CHILD FATALITY PREVENTION SYSTEM: STATEWIDE DATA OVERVIEW, 2014 - 2018

COLORADO
Department of Public Health & Environment

Introduction

The Child Fatality Prevention System (CFPS) is a statewide network that focuses on preventing child deaths. Housed at the Colorado Department of Public Health and Environment (CDPHE), CFPS consists of 43 local review teams, a 46-member State Review Team, and the CFPS state support team at CDPHE. Local teams include community members and field experts. These teams complete case reviews of infant, child, and youth deaths in Colorado to describe trends and patterns and create strategies to prevent future deaths. The CFPS State Review Team develops recommendations for the legislature on how to prevent child deaths in an annual legislative report.

The system reviews all deaths that occur in Colorado among infants, children, and youth under age 18. CFPS does not review deaths of Colorado residents that occur out of state. This is different from other reports of child death data and other Colorado government data sources. As a result, the data presented in this data brief might not match other statistics reported at both the state and national levels.

This data brief provides an overview of the state-level data from CFPS. Additional CFPS data is available at: www.cochildfatalityprevention.com/p/reports.html.

The impact of policies and systems on child deaths

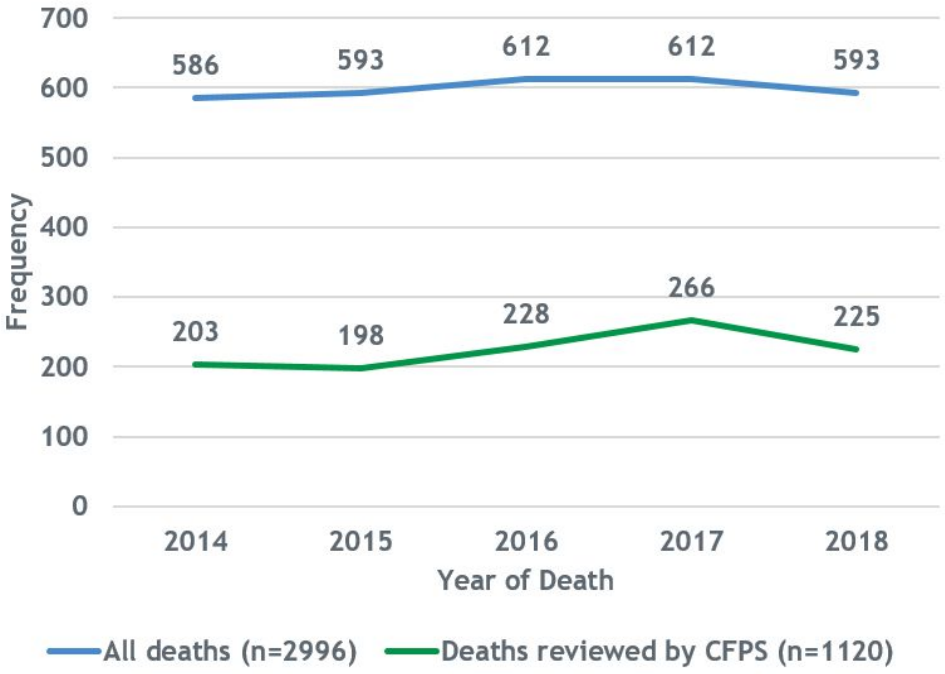
Generations of social, economic, and environmental inequities contribute to some families losing infants, children, and youth.[1] When interpreting the data, it is critical to not lose sight of these systemic, avoidable, and unjust factors. These factors perpetuate the disparities observed in child deaths in Colorado. Researchers work towards understanding how geography, race, ethnicity, sexual orientation, and gender identity correlate with health. It is critical that data systems like CFPS identify, understand, and eliminate life-long inequities that persist across groups. When limitations in the data system exist due to how data is collected, or because data is not collected, CFPS strives to provide additional context and research about how inequities impact child deaths. By changing policies and systems that create and perpetuate inequities, CFPS can reduce the number of child deaths that occur in Colorado. Examples of these inequities include, but are not limited to:

