preventable risk factors that contribute to abuse/neglect, prior CPS history with the family (66%) was the most commonly identified risk factor (Table 16).

Table 16. Risk Factors of Abuse/Neglect Deaths, Ages 0-17 Years, Arizona, 2020

Risk Factors*	Number	Percent
CPS History with the Family	63	66%
Substance Use	59	62%
Poverty	41	43%
Child History of Trauma	33	35%
Lack of Supervision	29	31%

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



COVID-19 Related Deaths (Direct and Indirect)

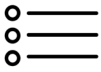
COVID-19 is a disease caused by SARS-CoV-2. On April 20, 2021, the National Fatality Review Case Reporting System (NFR-CRS) was modified to accept data on COVID-19 Related Deaths. The CFRP and the Chair of the State CFR Team retrospectively reviewed all child deaths to determine COVID-19 relatedness and completed the module in the NFR-CRS. The COVID-19 Related Deaths module includes five questions intended to capture systems changes, interruptions, and barriers that families may have experienced in the 12 months before the child's death. Additional information on the COVID-19 related death module in the reporting system can be found [here](#).



There were 12 direct COVID-19 deaths in 2020.
There were 29 indirect COVID-19 deaths in 2020.



7% of direct COVID-19 direct deaths were preventable.
97% of indirect COVID-19 deaths were preventable.



#1 cause: COVID-19 infection (n= 9)
#2 cause*: Poisoning (n= 8)
#3 cause*: Firearm Injury (n= 5)
*Indirect cause of death only



58% of direct COVID-19 deaths occurred in children ages 0-11 years.
79% of indirect COVID-19 deaths occurred in children ages 12-17 years.



8% of direct COVID-19 deaths involved substance use.
45% of indirect COVID-19 deaths involved substance use.



Direct COVID-19 Related Deaths

A direct COVID-19 death is a death where COVID-19 infection was the immediate or underlying cause of death of the child, COVID-19 was diagnosed at autopsy or the child was suspected to have COVID-19, or the birthing parent contracted COVID-19 during pregnancy. See glossary for further explanation.

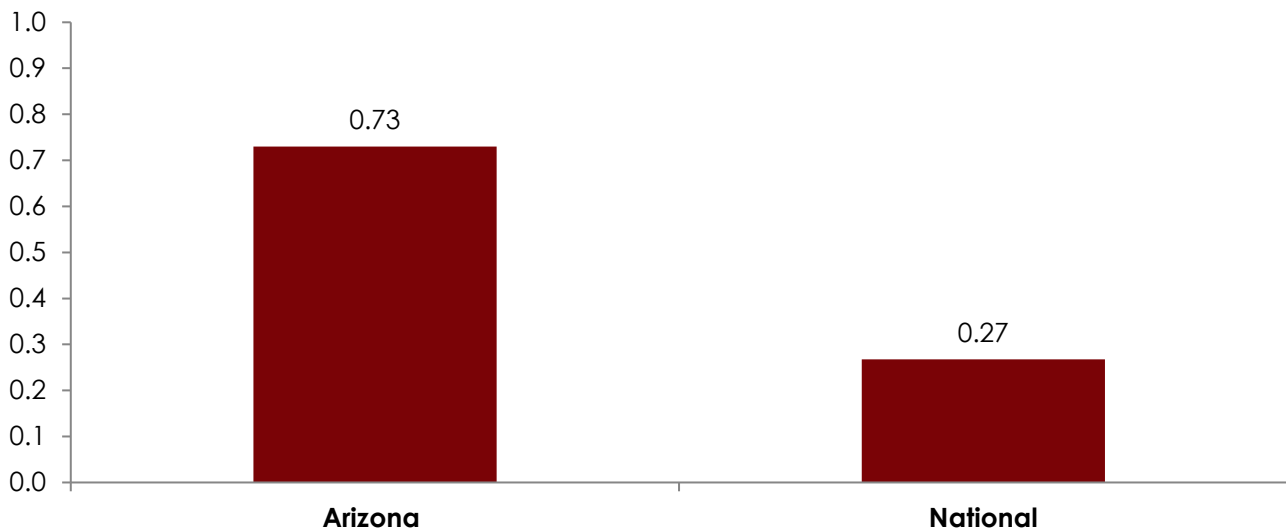
In order to capture direct COVID-19 deaths, the CFRP retrospectively searched through the NFR-CRS for the COVID-19 ICD-10-CM code- U07.1. Since much was unknown about COVID-19 at the onset of the pandemic, the CFRP recognized that some COVID-19 cases were at risk for misclassification. For this reason, the CFRP also retrospectively searched for ICD-10-CM codes relating to COVID-19 such as J09.X2 (influenza) and J18.9 (pneumonia). Cases that were categorized as influenza and pneumonia were further reviewed for indicators of COVID-19. For example, was the child exposed to COVID-19 within 14 days of death?

In addition, the CFRP reviewed causes of death relating to COVID-19 on death certificates. In certain cases, it was necessary for the CFRP to review an entire case in order to determine if the death was directly related to COVID-19.

The CFRP identified 12 child deaths that were directly related to COVID-19. Due to the low number of deaths identified racial estimates are not available.

The Arizona direct COVID-19 mortality rate was 0.73 deaths per 100,000 children (0-17 years) while the national direct COVID-19 mortality rate was 0.27 deaths per 100,000 children (0-17 years) (Figure 36).

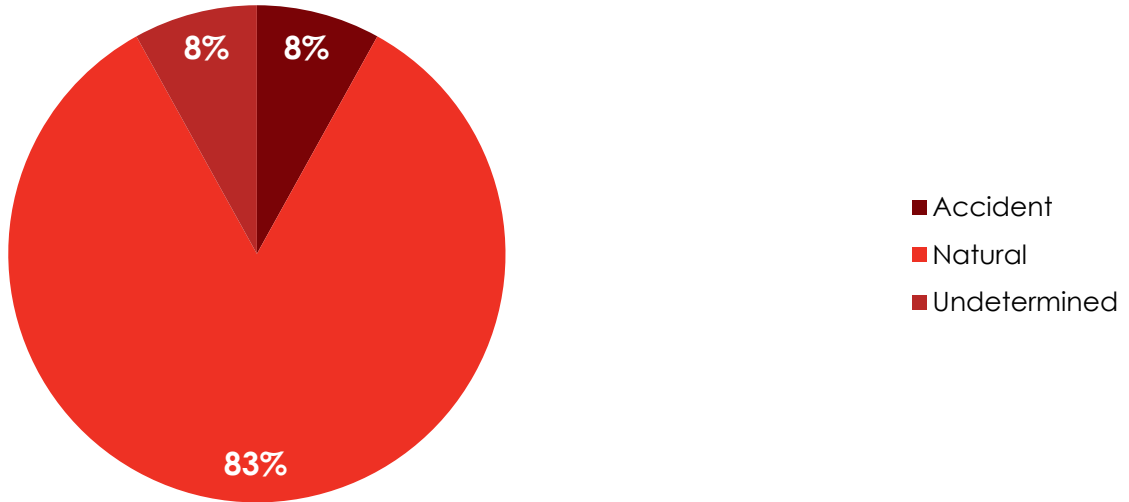
Figure 36. Direct COVID-19 Mortality Rate per 100,000 Children, Arizona Rate compared to the National Rate, Ages 0-17 Years, Arizona, 2020³⁷





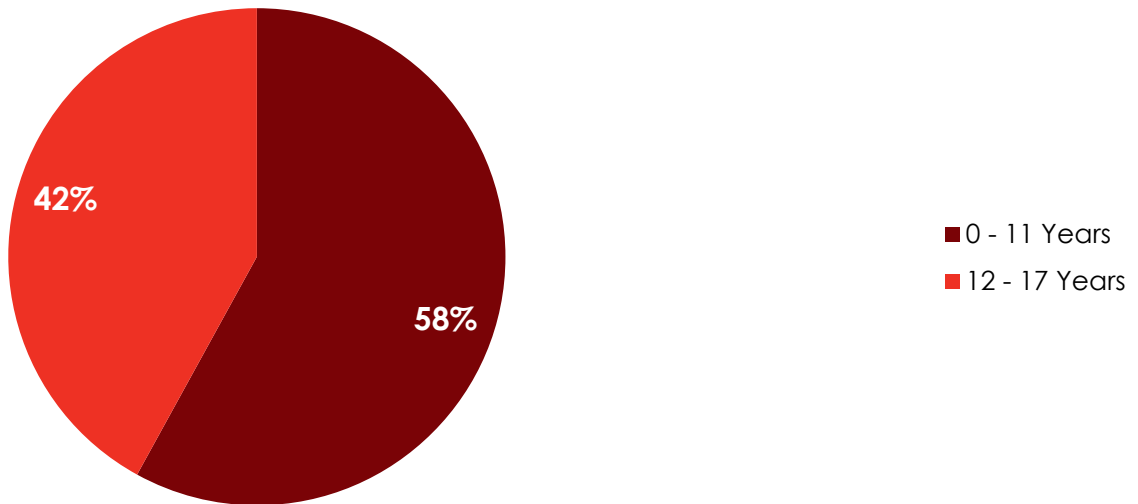
Of the COVID-19 direct deaths, in 83% of the deaths, the manner of death was natural, while 8% were accidental, and the remaining undetermined (Figure 37).

Figure 37. Percentage of Direct COVID-19 Deaths among Children by Manner, Ages 0-17 Years, Arizona, 2020 (n=12)



The majority of direct COVID-19 deaths occurred among children ages birth to 11 years (58%) (Figure 38).

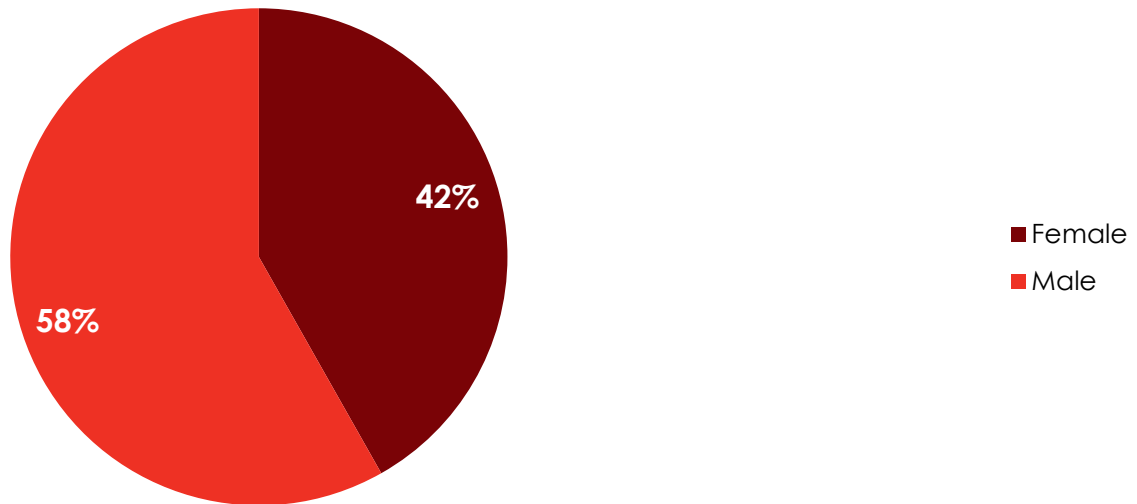
Figure 38. Percentage of Direct COVID-19 Deaths among Children by Age Group, Ages 0-17 Years, Arizona, 2020 (n=12)





Of the direct COVID-19 deaths, 58% of deaths were among males (Figure 39).

Figure 39. Percentage of Direct COVID-19 Deaths among Children by Sex, Ages 0-17 Years, Arizona, 2020 (n=12)



Among the direct COVID-19 deaths, poverty (58%) was the leading risk factor followed by living in a rural region (50%) (Table 17). The CFRP found a low number of direct COVID-19 deaths with multisystem inflammatory syndrome (MIS-C).

Table 17. Risk Factors for Child Direct COVID-19 Deaths, Ages 0-17 Years, Arizona, 2020

Risk Factor*	Number	Percent
Poverty	7	58%
Lives in a Rural Region	6	50%
Chronic Medical Condition	<6	**
No Insurance	<6	**
Inflammatory Syndrome	<6	**

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

**A rural region includes Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Mohave, Navajo, Santa Cruz, and Yavapai counties.

*** Percentage suppressed due to count less than 6



Indirect COVID-19 Deaths

An indirect COVID-19 death is a death where the child or caregiver experienced changes or disruptions in how they lived, worked, or accessed services due to COVID-19. See glossary for further explanation.

The CFRP recognizes that COVID-19 likely is indirectly related to other increases of child deaths in particular suicide, firearm injuries and motor vehicle crashes included in this report.

The analysis provides insights into the different causes of death where COVID-19 may have indirectly contributed to the child's death, but this has several limitations. These limitations include but are not limited to availability of limited information to provide context to each child death, time constraints, and the overall use of subjective analysis to draw a conclusion. Limited data availability based on the information and records used in the reviews likely resulted in an under-reporting of COVID-19 indirectly related deaths.

The CFRP conducted secondary reviews of every child death in 2020 to determine if COVID-19 may have indirectly contributed to the death of the child. This provided strong evidence suggesting that COVID-19 indirectly contributed to 29 child deaths in 2020.

Indirect COVID-19 deaths may include (but is not limited to): looking at deaths that occurred during school closures when the child may not have died if they were physically in school, deaths where the fear of contracting COVID-19 impacted seeking medical care, and social (isolation, lack of supervision, etc.), emotional (mental health, fear of contracting COVID-19, etc.), or economic changes (finance disruptions, lack of childcare, etc.) induced by COVID-19 which may have impacted the child's or parent's decision-making and overall wellbeing leading to the child's death.

Arizona is among the first in the nation to report on COVID-19 direct and indirect child deaths. The data included in this report will help provide an understanding of the broader impacts of the pandemic and inform pandemic recovery plans moving forward. The CFRP aims to support prevention opportunities and pandemic preparedness in order to better support children and families.

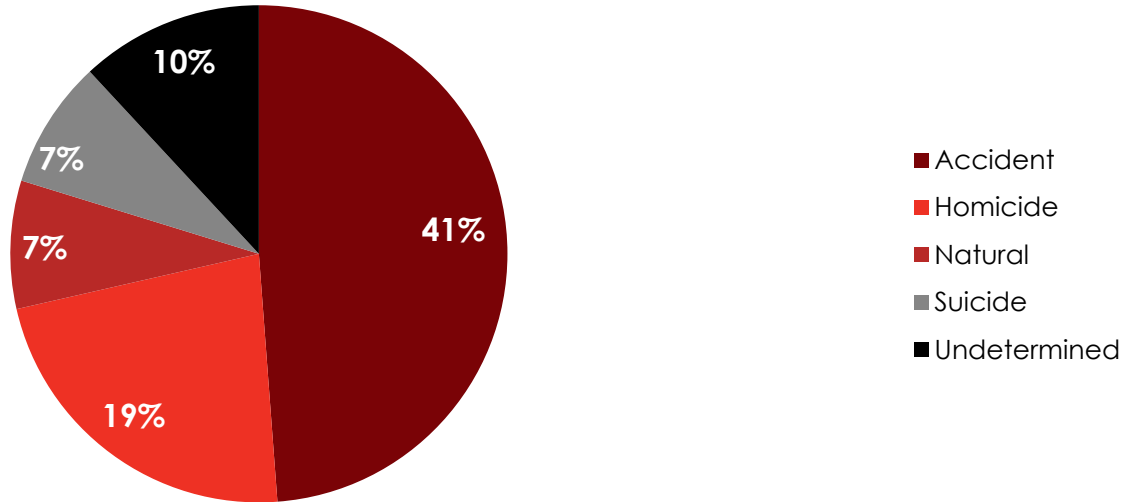
The CFRP was provided with training and supplemental guidance on reviewing deaths during the COVID-19 pandemic from the [NCFRP](#) which includes timelines indirectly contributing to a child's death. The review timelines include business or service closures, school closures or transitions, and other shifts that may have impacted service delivery, access or community support.

Prevention recommendations for indirect COVID-19 deaths are located in the other specific causes of death. For example, if the child died from a poisoning overdose during a school closure where the child would have been in school during the incident, the prevention recommendation will be found in the substance use section.



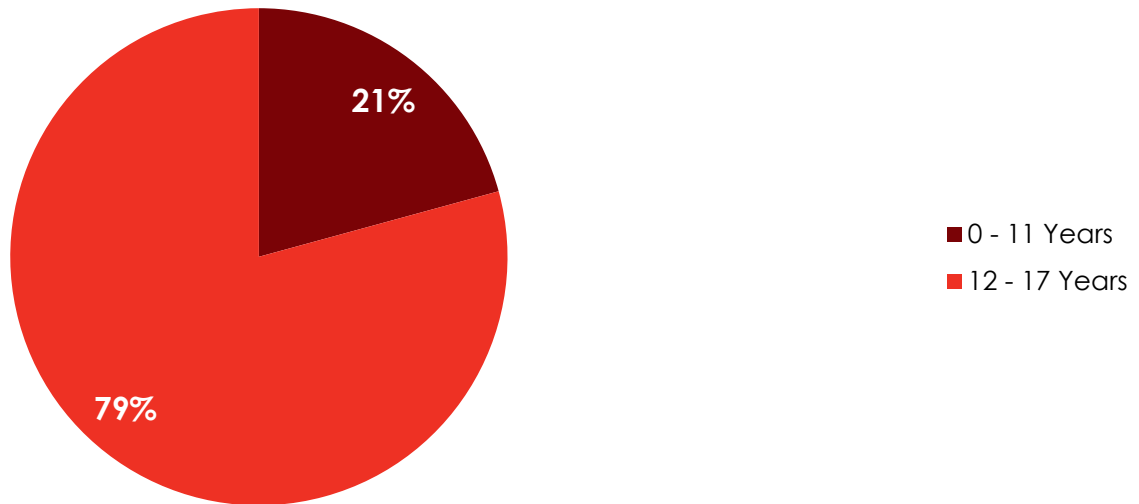
In 41% of indirect COVID-19 deaths, the manner of death was classified as accident (Figure 40).

Figure 40. Percentage of Indirect COVID-19 Deaths among Children by Manner, Ages 0-17 Years, Arizona, 2020 (n=29)



Of the indirect COVID-19 deaths, 79% of deaths were among children ages 12 – 17 years (Figure 41).

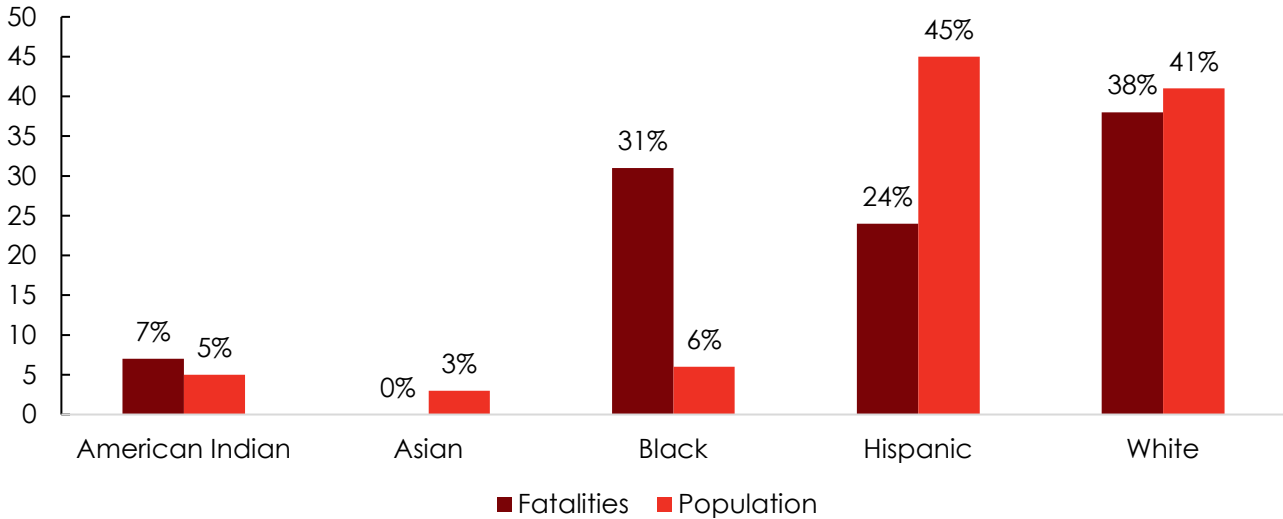
Figure 41. Percentage of Indirect COVID-19 Deaths among Children by Age Group, Ages 0-17 Years, Arizona, 2020 (n=29)





The majority of indirect COVID-19 child deaths were among White (38%) and Black (31%) children. (Figure 42) The CFRP did not identify any indirect COVID-19 deaths in Asian children.

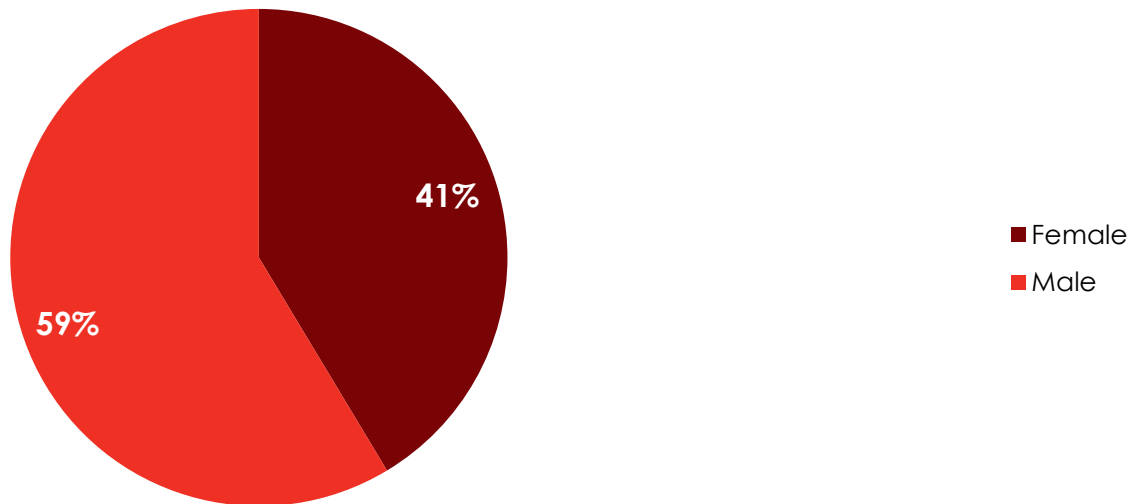
Figure 42. Percentage of Indirect COVID-19 Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=29)*



*There is no comparison of fatalities for Asian as (n=0).

Of the indirect COVID-19 deaths, 59% of deaths were among males (Figure 43).

Figure 43. Percentage of Indirect COVID-19 Deaths among Children by Sex, Ages 0-17 Years, Arizona, 2020 (n=29)





Among indirect COVID-19 deaths, poisoning (28%) was the leading cause of death for children 0-17 years (Table 18).

Table 18. Leading Causes of Child Indirect COVID-19 Deaths, Ages 0-17 Years, Arizona, 2020

Cause of Death	Number	Percent
Poisoning	8	28%
Motor Vehicle Crash	<6	**
Firearm Injury	<6	**
Strangulation	<6	**
Undetermined	<6	**

** Percentage suppressed due to count less than 6.

While there are numerous preventable risk factors that contribute to indirect COVID-19 deaths, living in an urban region (76%) was the most commonly identified risk factor followed by substance use (45%). (Table 19)

Table 19. Risk Factors for Child Indirect COVID-19 Deaths, Ages 0-17 Years, Arizona, 2020

Risk Factor*	Number	Percent
Lives in an Urban Region**	22	76%
Substance use	13	45%
Lack of Supervision	8	28%
Isolation	8	28%
Poverty	<6	**
Housing Insecurity	<6	**
No Insurance	<6	**
Language Barrier	<6	**
Inadequate Medical Treatment	<6	**
Chronic Medical Condition	<6	**

*More than one risk factor may have been identified for each death.
 ** Urban region includes Maricopa, Pima, Pinal and Yuma counties.
 *** Percentage suppressed due to count less than 6.



Drowning Deaths

Death from an accidental or intentional submersion in a body of water. See glossary for further explanation.



There were 22 drowning deaths in 2020.



There was an 8% increase in the drowning death rate from 2019 to 2020.



100% of drowning deaths were preventable.



Of the children who drowned, 68% were male and 32% were female.



95% of drowning deaths occurred in children ages 1-4 years.

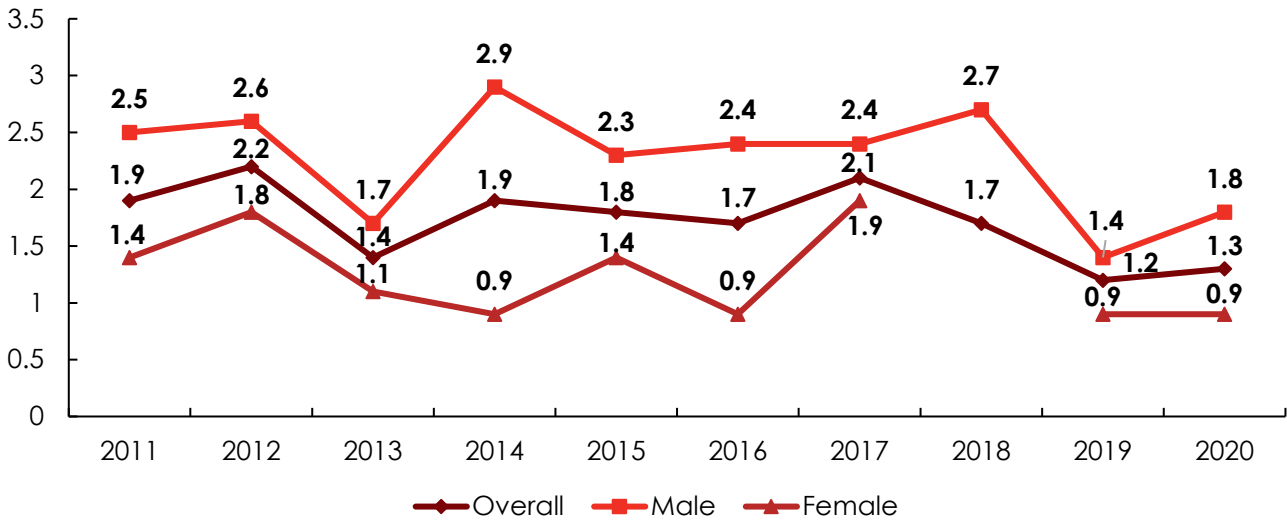


Hispanic and White children each comprised 41% of drowning deaths.



Overall, Arizona's drowning rate has decreased from 2011 to 2020 (Figure 44). Males have consistently had a higher drowning rate compared to females. Arizona's drowning rate increased by 8% from 1.2 per 100,000 children in 2019 to 1.3 per 100,000 children in 2020.

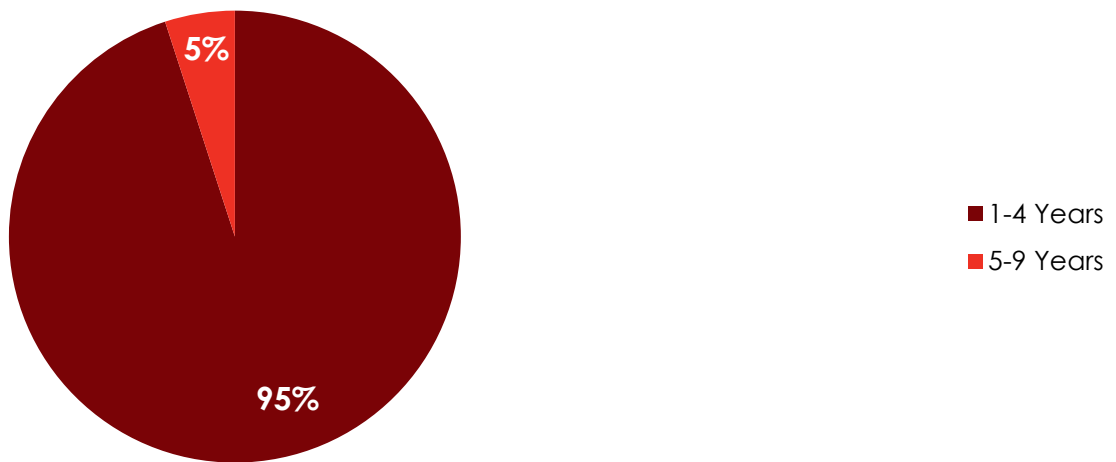
Figure 44. Mortality Rate per 100,000 Children due to Drowning by Gender, Ages 0-17 Years, Arizona, 2011-2020*³⁻¹²



*2018 data on female children not included due to a small sample size.

The majority of drowning deaths occurred among children 1 to 4 years of age (95%) (Figure 45).