RURAL AND FRONTIER GEOGRAPHY	RACE AND ETHNICITY	SEXUAL ORIENTATION AND GENDER IDENTITY
Limited access to Level 1 trauma centers and mental and behavioral health services.[2] Increased stigma associated with mental illness and seeking help.[3] Longer response times by emergency medical services.[4] **→ These and other factors contribute to higher death rates in rural areas, including suicide[5] and passenger vehicle deaths.[6]**	Historical trauma, racism, and discrimination.[7,8] Limited access to high-quality education,[9] employment opportunities,[10] healthy foods,[11] culturally traditional foods,12 and health care.[13] Chronic stress.[14] **→ These factors result in lasting health impacts for people of color that include infant mortality,[15] high rates of homicide and gun violence,[16] and increased motor vehicle deaths.[17]**	Discrimination, stigma, and bias.[18] Rejection from family, friends, and community.[19] Non-inclusive school curricula and anti-harassment policies.[20] Insufficient access to LGBTQ+-informed health care.[21] **→ This chronic social stress that LGBTQ+ children and youth experience influences health across the lifespan, including higher rates of suicide[22] and substance use.[23]**

Overview of CFPS Data from 2014-2018

The Child Fatality Prevention System uses death certificates provided by the Vital Statistics Program within the Center for Health and Environmental Data at CDPHE to identify deaths among those under age 18 in Colorado. Of the 2,996 deaths from 2014 through 2018, 1,120 met the statutory criteria for CFPS child fatality review and received a thorough case review during the 2015 through 2019 calendar years. Figure 1 demonstrates the number of deaths in Colorado among those under age 18 from 2014 through 2018 and the number of deaths CFPS reviewed during this time period. Child deaths during this five-year period ranged from 586 in 2014 to 612 in 2016 and 2017, and averaged about 600 deaths per year. On average, 224 deaths per year met CFPS criteria and received a full review. In 2014, 203 deaths met the CFPS criteria for review, while 225 deaths met the criteria in 2018. The overall number of deaths among infants, children, and youth remained stable throughout the five-year period; however, the proportion of those deaths reviewed by CFPS increased between 2014 (34.6%) and 2018 (37.9%).

Figure 1. Total number of deaths and deaths reviewed by CFPS occurring among those under age 18 in Colorado by year, 2014-2018



The overall rate of deaths reviewed by CFPS for the period was 16.5 per 100,000 Colorado residents. This rate combines all causes of death reviewed by CFPS and is interpreted as overall rates of death among Colorado residents under age 18 due to injury and violence. The overall rate ranged from 15.6 per 100,000 population in 2014 to 18.9 per 100,000 population in 2017. While the upward trend in the rate across the period was not statistically significant, CFPS monitors this trend closely.

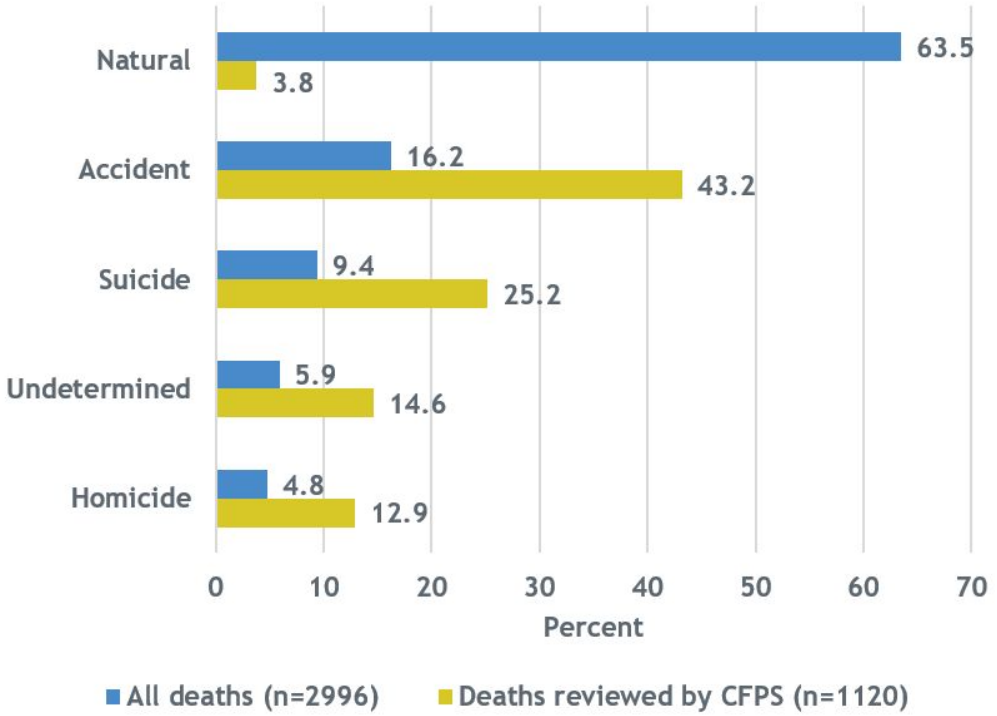
When the overall rate of death is examined by race and ethnicity, age, sex, and geography, significant disparities emerge. For instance, non-Hispanic Black infants, children, and youth (32.5 per 100,000 population) die by injury and violence at over twice the rate of non-Hispanic white infants, children, and youth (15.1 per 100,000 population). Racial disparities in deaths by injury and violence result from systemic inequities facilitated by racism and discrimination.[24] Infants, children, and youth who live in a frontier county (26.8 per 100,000 population) die by injury and violence at 1.7 times the rate of those who live in an urban county (16.0 per 100,000 population). Geographic disparities are often the result of extreme geographic and social isolation as well as limited access to services.[25] Please see cause-specific data briefs for more information on the systemic and social factors that contribute to these disparities (www.cochildfatalityprevention.com/p/reports.html).