Figure 45. Number and Percentage of Drowning Deaths among Children by Age Group, Ages 0-17 Years, Arizona, 2020 (n=22) *

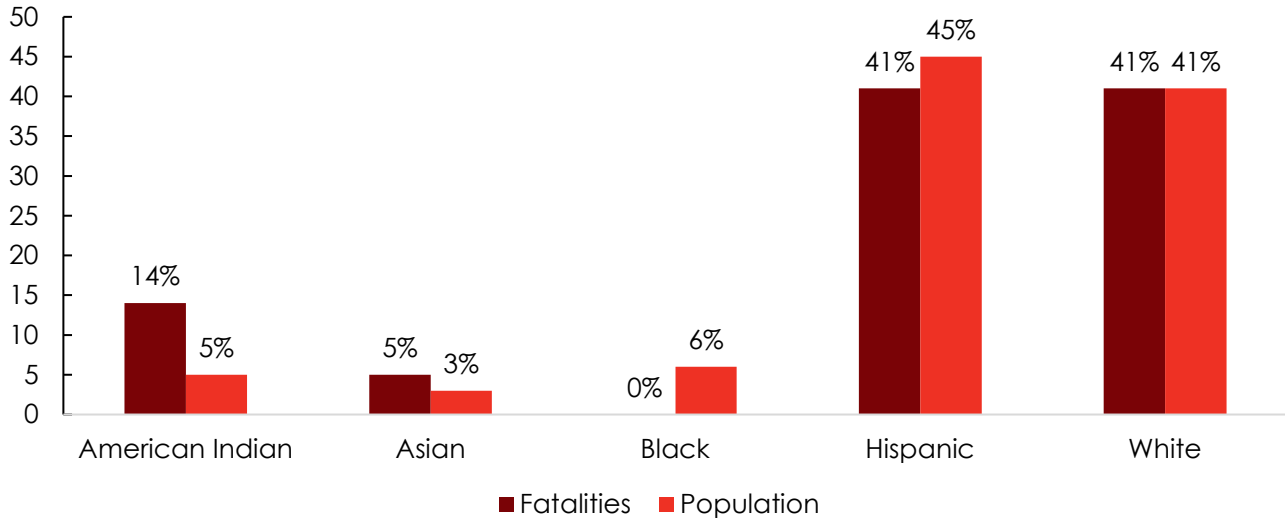


*All other age groups excluded due to no sample size.



The number of drowning deaths were too small to determine if health disparities exist (Figure 46). The majority of child deaths were among Hispanic (41%) and White (41%) children.

Figure 46. Percentage of Drowning Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=22) *3



*There is no comparison of fatalities for Black as (n=0)

The majority of drowning deaths occurred in pools (91%) (Figure 47).

Figure 47. Percentage of Drowning Deaths among Children by Location, Ages 0-17 Years, Arizona, 2020 (n=22)





While there are numerous preventable risk factors that contribute to drowning, lack of supervision (100%) was the most commonly identified risk factor (Table 20).

Table 20. Risk Factors of Drowning Deaths, Ages 0-17 Years, Arizona, 2020

Risk Factors*	Number	Percent
Lack of Supervision	22	100%
Lack of Pool Barrier	14	64%
CPS History with the Family	8	36%
Poverty	<6	**
Substance Use	<6	**
*More than one risk factor may have been identified for each death		
** Percentage suppressed due to count less than 6		



Firearm Injury Deaths

Death caused by an injury resulting from the penetrating force of a bullet or other projectile shot from a powder-charged gun. See glossary for further explanation.



There were 51 firearm injury deaths in 2020.



There was a 41% increase in the firearm injury death rate from 2019 to 2020.



100% of firearm injury deaths were preventable.



Of the firearm injury deaths, 86% were male and 14% were female.



Age

73% of firearm injury deaths occurred in children ages 15-17 years.



American Indian/Alaskan Native children and Black/African American children were disproportionately affected. American Indian/Alaskan Native made up 22% of firearm deaths but only make up 5% of the total population. Black/African American made up 16% of firearm deaths but only make up 6% of the total population.

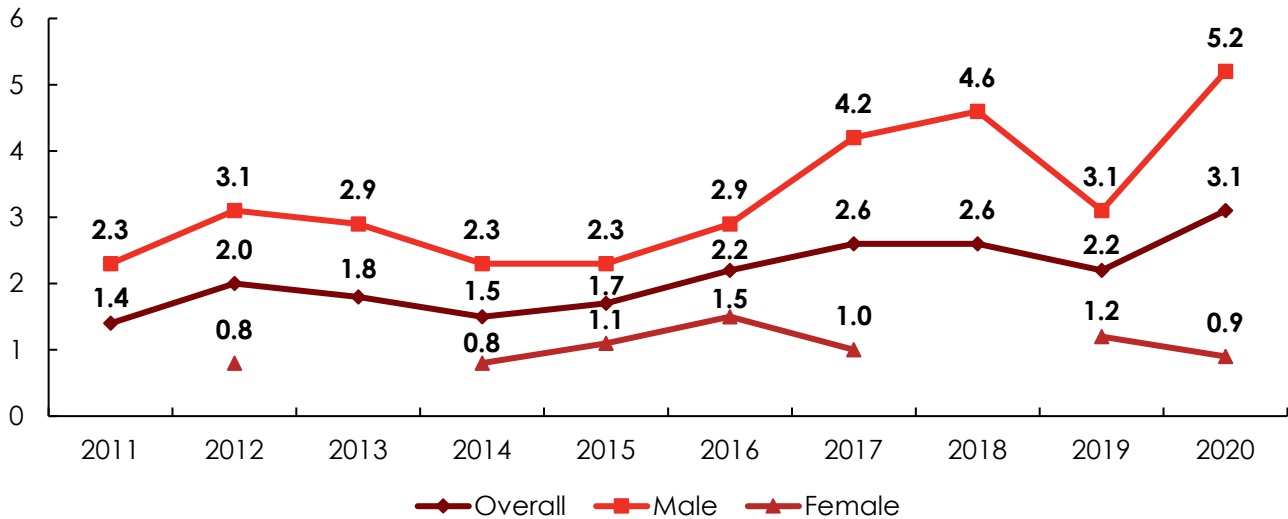


43% of firearm injury deaths involved substance use.



Overall, Arizona's firearm injury mortality rate has increased from 2011 to 2020 (Figure 48). Males have consistently had a higher firearm injury mortality rate compared to females. Arizona's firearm injury mortality rate increased by 41% from 2.2 per 100,000 children in 2019 to 3.1 per 100,000 children in 2020.

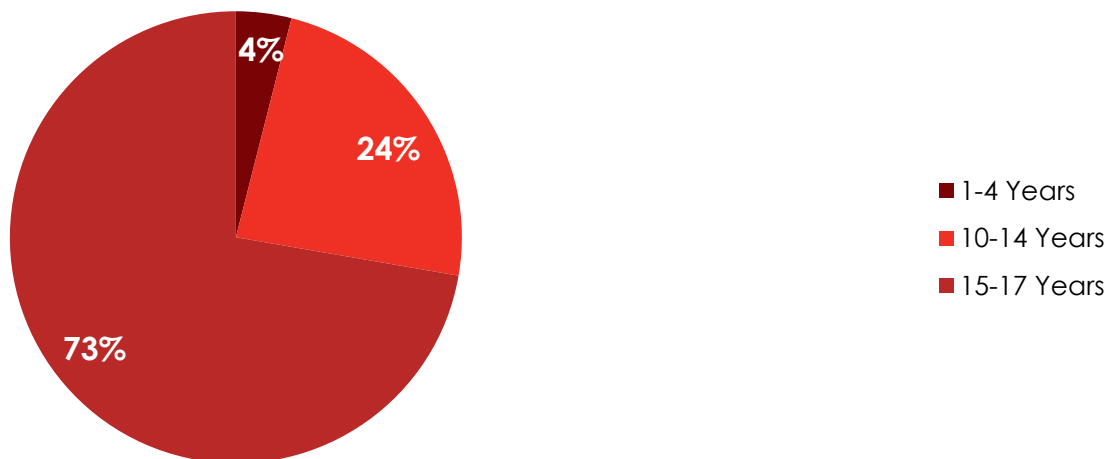
Figure 48. Mortality Rate per 100,000 Children due to Firearms by Gender, Ages 0-17 Years, Arizona, 2011-2020³⁻¹²



*2011, 2013, and 2018 data on female children not included due to small sample sizes.

The majority of firearm injury deaths occurred among children ages 15-17 years (73%), followed by children ages 10-14 years (24%) (Figure 49).

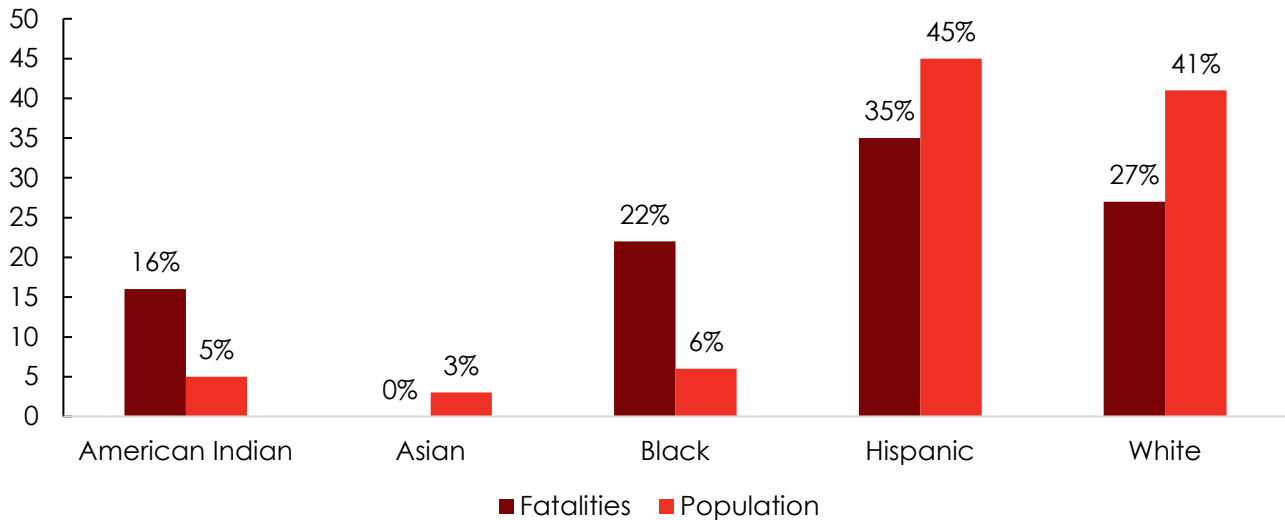
Figure 49. Number and Percentage of Firearm Injury Deaths among Children by Age Group, Ages 0-17 (n=51)





American Indian/Alaska Native and Black/African American children made up 22% and 16% of firearm injury deaths, respectively, but only comprised 5% and 6% of the total population, respectively (Figure 50). The majority of child deaths were among Hispanic (35%) and White (27%) children.

Figure 50. Percentage of Firearm Injury Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=51)³



While there are numerous preventable risk factors that contribute to firearm injury deaths, access to firearms (100%) was the most commonly identified risk factor (Table 21).

Table 21. Risk Factors of Firearm Injury Deaths, Ages 0-17 Years, Arizona, 2020 (n=51)

Risk Factors*	Number	Percent
Access to Firearm	51	100%
Unsecured Firearm	49	96%
Substance use	22	43%
Child Relationship	20	39%
Criminal Activity	16	31%

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

Of the firearm injury deaths, 86% involved a handgun (Table 22).

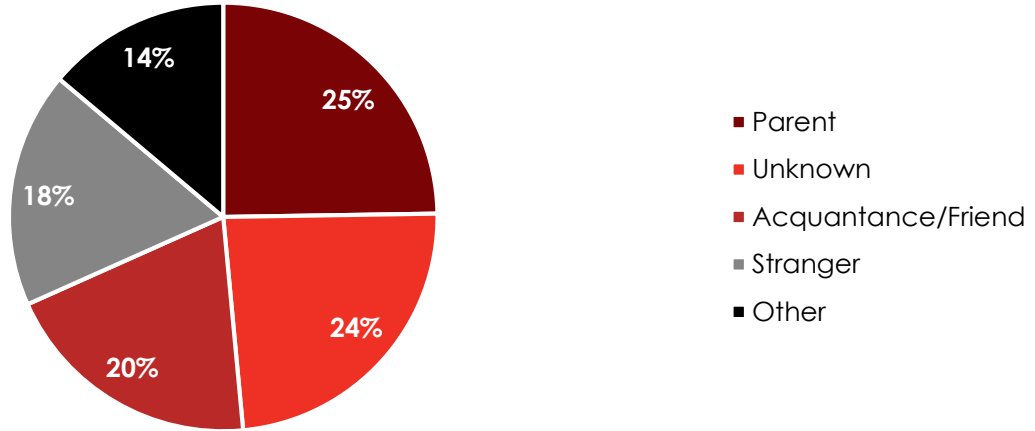
Table 22. Types of Firearms Involved in Firearm Injury Deaths, Ages 0-17 Years, Arizona, 2020 (n=51)

Type of Firearms	Number	Percent
Handgun	44	86%
Other (e.g. Assault Rifle, Shotgun)	7	14%



The child's parent as the owner accounted for 25% of the firearm injury deaths (Figure 51).

Figure 51. Owners of Firearms Involved in Firearm Injury Deaths, Ages 0-17 Years, Arizona, 2020 (n=51)



In 71% of the firearm injury deaths, the firearm was not stored (Table 23).

Table 23. Location of Firearms Involved in Firearm Injury Deaths, Ages 0-17 Years, Arizona, 2020 (n=51)

Location of Firearms	Number	Percent
Not stored	36	71%
Unknown	12	24%
Locked Cabinet	<6	**

** Percentage suppressed due to count less than 6.

In 43% of the firearm injury deaths, the firearm user was the child decedent (Table 24).

Table 24. Firearm Users Involved in Firearm Injury Deaths, Arizona, 2020 (n=51)

Firearm Users	Number	Percent
Self	22	43%
Acquaintance/ Friend/ Significant Other	16	31%
Stranger	11	22%
Relative	<6	**
Other	<6	**

*Number totals more than 51 as more than one firearm user may have been involved in the death.

** Percentage suppressed due to count less than 6.



In 33% of the firearm injury deaths, the firearm was used in commission of a crime (Table 25).

Table 25. Firearm Use Involved in Firearm Injury Deaths, Arizona, 2020 (n=51)

Firearm Use	Number	Percent
Crime	17	33%
Self-Injury	16	31%
Playing with Firearm	9	18%
Argument	8	16%
Showing off Firearm	<6	**
*Number totals more than 51 as more than one firearm use was may have been involved in the death.		
** Percentage suppressed due to count less than 6.		



Motor Vehicle Crash (MVC) Deaths

Death caused by injuries from a motor-vehicle incident, including injuries to motor vehicle occupant(s), pedestrian(s), pedal cyclist(s) or another person. See glossary for further explanation.



There were 93 MVC deaths in 2020.



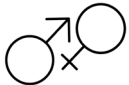
There was a 54% increase in the MVC death rate from 2019 to 2020.



100% of MVC deaths were preventable.



43% of MVC deaths occurred in children ages 15-17 years.



Of the MVC deaths, 58% were male and 42% were female.



American Indian/ Native Alaskan children were disproportionately affected. American Indian/ Native Alaskan made up 12% of MVC but only make up 5% of the total population.

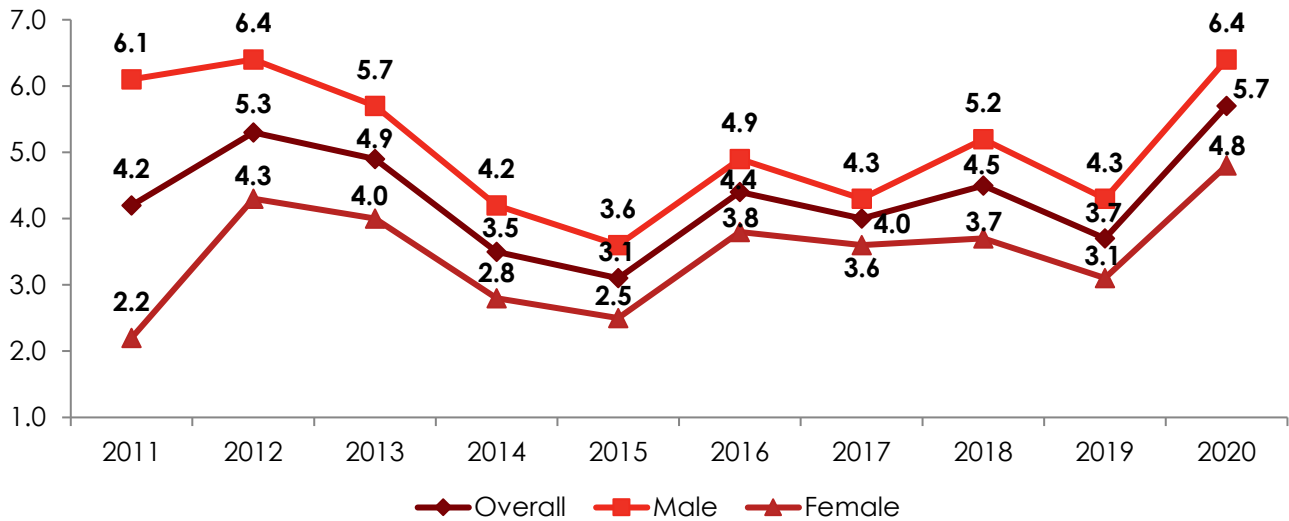


23% of MVC deaths involved substance use.



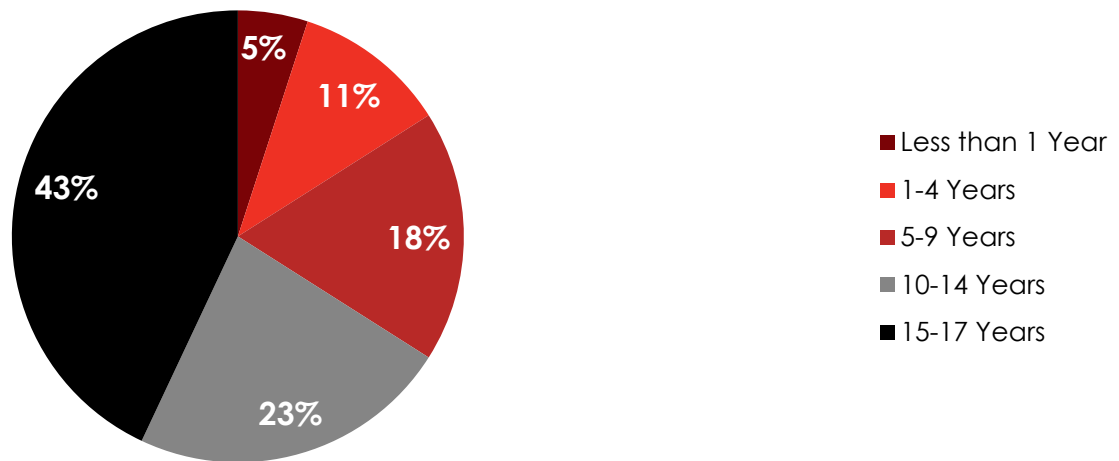
The MVC mortality rate has fluctuated throughout the 10-year period from a low of 3.1 deaths per 100,000 children in 2015 to a high of 5.7 deaths per 100,000 children in 2020. Males have consistently had a higher MVC mortality rate compared to females. Arizona's MVC mortality rate increased by 54% from 3.7 per 100,000 children in 2019 to 5.7 per 100,000 children in 2020 (Figure 52).

Figure 52. Mortality Rate per 100,000 Children due to Motor Vehicle Crashes by Gender, Ages 0-17 Years, Arizona, 2011-2020³⁻¹²



The majority of MVC deaths occurred among children ages 15-17 years (43%), followed by children ages 10-14 years (23%) (Figure 53).

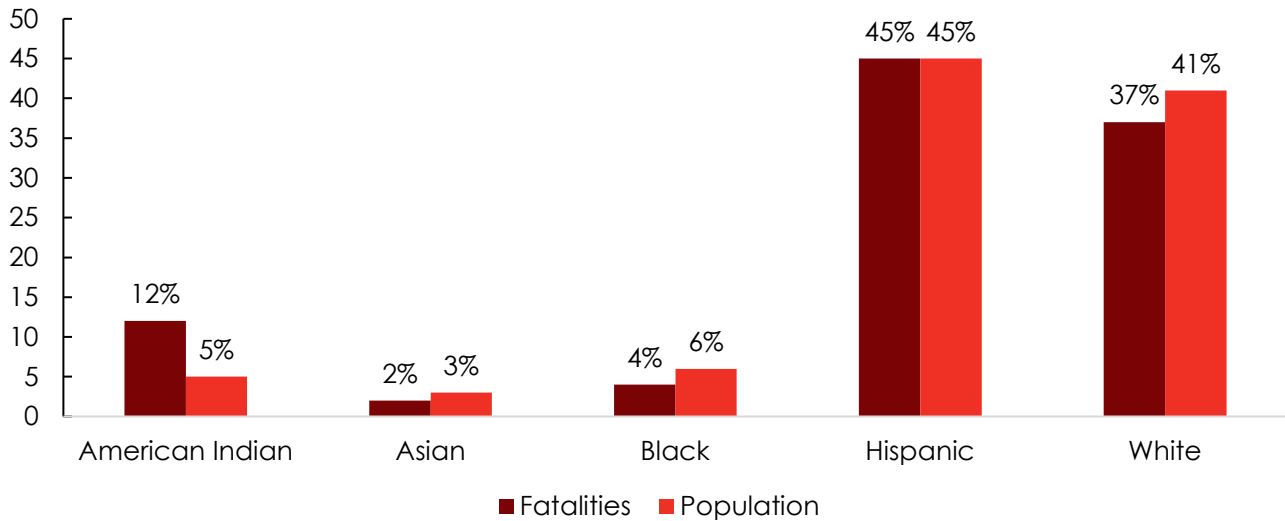
Figure 53. Percentage of Motor Vehicle Crash Deaths among Children by Age Group, Ages 0-17 Years, Arizona, 2020 (n=93)





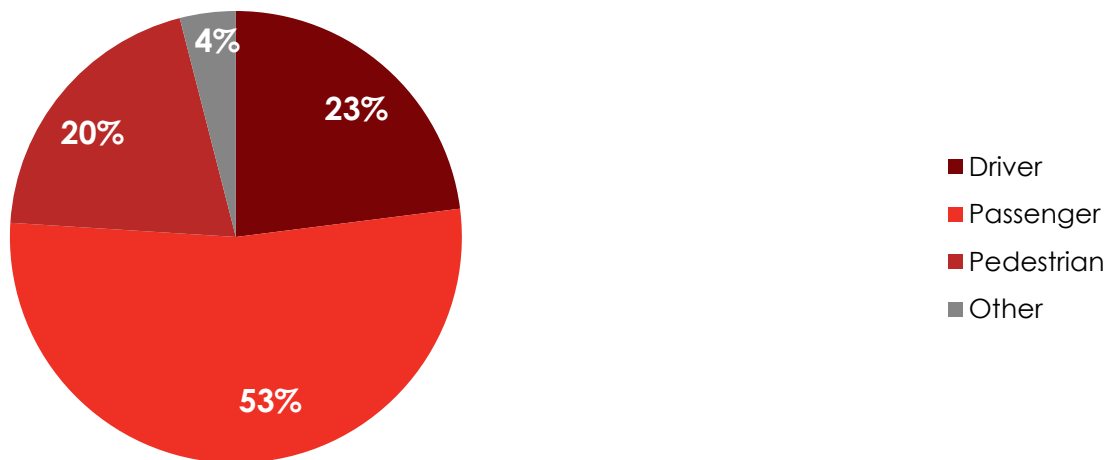
American Indian/Alaska Native children made up 12% of MVC deaths, but only comprised 5% of the total population (Figure 54). The majority of child deaths were among Hispanic (45%) and White (37%) children.

Figure 54. Percentage of Motor Vehicle Crash Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=93)³



In the majority of MVC deaths, the child was the passenger (53%) (Figure 55).

Figure 55. Percentage of Motor Vehicle Crash Deaths among Children by Occupant, Ages 0-17 Years, Arizona, 2020 (n=93)





While there are numerous risk factors that can contribute to MVC deaths, the most commonly identified risk factors were excess speed (35%), lack of seat restraint (34%), and reckless driving (32%) (Table 26).

Table 26. Preventable Risk Factors for Motor Vehicle Crash Related Deaths among Children, Ages 0-17 Years, Arizona, 2020 (n=93)

Risk Factor*	Number	Percent
Excess Speed	33	35%
Lack of Seat Restraint	32	34%
Reckless Driving	30	32%
Driver Inexperience	23	25%
Substance Abuse	21	23%

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



Prematurity Deaths

Death of an infant born before 37 weeks gestation and the cause of death was related to the premature birth. See glossary for further explanation.



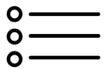
There were 207 prematurity deaths in 2020 (including prematurity due to perinatal condition).



There was a 13% increase in the prematurity death rate from 2019 to 2020.



8% of prematurity deaths were preventable (n=19).



#1 cause: Prematurity (n= 207)



Of the prematurity deaths, 66% were male and 34% were female.



Black/African American children were disproportionately affected. Black/African American children made up 19% of prematurity deaths but only make up 6% of the total population.

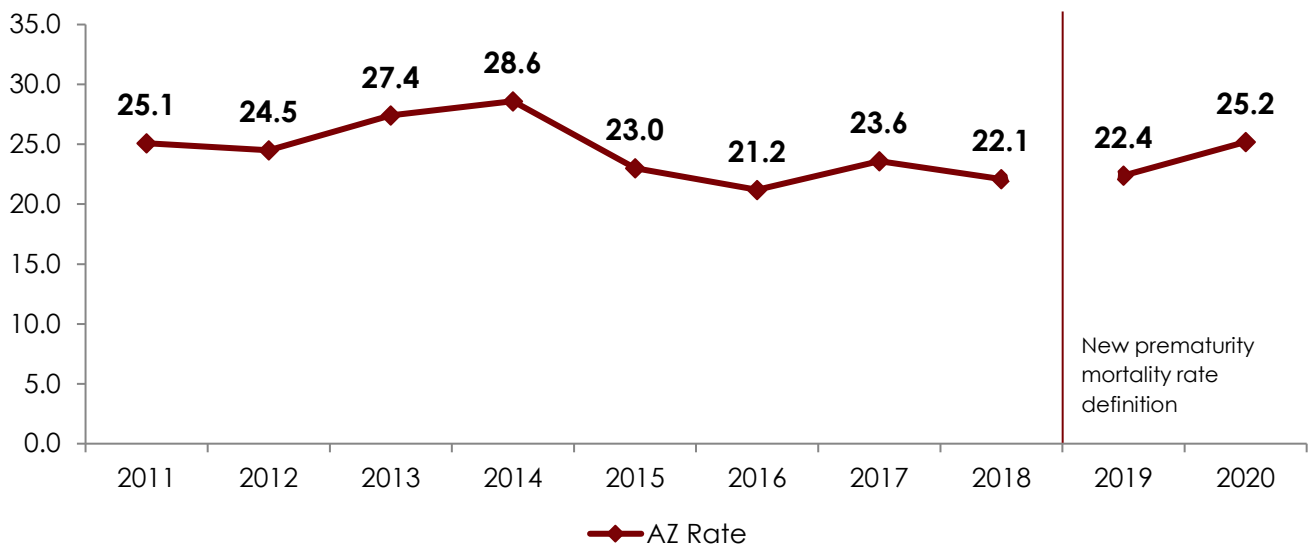


7% of prematurity deaths involved substance use.



Prior to 2018, the prematurity mortality rate included children who were identified as dying of prematurity. Starting in 2018, the prematurity mortality rate includes those who were identified as dying of prematurity but also includes children who died of other perinatal conditions which lead to a premature birth. Therefore, data from 2018 and onward cannot be compared to previous years' data. Additionally, as of this the 2020 report, the prematurity mortality rate is calculated based on the number of premature births whereas in previous reports it was calculated based on all live births. Calculating the rate based on premature births instead of all live births gives a more accurate representation of the prematurity mortality rate as only infants who are born premature can die of prematurity. Arizona's prematurity mortality rate increased by 12% from 22.4 per 1,000 live premature births in 2019 to 25.2 per 1,000 live premature births in 2020 (Figure 56).

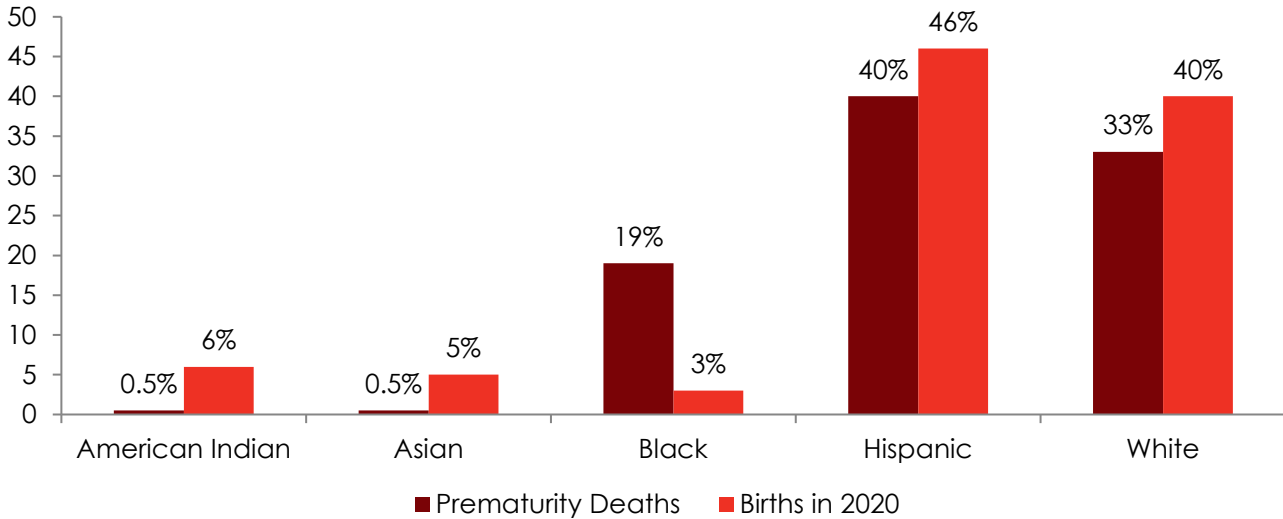
Figure 56. Prematurity Mortality Rate per 1,000 Live Premature Births, Less than 1 Year of Age, Arizona, 2011-2020²⁷⁻³⁶





Black/African American infants made up 19% of prematurity deaths, but only comprised 6% of the total births (Figure 57). The majority of child deaths were among Hispanic (40%) and White (33%) children.

Figure 57. Percentage of Prematurity Deaths among Infants by Race/Ethnicity, Less than 1 Year of Age, Compared to Percentage of Births, Arizona, 2020 (n=207) *³⁶



*There is no comparison of fatalities for American Indian and Asian children as (n=0).

While there are numerous risk factors that can contribute to prematurity deaths, the most commonly identified risk factors were poverty (52%) and premature rupture of membranes (PROM) (34%) (Table 27).

Table 27. Risk Factors for Prematurity Deaths, Less than 1 Year of Age, Arizona, 2020*

Risk Factors*	Number	Percent
Poverty	108	52%
PROM	71	34%
Preterm Labor	30	14%
No Prenatal Care	30	14%
Hypertension	26	13%
*More than one risk factor may have been identified for each death		
**All risk factors include prematurity <37 weeks gestational age due to perinatal conditions		
***There are 3 children over 1 year of age		



Substance Use Related Deaths

Substance use related deaths are where the child or any individual involved in the death of the child used or abused substances, such as alcohol, illegal drugs, and/or prescription drugs and this substance use was a direct or contributing factor in the child's death. See glossary for further explanation.



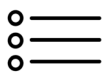
There were 157 substance use related deaths in 2020.



There was a 32% increase in the substance use related death rate from 2019 to 2020.



100% of substance use related deaths were preventable.



#1 cause: Poisoning (n= 66)

#2 cause: Firearm (n= 22)

#3 cause: MVC (n= 21)



Of the substance use related deaths, 66% were male and 34% were female.



53% of substance use related deaths occurred in children ages 15-17 years.



American Indian/Alaska Native and Black/African American made up 15% and 13% of substance use related deaths, respectively, but only make up 5% and 6% of the total population, respectively.



Of the 66 poisoning deaths, 60 were opiate overdoses and fentanyl was responsible for 57 of opiate poisonings.



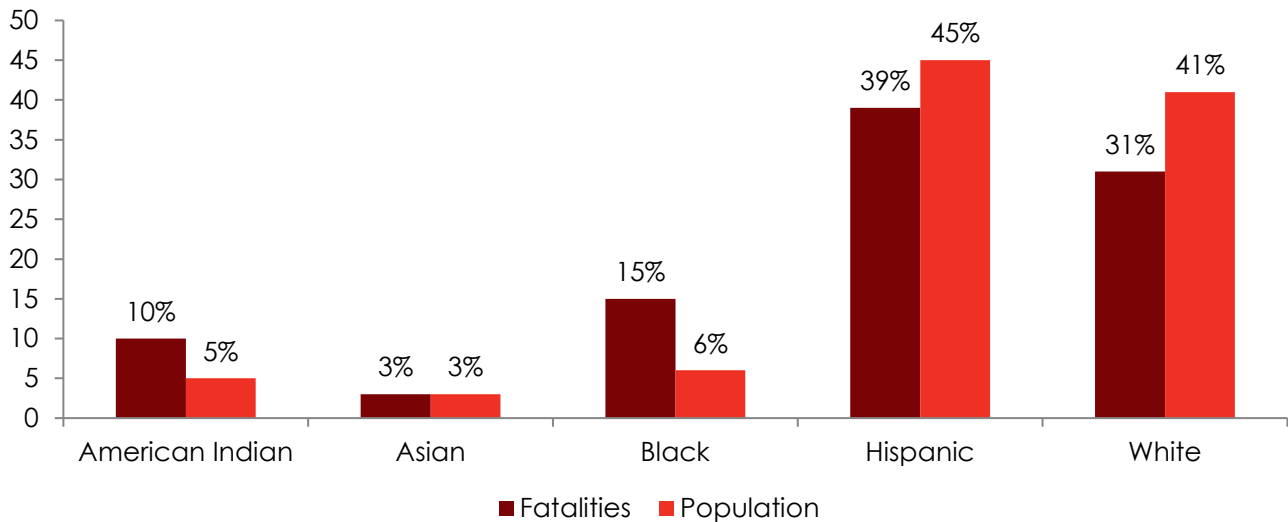
The majority of substance use deaths occurred among male children ages 15-17 years (43%), followed by male children less than 1 year or age (15%) (Figure 58).

Figure 58. Percentage of Substance Use Deaths among Children by Age Group and Sex, Ages 0-17 Years, Arizona, 2020 (n=157)



American Indian/Alaska Native and Black/African American children made up 10% and 15% of substance use related deaths, respectively, but only comprised 5% and 6% of the total population, respectively (Figure 59). The majority of child deaths were among Hispanic (39%) and White (31%) children.

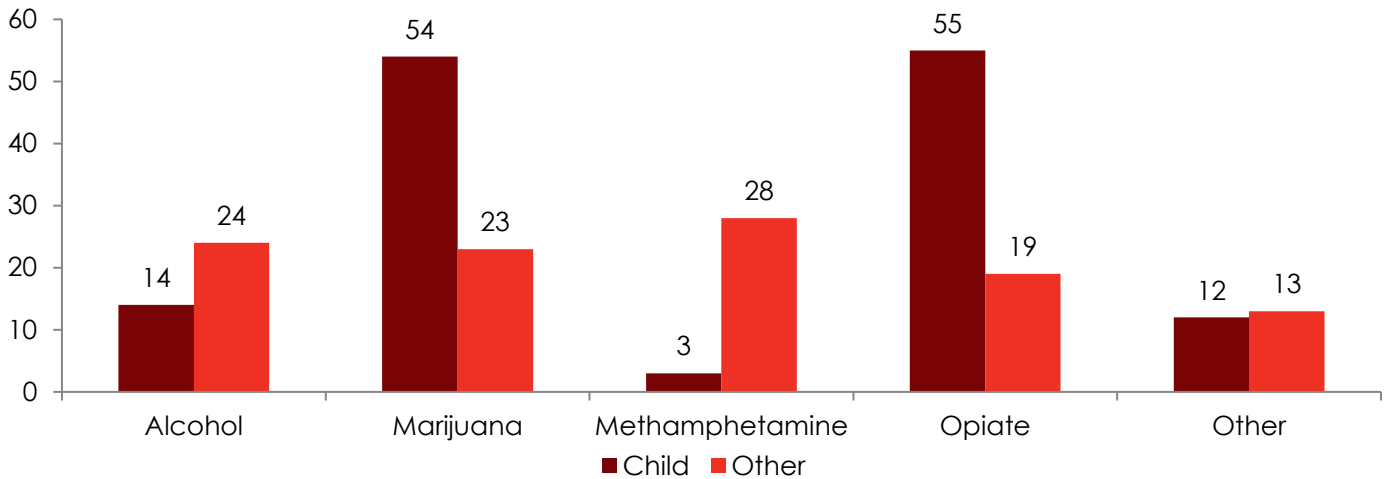
Figure 59. Percentage of Substance Use Deaths among Children by Race/Ethnicity, Ages 0-17 Years, Compared to Population, Arizona, 2020 (n=157)³





In 57% of the substance use related deaths, the decedent child was using or abusing alcohol or drugs which caused or contributed to their death (Figure 60). Opiates and marijuana were the most common substances which caused or contributed to the death of the child where the child was the user. In 59% of the substance use related deaths, another individual (child or adult) was using or abusing alcohol or drugs which caused or contributed to the death of the child. Methamphetamine and marijuana were the most common substance which caused or contributed to the death of the child where another individual (child or adult) was using or abusing alcohol or drugs which caused or contributed to the death of the child.

Figure 60. Number of Substances Found as a Contributing Factor to the Death of a Child by Deceased Child User or Other Child or Adult User, Ages 0-17 Years, Arizona, 2020*



*More than one substance and/or more than one user may have been involved in the child's death.

Among substance use related deaths, poisoning (42%) was the leading factor that caused or contributed to the death for children ages 0-17 years (Table 28). Of the 66 poisoning deaths, 60 were opiate overdoses and fentanyl was responsible for 57 opiate poisonings.

Table 28. Number of Deaths where Substance Use was a Direct or Contributing Factor to the Death of the Child, Ages 0-17 Years, Arizona, 2020

Factors	Number	Percent
Poisoning	66	42%
Firearm Injury	22	14%
MVC	21	13%
Prematurity	16	10%
Suffocation	10	6%



While there are numerous risk factors that can contribute to prematurity deaths, the most commonly identified risk factors were history with CPS (57%) and parent history of substance abuse (46%) (Table 29).

Table 29. Risk Factors for Substance Use Related Death, Ages 0-17, Arizona, 2020

Risk Factors*	Number	Percent
Prior History with CPS	90	57%
Parent History of Substance Abuse	73	46%
Poverty	47	30%
History of trauma	41	26%
Housing Insecurity	23	15%

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



Sudden Unexpected Infant Death (SUID)

A sudden unexpected death of an infant (less than 1 year of age) is where the cause of death was not apparent prior to a death investigation. Most of the SUIDs are due to suffocation and unsafe sleep environments, but not all SUIDs are unsafe sleep related. See glossary for further explanation.



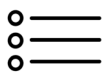
There were 53 SUIDs in 2020.



There was a 30% decrease in the SUID rate from 2019 to 2020.



100% of SUIDs were preventable.



#1 cause: Suffocation (n= 41)
 #2 cause: Undetermined (n= 11)
 #3 cause: Other Injury (n= 1)



Of the SUIDs, 66% were male and 34% were female.



9% of SUIDs occurred in neonates (infants less than 28 days) (n<6).
 91% of SUIDs occurred in post-neonates (infants >28 days but <1 year of age) (n=48).



Black/African American infants were disproportionately affected.
 Black/African American infants made up 19% of SUIDs but only make up 6% of the total population.

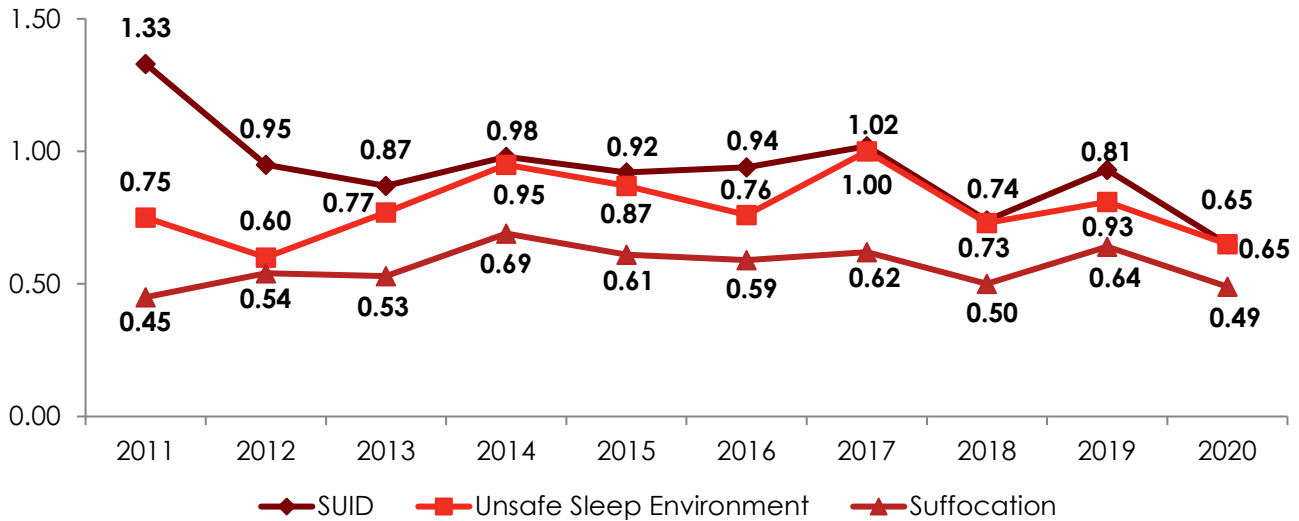


15% of SUIDs involved substance use.



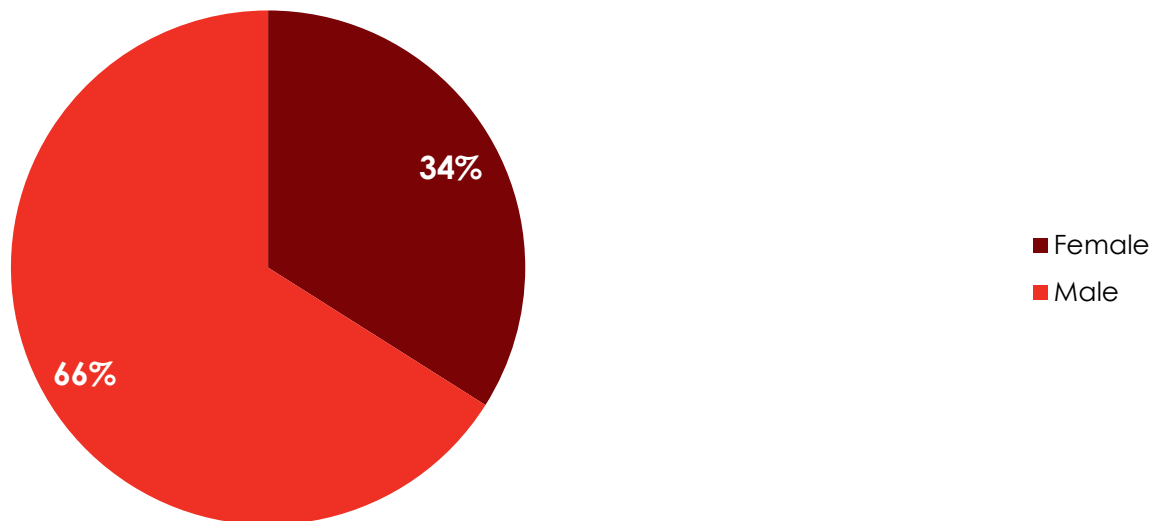
Overall, Arizona's SUID rate decreased 20% from 0.81 deaths per 1,000 live births in 2019 to 0.65 deaths per 1,000 live births in 2020 (Figure 61). Additionally, Arizona's unsafe sleep environment rate and suffocation rate have decreased from 2011 to 2020 (Figure 61).

Figure 61. Mortality Rate per 1,000 Live Births due to Sudden Unexpected Infant Death, Unsafe Sleep Environments, and Suffocation, Less than 1 Year of Age, Arizona, 2011-2020²²⁻²³



Of the SUID deaths, 66% of deaths were among males and 34% were female (Figure 62).

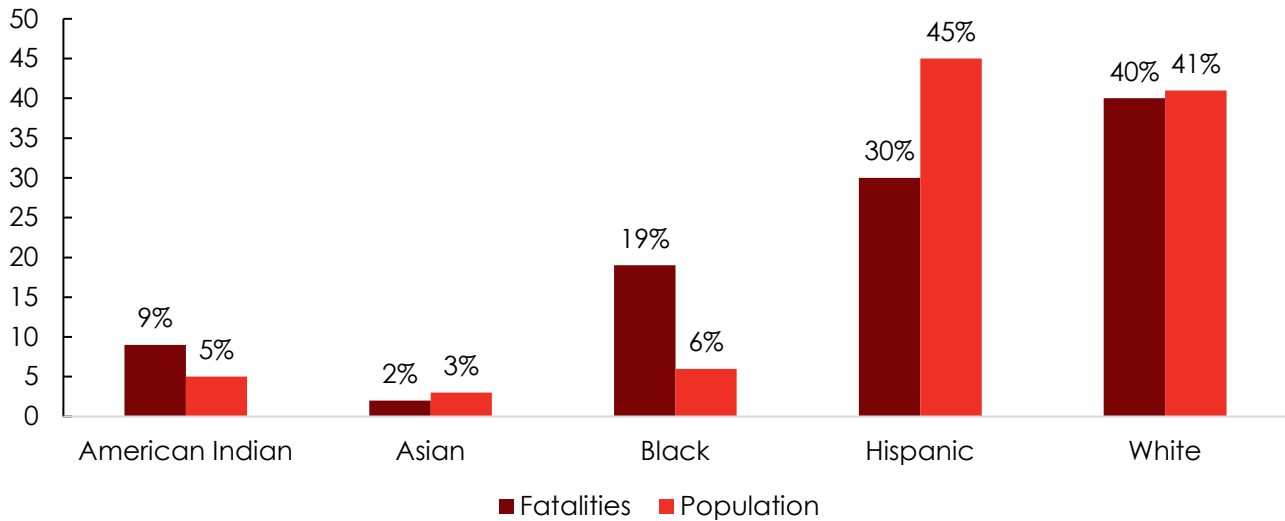
Figure 62. Number and Percentage of Sudden Unexpected Infant Death among Infants by Sex, Less than 1 Year of Age, Arizona, 2020 (n=53)





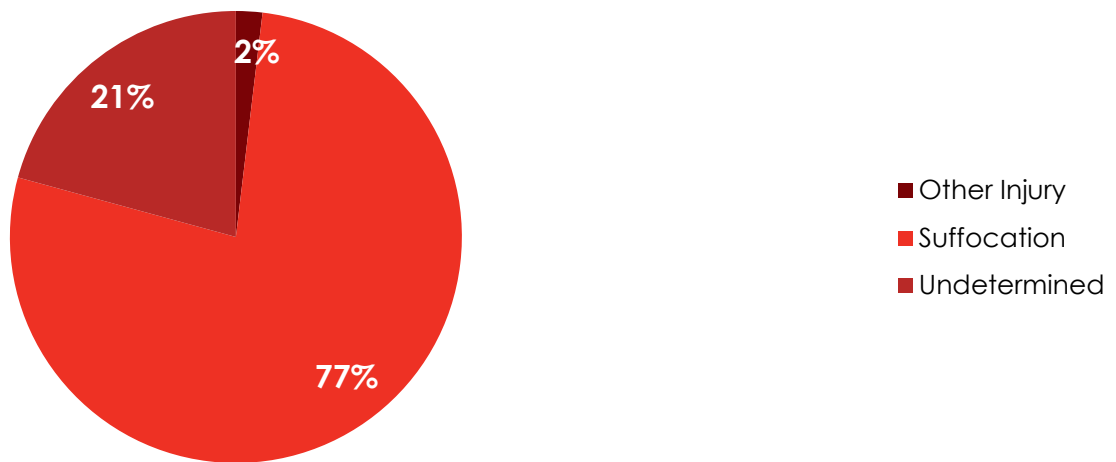
Black/African American and American Indian/Alaska Native infants made up 19% and 9% of SUIDs, respectively, but only comprised 6% and 5% of the total births, respectively (Figure 63). The majority of child deaths were among White (40%) and Hispanic (30%) children.

Figure 63. Percentage of Sudden Unexpected Infant Death among Infants by Race/Ethnicity, Less than 1 Year of Age, Compared to Population, Arizona, 2020 (n=53)²⁵



Of the 53 SUIDs in 2020, 77% were due to suffocation (Figure 64).

Figure 64. Number and Percentage of Sudden Unexpected Infant Death among Infants by Cause of Death, Less than 1 Year of Age, Arizona, 2020 (n=53)





While there are numerous risk factors that can contribute to SUIDs, the most commonly identified risk factors were unsafe sleep environment (100%), objects in sleep environment (92%), unsafe sleep location (85%), and poverty (64%) (Table 30).

Table 30. Risk Factors for Sudden Unexpected Infant Death among Infants, Less than 1 Year of Age, Arizona, 2020

Risk Factor*	Number	Percent
Unsafe Sleep Environment	53	100%
Objects in Sleep Environment	49	92%
Unsafe Sleep Location	45	85%
Poverty	34	64%
Bedsharing	34	64%

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



Mortality Rate Trends

In Tables 31, 32 and 33, mortality rate trends for age, manner, main causes and contributing factors of death are summarized from 2016-2020. From 2019-2020, the child mortality rate for children ages 1-4 years experienced the greatest increase at 22.4% (Table 31). From 2019-2020, accidental injury deaths and suicides experienced the greatest increases at 30.6% and 30.0%, respectively, while undetermined deaths decreased by 18.2% (Tables 32). Among the main cause and contributing factors of death, motor vehicle crash deaths experienced the greatest increase at 54.1% (Table 33). In comparison, SUID experienced the greatest decrease at 30.1% (Table 33).

Table 31. Mortality Rate per 100,000 Children Percent Change by Age Group, Ages 0-17 Years, Arizona, 2016-2020

Age Group	2016	2017	2018	2019	2020
Less than 1 Year	↓5.5%	↑7.7%	↑1.8%	↓8.8%	↓5.8%
1-4 Years	↑16.0%	↓17.9%	↑14.6%	↓25.0%	↑22.4%
5-9 Years	↓2.0%	↑48.0%	↓30.3	↑6.9%	↑10.2%
10-14 Years	↑40.9%	↑3.2%	↑10.6%	↑10.2%	↑1.0%
15-17 Years	↑0.78%	↑1.03%	↑23.2	↓7.2%	↑19.4%

Table 32. Mortality Rate per 100,000 Children Percent Change by Manner, Ages 0-17 Years, Arizona, 2016-2020

Manner	2016	2017	2018	2019	2020
Accidental Injury	↑12.2%	↑3.6%	↓9.6%	↑4.9%	↑30.6%
Homicide	↑30%	↓11.5%	↓17.4%	↑89.5%	↓11%
Natural	↓0.67%	↑0%	↑9.4%	↓13.5%	↑2.5%
Suicide	↓18.8%	↑28.8%	↑26.9%	↓41.2%	↑30.0%
Undetermined	↓7.7%	↑8.3%	↓7.7%	↓8.3%	↓18.2%

Table 33. Mortality Rate per 100,000 Children Percent Change by Main Causes and Contributing Factors of Deaths, Ages 0-17 Years, Arizona, 2016-2020

Main Causes and Contributing Factors	2016	2017	2018	2019	2020
Abuse/Neglect	↓5.7%	↓2.0%	↓6.1%	↑32.6%	↓4.9%
Drowning	↓5.6%	↑11.8%	↓10.5%	↓29.4%	↑8.3%
Firearm Injury	↑29.4%	↑18.2%	↓0%	↓15.4%	↑40.9%
MVC	↑22.6%	↑5.3%	↑12.5%	↓17.8%	↑54.1%
Prematurity	↓7.8%	↑11.3%	↓6.4%	↑1.4%	↑12.5%
SUID	↑2.2%	↑8.5%	↓28.4%	↑27.4%	↓30.1%



Prevention Recommendations



Prevention Recommendations

Abuse/ Neglect

- Disseminate online factsheets published by Child Welfare Information Gateway. The website is run by U.S. Department of Health & Human Services and provides knowledge on healthy parenting as well as factsheets that help community members recognize the signs of potential child maltreatment.³⁸
- Support Community-Based Child Abuse Prevention (CBCAP) programs. These programs strengthen families while promoting a safe and healthy environment for raising children.³⁹
- Support increasing funds to the Department of Child Safety (DCS) to retain highly effective staff. The workforce is charged with making very difficult decisions concerning child safety that can help reduce child abuse and neglect.⁴⁰
- The Workforce Resilience program should be expanded to help provide support for DCS employees that may be suffering from secondary trauma or burnout. By supporting employees, DCS can provide a way for them to process trauma and remain effective in reducing child maltreatment.⁴¹⁻⁴²
- Increase home visiting program participation which has been shown to decrease substantiated reports of child maltreatment.⁴³
- Increase awareness and support of the All Babies Cry program.⁴⁴
- Increase support for prevention programs that teach children how to recognize, avoid, and disclose abuse.
- Increase access to affordable, quality child care for families needing care, especially for parents who work nonstandard hours and/or in rural areas, and parents who are seeking care for infants and toddlers, and children with special needs.
- Increase awareness, education and support promotion of the recommendations in [ADHS's Adverse Childhood Experiences Action Plan](#).⁴⁵
- Increase public education on how and when to report suspected child abuse and neglect so that any Individual who knows about a child who is being abused or neglected can act by calling 911 in an emergency or the Arizona Child Abuse hotline (1-888-SOS-CHILD).
- Expand parenting education programs for all ages and developmental stages of childhood, to increase parents understanding of realistic expectations for their children's behavior. Provide parents with parenting resources that increase their ability to parent effectively, especially during stressful periods. These programs should made available to all parents, including incarcerated parents and those suffering from substance use disorders.
- Increase awareness in the clinical community of ACEs and their associated health outcomes.⁴⁵

COVID-19* Direct only

- Individuals should wear a mask, stay 6 feet away from others, get vaccinated, avoid crowds and poorly ventilated space, wash your



hands often, cover coughs and sneezes, clean and disinfect, monitor their health daily, and stay home if feeling ill.⁴⁶

- All schools should follow the American Academy of Pediatrics guidance on prevention of COVID-19 including the following:
 - All eligible individuals should receive the COVID-19 vaccine and all students older than 2 years and all school staff should wear face masks at school (unless medical or developmental conditions prohibit use).⁴⁷
 - All child care programs should follow AAP guidance on prevention of COVID-19 during the pandemic.⁴⁸
 - Follow AAP guidance regarding use of face masks at school, in child care settings and while playing sports and traveling should be followed.⁴⁹
 - American Academy of Pediatrics Guidance on the Use of Telehealth should be followed in order to provide mental and physical health care during the COVID-19 Pandemic.⁵⁰
 - To prevent COVID-19 infection or hospitalization, parents should get vaccinated and have their children vaccinated as soon as it is available for their child's age group:⁵¹
 - Children should wear a face mask outside the home when they are in indoor settings or crowded outdoor settings and when traveling on school buses, plane, train, or other form of public transportation and in US transportation hubs such as airports and bus stations.⁵¹
 - Maintain physical distancing around people who do not live in their household⁵¹
 - Wear a face mask inside your home if someone you live with is sick with symptoms of COVID-19 or has tested positive for COVID-19.⁵¹
 - Caregivers should be a role model for children and follow these recommendations regarding face masks, physical distancing, and handwashing.⁵¹
 - Children who have symptoms consistent with COVID-19 (e.g. fever, cough, congestion, loss of taste or smell, shortness of breath, body aches, fatigue, headaches, sore throat, nausea, vomiting or diarrhea) or who were in close contact with someone with confirmed or probable COVID-19 infection should be tested.⁵²
 - Health departments should ensure that there is timely and equitable access to and availability of COVID-19 testing with fast result return, especially for children, teachers and staff in K-12 schools and/or childcare settings and racial and ethnic minority groups and other pediatric populations disproportionately affected by COVID-19.⁵³
 - Educate and promote awareness supporting the Federation of State Medical Boards on dissemination of misinformation by board-certified physicians on COVID-19.⁵⁴
-



Drowning

- Increase community awareness of drowning risks for children.⁵⁵⁻⁵⁶
- Educate and promote effective drowning preventive measures including sober, constant and reliable adult supervision.⁵⁶⁻⁵⁹
- Children should never be left unattended near pools or pool areas. There should be a focused adult supervisor that is responsible for watching children that are in or around open water, pools, and spas. Adult supervision is key in preventing children from drowning. These points should continue to be reiterated and drowning prevention education should be expanded.⁵⁶⁻⁵⁹
- Pools need to be enclosed on all four sides by a wall, fence, or barrier to insure restricted access to young children. There should be no openings in the enclosure that are wide enough for a child to get through or under and no protrusions that can be used to climb the enclosure.⁵⁶⁻⁵⁹
- The enclosure needs to be at least 5 feet tall, 20 inches from the water's edge, and have a gate that swings away from the pool. The gate should have a self-closing/latching mechanism. These specifications can reduce the chance of children having unsupervised time around water.⁵⁷⁻⁵⁸
- Teach children the ability to swim after the age of 1 is one of the most effective interventions that can reduce child drowning.
- Inform parents that inflatable swimming aids and personal flotation devices are not a substitute for a life jacket.^{56,58}
- Parents should have their children wear properly fitted Coast Guard approved life jackets when on a boat, dock, or near bodies of water.⁵⁸
- Emphasize the importance of constant supervision for children in baths and how rapidly a drowning can occur.⁶⁰

Firearm Injury

- The most effective way to prevent firearm-related deaths in children and adolescents is removing firearms from households.⁶¹⁻⁶⁴
- The presence of firearms in a household increase the risk for suicide among adolescents.⁶² Parents of all adolescents should be counselled to remove or safely lockup all firearms, especially if there is a history of mental health issues.^{61,63}
- Implementing firearm safety counseling and distributing free firearm cables by pediatricians at child well visits to firearm owners increased safe gun storage practices.⁶³
- Gun owners should practice safe storage of their firearms which requires keeping the gun unloaded and locked in a safe.⁶¹⁻⁶² Ammunition should be locked up and stored separately from the firearm.⁶¹⁻⁶² This practice significantly reduces the risk of gun injury or death.⁶¹⁻⁶²
- Interventions at schools can prevent firearm violence among children. They can also connect families to resources like parental training and provide a place for students to participate in conflict resolution curriculum.⁶⁵



- Community-based firearm safety events should be considered in Arizona because of their potential to reach a population with high prevalence of firearm ownership. These types of events could increase the number of firearm owners that are receiving safe storage practice training and education.⁶⁶

Motor Vehicle Crash (MVC)

- Educate children, parents, and caregivers on the safe pedestrian practices and avoid distracted walking.⁶⁷⁻⁶⁹
- Strengthen law enforcement's capability to stop and cite vehicles with occupants that are not wearing seat belts by introducing a primary seat belt law because primary laws have been shown to result in higher seat belt usage than secondary laws.⁶⁹⁻⁷¹
- Educate parents on the AAP recommendations on car safety seats for children.⁶⁸⁻⁶⁹ Infants and toddlers should be in a properly secured rear-facing safety seat until they reach the maximum height or weight listed by the manufacturer. Once they have outgrown their previous seat children should be secured in a front-facing safety seat until they reach the maximum height or weight according to the manufacturer. Once a child has outgrown a front-facing seat the AAP recommends that a belt-positioning booster seat be used until the vehicle's seat belt fits properly. Children should always wear both the lap and shoulder seat belts. For optimal safety, the AAP recommends that children under the age of 13 years old be restrained in the backseat.
- Promote the importance of car safety seats for children to all caregivers and provide information on the locations of certified seat installers who can provide training in how to properly install car safety seats to parents and caregivers.^{68-69,72}
- Encourage drivers to be aware of cyclists especially at night when visibility is impaired and encourage cyclists ride defensively, avoid distractions like music or texting while riding, wear high visibility clothing during the day and reflector lights at night.^{70,73}
- Extend the period of time teen drivers have a graduated driver license to meet the AAP Recommendations.⁷⁴
- Educate drivers that Driving under the influence (DUI) increases the risk of crashes, serious injury or death.⁷³
- Educate and promote the AAP guideline that laws should prohibit the use of ATVs, on- or off-road, by children and adolescents younger than 16 years.⁷⁴

Prematurity

- Expand telemedicine services to women who are living in area where there is no or limited access to obstetric care.
- Counsel pregnant women on the increased risk of preterm birth if they are exposed to cigarette smoke during their pregnancy.⁷⁵
- Educate pregnant women on the increased risk of preterm birth with multiple gestations and increase their access to resources and support systems.⁷⁵⁻⁷⁶
- Educate and encourage better preconception health for mothers.⁷⁵
- Parents should be educated that shorter interpregnancy intervals, especially <6 months, are associated with an increased risk of late-preterm delivery.⁷⁵



Substance Use

- Pregnant women should obtain regular prenatal care.⁷⁷
- In accordance with the Helping MOMS Act (H.R. 4996), expand Medicaid coverage of women to one year postpartum.⁷⁹
- Adapt services to better address adverse childhood experiences (ACEs) and train more professionals in trauma-informed care. Social transitions like parental divorce, attending a new school, or graduation are influential risk factors for substance use that can be influenced by programs and policies. Children that suffer from physical and sexual abuse are at especially high risk for developing substance use disorders.⁸⁰⁻⁸³
- Improve access to personalized substance use disorder treatment plans for children. Form treatment plans based on individuals' strengths because it can keep children engaged in their care and increase the likelihood of a successful treatment and better health outcomes.^{80,84}
- Expand access to services for people with unstable housing and those that are experiencing homelessness because they are at higher risk for substance use.⁸⁰⁻⁸¹
- Increase the availability of community naloxone training to reduce the substance use-related risk among active users.⁸⁰ Overdose fatalities in large populations can be prevented by expanding access to naloxone.⁸⁴⁻⁸⁵ Outreach and education programs can improve access to naloxone, which can reverse potentially lethal opioid overdoses.⁸⁴⁻⁸⁵
- Improved community awareness of prescription drug misuse.⁸⁰ Community-based organizations, advocacy groups, and neighborhood associations can provide communication and education on health issues associated with substance use.⁸² Forms of communication like blogs, newsletters, and op-ed articles can raise awareness of the dangers of substance use in their community.⁸²
- Coordinate statewide opioid prevention activities and increase the number of campaigns and websites that have social connection messages. Social connection messages advocate the importance of interpersonal relationships and the negative health impacts of social isolation.⁸⁶
- Improve access to medication-assisted treatment of opioid addiction in adolescents.⁸⁴ Pediatricians should be encouraged to offer these treatments or referrals for treatment to adolescents with severe opioid use disorders.⁸⁷
- Implement universal screening for substance use and mental health issues during adolescent well visits.^{83-84,88}
- To reduce overdose deaths, clinicians should offer naloxone and provide overdose education for all patients at risk for opioid overdose and avoid concurrent use of opioids and benzodiazepines.⁸⁹⁻⁹⁰



	<ul style="list-style-type: none"> • Support and promote the Arizona Families F.I.R.S.T program to reduce or eliminate abuse of and dependence on alcohol and other drugs and to address other adverse conditions related to substance abuse. • Mental health materials should be present and available in a pediatrician's office. Screening for substance abuse and mental health concerns should be done during well-child visits.^{83-84,88}
<p>Sudden Unexpected Infant Death (SUID)</p>	<ul style="list-style-type: none"> • Educate parents on safe sleeping environments and that Alone, on my Back, in a Crib (ABCs) is the safest sleeping practice for an infant until it is 1 year of age.⁹¹⁻⁹² The ideal safe sleeping environment for an infant requires a firm sleeping surface with only a fitted sheet and no additional bedding.⁹¹⁻⁹² The area should also be void of any toys, cushions, hanging cords, or any other items that pose a potential risk of suffocation or strangulation.⁹¹⁻⁹² • Infants should sleep on a separate surface in their parents' room close to the bed for at least the first 6 months. This practice is associated with a significant reduction in the risk of SUID.⁹¹⁻⁹² • Provide training in prenatal care at maternity health centers. Encourage pediatricians and gynecologists to start initial training on safe sleeping practices before a child is born.⁹¹⁻⁹² • Increase the enrollment in WIC services and home visits because they can help families feel less isolated and teach them safe sleeping practices. Social determinants of health can make ideal safe sleeping environments unavailable to some families.⁹¹⁻⁹² • Develop a training program and curriculum on safe sleeping practices for providers. It is associated with more parents adhering to the practices when they observe staff perform them.⁹¹ Introduce a statewide hospital policy that requires parents to receive safe sleep information prior to discharge and sign off that they understood the material.⁹¹⁻⁹² • Breastfeeding should be encouraged for mothers because it is associated with a reduced risk of SUID.^{91,93} • Establish or fund a program that helps low-income families afford a crib that can reduce the frequency of bed-sharing. Bed-sharing is associated with a significantly increased risk of SUID.^{91,93} • Women should be provided with resources to obtain prenatal care early in their pregnancy. Regular prenatal care for women is associated with a lower risk of SUID for their children.⁹⁴ • Follow the AAP recommendations for a Safe Infant Sleeping Environment.⁹⁵
<p>Suicide</p>	<ul style="list-style-type: none"> • Support and increase awareness of the Mitch Warnock Act, mandating all public-school staff be trained in an evidence-based, best practice suicide prevention training at least once every three years.⁹⁶⁻⁹⁹ • Increase awareness of the Children's Behavioral Health Services Fund (or Jake's Law), for schools to develop a policy to refer students for behavioral health services, and to allow families to opt-in or opt-out of the referral process annually.⁹⁶⁻⁹⁷



- School staff should be trained in evidence-based, best practice suicide prevention training and be aware of resources like the suicide prevention toolkits developed by the Substance Abuse and Mental Health Services Administration and the American Foundation for Suicide Prevention.^{96,98,99}
- Schools should educate staff members on the effects that suicide contagion can have in a student population. Adolescents are vulnerable to suicide contagion and it is important for schools to not glamorize, simplify, or romanticize the death of a student.⁹⁶⁻⁹⁹
- Increase access to effective mental health care for Arizonans by adopting the Zero Suicide model statewide. Implement communication strategies using traditional and new media for school personnel that promotes suicide prevention, emotional well-being, and mental health.⁹⁹⁻¹⁰¹
- Increase public awareness of risk factors and warning signs (i.e. cutting, past attempts, drug use, school problems, sexuality and gender identify struggles, bullying, etc...) for suicide and connect people in crisis to care including promotion of the national suicide hotline.^{96,97,101,102}
- Educate parents that the presence of a firearm in the house significantly increases the risk of suicide for adolescents.^{98,103}
- Reduce access to lethal means in the household of adolescents that are at risk of suicide or expressing suicidal thoughts. This includes removing firearms from the house and securing medications.^{98,101,102}
- Parents should be encouraged to meet their children's teachers and school counselors as a way to keep up-to-date with their kids' lives. This can help prevent bullying and keep parents connected to their children.^{104,105} Kids who are bullied are at a higher risk for suicide.^{96,98,104-105}
- Increase awareness that cyberbullying can have a significant negative impact on mental health like traditional bullying.⁹⁸ There is an increase in suicide attempts for both victims and perpetrators of cyberbullying.⁹⁸
- The most effective school-based interventions to prevent suicide use simultaneous complementary strategies.^{98,106} Simultaneous interventions involving parents, changing the school environment, and improving students' individual skills have been effective.¹⁰⁶
- Promote and increase utilization of the Youth Mental Health First Aid program to teach adults how to recognize and respond to signs and symptoms of mental health and substance use challenges.



Glossary

Accident – An injury that occurred when there was no intent to cause harm or death; an unintentional injury.

ADES - Arizona Department of Economic Security

ADCS - Arizona Department of Child Safety

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.

CFRP- Child Fatality Review Program

Choking- The inability to breath because the trachea (airway) is blocked, constricted or swollen shut.

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.

COVID-19 Related Death– A COVID-19 death that was either the direct or indirect cause of death and was determined by the child fatality review teams.

Direct: COVID-19 deaths were determined by the CFRP and identified as **the immediate or underlying cause of death**, COVID-19 was diagnosed at autopsy or the child was suspected to have COVID-19, or the birthing parent contracted COVID-19 during pregnancy.

Indirect: The indirect COVID-19 deaths were determined by the CFRP and where **the COVID-19 pandemic indirectly contributed to the child's death**. For example, a suicide when the child experienced isolation during virtual learning or delayed medical care due to concerns about contracting COVID-19. Indirect deaths may occur any time the child or family experienced changes or disruptions in how they lived, worked, or accessed services.

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

Firearm 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.

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

IHS – Indian Health Services

Infant – A child who is less than one year of age.

Intentional injury – An injury that is the result of 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 injury), homicide (e.g., intentional injury), suicide (e.g., intentional injury), 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 another person.

Natural Death- deaths due to a medical condition. Natural deaths include (but not limited to) deaths due to congenital anomalies, infants born prematurely and of low birth weight, respiratory complications, infections and other medical conditions, cancer, congenital anomalies and cardiac conditions, illnesses such as asthma and infectious diseases.

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.

NCFRP- National Center for Fatality Review and Prevention

NFR-CRS- National Fatality Review Case Reporting System

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, childcare 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: Firearm deaths inflicted by a parent, guardian or caregiver are included in this type of abuse and neglect.**

Prematurity death - A death that was due to a premature birth (less than 37-week gestation) of an infant that had no underlying medical conditions that would have resulted in the death.

Preventable death - A child's death is considered 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) are considered when making this determination.

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

Sleep related death – A unique grouping of infant injury deaths inclusive of select injury causes (accidental 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 related deaths as deaths where substance use was found as a direct or contributing factor leading to child deaths. The substances used could include illegal drugs, prescription drugs, and/or alcohol. To identify substance use as a factor, each case was reviewed to determine if **any** individual involved in the death of a child used substances such as illegal drugs, prescription drugs, and/or alcohol. The individual could have been the child's parent or caretaker, an acquaintance, stranger, or the child and the substance use occurred proximate to the time of the incident leading to the death.

Suffocation- Oxygen deprivation by mechanical obstruction to the passage of air into the lungs, usually at the level of the nose, mouth.

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.

Strangulation- Mechanical constriction of neck structures

Sudden Unexpected Infant Death (SUID) – 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. Most of the SUIDs are due to suffocation and unsafe sleep environments.



Suicide – A death that is due to a self-directed intentional behavior where the intent is to die because of that behavior.

Undetermined– A death 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 there is insufficient information available to the medical examiner to determine if the manner of death was due to accident, homicide, suicide or medical condition.



Technical Appendix

The Review Process

Local CFR teams conduct case reviews throughout the year. Once the Local CFR team coordinator or chairperson is notified of the death through the vital records spreadsheet sent by the ADHS CFR Program, 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 circumstances surrounding the child's death. Additionally, birth certificate information is reviewed if the child was younger than 1 year of age at the time of their death. Legislation requires that hospitals and state agencies release this information to the Arizona CFR Program's local teams. Note: Statute requires team members to maintain confidentiality and they are prohibited from contacting the child's family for any reason.

During the review, team members from representing agencies provide information on each case as applicable. If an agency representative is unable to attend, 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 Center for Fatality Review and Prevention (NCFRP) database. This database is a comprehensive tool that provides the ability to enter the many variables resulting from each case review. Some of the detailed case information captured includes the demographics of the child, caregiver information, information concerning the supervisor of the child when the fatality occurred, incident information, investigation of the incident, cause and manner of the death, and any other circumstances surrounding the fatality.

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

The State Team meets annually to review the analysis of these findings. State Team membership by statute A.R.S. § 36-3501 requires representatives from a variety of community and governmental agencies including:

- Attorney general
- Office of women's and children's health in the department of health services
- Office of planning and health status monitoring in the department of health services
- Arizona health care cost containment system
- Division of developmental disabilities in the department of economic security
- Department of child safety
- Governor's office for children
- Administrative office of the courts
- Parent assistance office of the supreme court
- Department of juvenile corrections
- Arizona chapter of a national pediatric society
- A medical examiner who is a forensic pathologist



- A maternal and child health specialist involved with the treatment of Native Americans
- A representative of a private nonprofit organization of tribal governments in this state
- A representative of the Navajo tribe
- A representative of the United States military family advocacy program
- A representative of a statewide prosecuting attorneys advisory council
- A representative of a statewide law enforcement officers advisory council who is experienced in child homicide investigations
- A representative of an association of county health officers
- A child advocate who is not employed by or an officer of this state or a political subdivision of this state
- A public member.

If local teams are formed pursuant to this article, the director of the department of health services shall select this member from one of those local teams. The statute authorizes the State Team to study the adequacy of existing statutes, ordinances, rules, training, and services to determine the need for changes. The statute also charges the State Team to educate the public regarding the incidence and causes of child fatalities as well as the public's role in preventing these deaths. Adoption of the recommendations has often occurred because 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 refers to the intentionality of the cause). For example, if the cause of death was a firearm 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 child 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 that CFR teams review all records related to a fatality, and 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, substance use, and abuse/neglect fatalities. Frequencies and crosstabulations are used, but due to the small sample size, tests for statistical significance are not done.

All cases reviewed by the Child Fatality Review Team are kept completely confidential. Information shared in the meetings is protected under A.R.S. § 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 to provide child death prevention recommendations, summary statistics, and trends of all child deaths taking place in Arizona.

Abuse/Neglect Deaths

Abuse/neglect is 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 encounter while reviewing abuse/neglect cases involve physical abuse that includes internal abdominal and blunt force head injuries leading to a fatality. When reviewing neglect cases, CFR teams determine if the parents or caregivers failed to provide 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 surrounding abuse/neglect deaths can vary greatly. Some abuse/neglect deaths are the result of long-term abuse/neglect both unintentional and intentional; however some cases result from a single incident.

To gain greater understanding of the contribution of abuse/neglect to child mortality, the Arizona CFR teams answer several questions regarding abuse and neglect during a review.

Classification of a death due to abuse/neglect 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 abuse/neglect).
2. The relationship of the individual accused of committing the abuse/neglect 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 abuse/neglect in other categories by manner and cause of death. For example, one classifies a death from abusive head trauma caused by the use of a blunt force object as a homicide and as abuse/neglect death. Teams may also classify an accidental injury or natural death as an abuse/neglect death if the team concludes a caretaker's negligence or actions contributed to or caused the fatality. For example, the death of a child in a motor vehicle crash due to the actions of a parent who drove while intoxicated would be considered an abuse/neglect death.

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.
- Drowning:
 - Parent/caregiver/supervisor leaves a child near or in a body of water such as a pool, lake, or river without sober and adequate 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 five years, and/or is unable to swim).
 - Parent/caregiver/supervisor leaves infant or toddler in a tub, unsupervised.
- Exposure when a parent/caregiver/supervisor leaves young a child/infant alone in a car or outdoors.
- Gunshot wound when a parent/caregiver/supervisor leaves a loaded weapon unsecure where a child would have access to the weapon.
- Motor vehicle crash:
 - 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 six 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 abuse/neglect).
 - Parent/caregiver/supervisor drives recklessly with child passenger and it was related to the child's death.
- Natural deaths when 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).
- Poisoning when a 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 use or suicidal ideation and prescription medication, such as opiates, are not in a secured location).
- 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).
 - Sleep related deaths when a parent/guardian/caregiver bed-sharing 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.
 - Suicide when a 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).



Abuse/neglect reporting differences:

The number of child abuse/neglect deaths presented in this report is not comparable to child abuse/neglect 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 abuse/neglect deaths identified through child protective services investigations, and because some abuse/neglect 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 the DCS annual report to NCANDS. However, when a Local CFR team identifies a death due to abuse/neglect 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.

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 Expected Infant Deaths (SUID)

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 that supports the infant's airway was obstructed, 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 1 year of age. A death is considered sleep related if the child was found in a sleep environment or the last time they were seen alive was while they were asleep. In addition, it could be a natural cause of death if the death was sudden and unexpected and the infant was in a sleep environment.



Limitations:

Factors influencing 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 Arizona Infant Death Checklist, and completing both local and state level reviews of all identified SUID 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 classification. However, the use of this methodology accounts for the differences between the numbers in the report and the numbers reported by vital records and medical examiners.



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Resources

Abuse/Neglect: Report 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.

Child Care: If in need of safe child care, 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.

Child Care: Child Care Resource and Referral (CCR&R) meets a need that no one else does - providing the bridge between parents, providers, community leaders, and policymakers about anything related to child care in Arizona. Funding provided by the Arizona Department of Economic Security's Child Care Administration through federal Child Care Development Block Grant funds. Visit arizonachildcare.org for more information.

COVID-19: The Arizona Department of Health Services (<https://www.azdhs.gov/covid19/index.php> or 1-602-542-1025) provides up-to-date information regarding the COVID-19 Pandemic and offers additional services regarding testing, vaccines, among other community resources.

Drowning: 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 always reach out and touch the child. 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 young swimmers too.

Parent Helpline: 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.

Poisoning: 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. The Arizona Department of Health Services provides Arizona's Opioid Prescribing Guidelines <https://www.azdhs.gov/documents/audiences/clinicians/clinical-guidelines-recommendations/prescribing-guidelines/az-opioid-prescribing-guidelines.pdf>

Teen Counseling Hotline: Teen Lifeline provides a Peer Counseling Hotline for teens in crisis: 602-248-8336 (TEEN) for Maricopa county or statewide 800-248-8336 (TEEN).



Appendix: State and Local CFR Teams

State CFR Team

Chairperson:

Mary Ellen Rimsza, MD, FAAP
American Academy of Pediatrics

Members:

David K. Byers
Deidre Calcoate (Proxy)
Administrative Office of the
Courts

Maria Christina-Fuentes
Gaelyn Davis (Proxy)
Governor's Office of
Children, Youth and Families

Cdr. Stacey Dawson
Amy Lebbon (Proxy)
State CASA Program
Manager

Anthony Dekker
Dr. Pamela Tom (Proxy)
Arizona Department of
Economic Security

Molly Dunn
Children's Action Alliance

Tim Flood, MD
Marguerite Sagna (Proxy)
Arizona Department of
Health Services

Diana Gomez, MPH
Ryan Butcher (Proxy)
Yuma County Department of
Public Health Services

Dyanne Greer
Maricopa County
Attorney's Office

Jeff Hood
Cody Conklin, MD (Proxy)
Arizona Department of
Juvenile Corrections

Jakenna Lebsock
Clinical Administrator
Eric Tack, MD (Proxy)
AHCCCS Division of
Behavioral Health

Susan Newberry, MEd
Karen Kline (Proxy)
Maricopa County CFR Team

Julie Rhodes
Assistant Attorney
General Office

Christi Shelton
Arizona Department of Child
Safety

Patricia Tarango, MS
Arizona Department of
Health Services Bureau of
Women's and Children's

Nicola Winkel, MPA
Arizona Coalition for Military
Families

David Winston, MD, PhD
Forensic Pathologist
Pima County Office of the
Medical Examiner



Coconino County, CFR Team

Chairperson:

Heather Williams
Injury Prevention Program
Manager
Coconino County Public Health
Services

Co-Chair:

Larry Czarnecki, MD
Coconino County
Medical Examiner

Members:

Glen Austin, MD
Pediatrician,
Flagstaff
Pediatric Care

Shawn Bowker
Flagstaff
Medical Center

Corey Cooper
Health Educator
Coconino
County Public
Health
Services District

Kristen Curtis, Admin
Specialist Coconino
County Public Health
Services District

Jim Driscoll Sheriff,
Coconino County
Sheriff's Office

Deborah Fresquez
Coconino County
Victim/Witness Services

Brian Fuller
Federal Bureau of
Investigations

Diana Hu, MD
Tuba City Region
Health
Care Corporation

Shannon Johnson
Tuba City Regional
Medical Center
Trauma

Jane Nicoletti-Jones
Coconino County
Attorney

John Philpot, Major
Arizona Department of
Public Safety

Casey Rucker
Detective Flagstaff
Police Department

Cindy Sanders, BSN, RN
Flagstaff Medical
Center NICU



Gila County, CFR Team

Chairperson:

Gwendolyn Zorn
Executive Director, Time Out
Shelter

Coordinator:

Kathleen Kelly, RN

Member:

Gabrielle Bibars
Psychologist, Payson
School District

Susan Campbell
Counselor, Payson
School District

Kristin Crowley
Gila Community
College

Sharon Dalby
Child Safety Family
Services Payson

Tanya Dean
Investigator
Child Protective
Services

Pattie Dremler
CASA Coordinators

Donald Engler
Payson Chief of Police

Tom Fife
Battalion Chief
Payson Fire
Department

Sherrie Harris
Chief Prosecutor

Von Harris
Child Safety Family
Services Payson

Melissa Hazelo
Banner Payson

Mara Hover, DO
Pediatric Director
San Carlos Apache
Healthcare

Staffanie Jenson, RN
Payson Banner Medical
Center ER

Tracey Manigault
Psychologist, Payson
School District

Michael McAnerny
Payson Police
Department

Becky Nissila
ER Director
Payson Regional
Medical Center

Ashley Oviedo, RN
Payson Banner ER

Mary Schlosser
Sheriff
Tonto Apache Tribe
Payson

Shelly Soroka-Spence
Payson Child Help

Shelly Soroka-Spence
Payson Child Help

Linda Timmer
Director, Payson Time
Out Shelter

Michele Warburton
Director of Special
Services
PUSD

Tila Warner
Child Help



Graham County & Greenlee County, CFR Team

Chairperson/Coordinator:

Brandie Lee CASA of Graham County

Members:

Jeanette Aston
Domestic Violence
Specialist
M. Graham Safe House

Scot Bennett
County Attorney
Graham County
Attorney's Office

Brian Douglas
Health Director
Graham County Health
Department

Dr. Richard Keith
Pediatrician Gila
Valley Clinic

Melissa Lunt, RN
Graham County Health
Department

Josh McClain
Detective
Safford Police
Department

Jason Stein
Department of Child
Safety Program
Manager



Maricopa County, CFR Team

Arizona Chairperson:

Mary Ellen Rimsza, MD,
FAAP

Maricopa County

Chairperson:

Susan Newberry, M.Ed.

Coordinator:

Morgan Anderson, MPH

Members:

Ilce Alexander
Senior Injury Prevention
Specialist
Phoenix Children's
Hospital

Angelica M. Baker
Child Passenger Safety
Specialist
Phoenix Children's
Hospital

Darcy Barakat, MC
Crisis Counselor
Childhelp National
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Sergeant Jerry Barker
Violent Crimes Bureau,
Homicide Unit
Phoenix Police
Department

Wendy Bernatavicius,
MD
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Pediatrics
Phoenix Children's
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John Bobola
Product Safety
Investigator

US Consumer Product
Safety Commission

Sergeant Jesse Boggs
Chandler Police
Department

John Boyd
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Safety Analyst
Arizona Department of
Child Safety

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Cervantes
Phoenix Police
Department

Maria Chico, CPNP
Banner Health Systems

Kimberly Choppi, MSN-
Ed, RN, CPEN
Valleywise Health

Detective Edward
Corona Avondale
Police Department

Shawn Cox, LCSW
Victim Services Division
Chief, Maricopa County
Attorney's Office

Frances L.L. Dailey, Ph.D.
Professional Counselor,
Supervisor, and Educator
Dailey Consulting

Frances Baker Dickman,
PhD, JD

Paul S. Dickman, MD
Pediatric Pathologist
Phoenix Children's Hospital

Haley Dietzman, NP-C, N,
SANE-P
Phoenix Children's Hospital

Ilene L Dode, Ph.D., LPC
CEO Emeritus
LaFrontera Arizona,
Empact Suicide Prevention
Center

Michelle Fingerman, MS
Director, Childhelp
National Child Abuse
Hotline

John Fraleigh, MSN, RN,
CFRN

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Instructor
Banner Estrella Hospital

Elisha Franklin, MC,
LASAC Director
Chicanos Por La Causa

Beth E. Frost, DO
Maricopa
County Medical
Examiner's
Office

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Program Specialist
Phoenix Children's
Hospital

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BSN, RN, CPEN
Dignity Health

Dyanne Greer, MSW,
JD Deputy County
Attorney Family
Violence Bureau
Maricopa County
Attorney's Office

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Phoenix Police
Department

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Civilian EMS
Coordinator
Mesa Fire and Medical
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Phoenix Children's
Hospital

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Childhelp National
Child Abuse Hotline

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Program Specialist
Phoenix Children's
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CPEN, CEN
Trauma Process
Improvement Coordinator
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Chandler Police
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EMPACT
Suicide Prevention Center

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Arizona Department of
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Phoenix Police
Department



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Injury Prevention
Specialist
Phoenix Children's
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Assistant Attorney
General Arizona
Attorney General's
Office

Maureen Roland, BSN,
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Banner Poison and
Drug Information
Center

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Retired Program
Manager Juvenile
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Arizona Department of
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Hospital

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Banner Health Services

David Solomon, MD
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Hospital

Robert Staab, MD
Phoenix Children's
Hospital

Melissa Sutton, MBA
Past President
Drowning Prevention
Coalition of Arizona

Katrina Taylor
Childhelp
Nation Child Abuse
Hotline

Denis Thirion, MA
Crisis Call Center
Manager

LaFrontera Arizona,
Empact
Suicide Prevention
Center

Blanca Villaseñor
Senior Injury Prevention
Specialist
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Hospital

Janelle Westfall, LPC,
LBA, BCBA
Devereux Advanced
Behavioral Health

Stephanie Zimmerman,
MD
Phoenix Children's
Hospital



Mohave County & La Paz County, CFR Team

Chairperson and Coordinator:

Anna Scherzer
Mohave County Department of Public Health

Members:

Dawn Abbott
Mohave Mental
Health
Clinic, Inc.

Detective
Dennis Gilbert
Kingman Police
Department

Susan Plourde
Mohave County
Medical Examiner's
Office

Don Bischoff
Mohave County
Sheriff's Office

Detective
Jeremy Johnson
La Paz County
Sheriff's
Department

Chief William Ponce
Quartzsite Police
Department

Denise Burley
Mohave County
Department of Public
Health

Karolina Czaplinska
Mohave County
Attorney's Office

Sergeant
Michael Senio
Bullhead City
Police
Department

Suzanne Clarke
Kingman Aid to
Abused People

Heather Miller
Kingman Regional
Medical Center

Marion Shontz
La Paz County Public
Health Department

David Coffin
Mohave County
Sheriff's Office

Archaius Mosley, MD
Mohave County
Medical Examiner's
Office

Charles Solano
Colorado River Indian
Tribal Police
Department

Sara Colbert
Mohave County
Probation Department

Lorrie Muriel
Colorado River Funeral
Services

Sergeant Mike
Thompson
Parker Police
Department

Steven Draper
La Paz County Sheriff's
Department

Michael Nyquist
Mohave County
Sheriff's Office

Keith Turner
Retired attorney

Natalie Eggers
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Dr. Vic Oyas
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Joshua Frisby
Mohave County
Probation Department



Navajo County & Apache County, CFR Team

Chairperson:

Amy Stradling
Navajo County Public Health
Services

Coordinator:

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Navajo County Public Health
Services

Members:

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Retired Pediatrician

Wade Kartchner, MD
Navajo County
Medical Director

Brian James
Navajo Nation Hwy
Safety

Orlando Bowman
Navajo Tribal Police
Dept.
Project Coordinator

Kenneth Brown
WMAT Social Services

Scott Chasan
Child Protective
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Case Worker
Kateri Piecuch
Arizona Department of
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Danielle Poteet, RN
Summit Regional
Medical Center ER and
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Codie Sanders
Lead Medical Examiner
Investigator
ABMDI Certified
Navajo County
Medical Examiner's
Office

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Pima County, Cochise County, & Santa Cruz County, CFR Team

Chairperson:

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Medicine University of Arizona

Coordinator:

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Members:

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Stacey Christian
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Detective
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Detective
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Department of
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Dr. Marisa Werner
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Detective Beau Wilson
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Pinal County, CFR Team

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Andre Davis Medical
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Jake Majors
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Community Alliance
Against Family Abuse

Sharon Woodard
Victim Advocate



Yavapai County, CFR Team

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Investigator Yavapai
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Cindy Garman
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Yuma County, CFR Team

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Amberly's Place

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Nathan Williams
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