Manner of Death

The Colorado death certificate includes five manners of death: natural, accident, suicide, homicide, and undetermined. A coroner or medical examiner classifies the manner of death, typically following a review of the circumstances surrounding the death and a thorough investigation. CFPS reviews approximately one of every three deaths, which includes all of the deaths determined to be accidents, suicides, homicides, and due to undetermined causes. The remaining natural deaths are preliminarily reviewed by the CFPS state support team to determine if there is a need to initiate a full team review.

Figure 2 demonstrates that the majority of all deaths among those under age 18 in Colorado during the period were determined to be natural (63.5%, n=1902), accident (16.2%, n=484), suicide (9.4%, n=282), undetermined (5.9%, n=178) and homicide (4.8%, n=145). By contrast, for deaths reviewed by CFPS the most frequent manners of death were accident (43.2%, n=484), suicide (25.2%, n=282), undetermined (14.6%, n=163), homicide (12.9%, n=145) and natural (3.8%, n=42).

Figure 2. All deaths and all deaths reviewed by CFPS occurring among those under age 18 in Colorado by manner of death, 2014-2018



Cause of Death

Colorado coroners also determine cause of death, which is a specific injury or disease that resulted in the death (i.e., drowning, poisoning, or a motor vehicle crash). The leading causes of death occurring among those under age 18 in Colorado for the years 2014-2018 are perinatal conditions (27.8%, n=833), followed by congenital malformations (16.2%, n=485), and suicide (9.4%, n=282).

For CFPS data analysis purposes, coroners may assign a death to one or more of the major cause of death categories. For example, in the case of a child or youth known to be experiencing a mental health crisis who subsequently dies by suicide, the death may be coded as a death by suicide and a firearm death (depending on the means of death). This death may also be counted as a child maltreatment death if the professional opinion of the local review team identified child neglect where access to lethal means were not restricted.

Figure 3 shows the leading causes of death among infants, children, and youth under age 18 reviewed by CFPS for the years 2014-2018. Among these, the most frequent cause of death over the five-year period was suicide (n=282) followed by child maltreatment (n=240); motor vehicle and other transportation deaths (n=233), consisting primarily of passenger vehicle deaths (n=160) and pedestrian deaths (n=40). Other leading causes of death included sudden unexpected infant death (SUID) (n=225); firearm (n=185); unintentional drowning (n=66); homicide not due to child maltreatment (n=53); and unintentional overdose or poisoning (n=26) deaths. More details about the leading causes of death are available in cause-specific data briefs located at: www.cochildfatalityprevention.com/p/reports.html.

Figure 3. Leading causes of death for deaths occurring among those under age 18 in Colorado and reviewed by CFPS, 2014-2018 (n=1120)

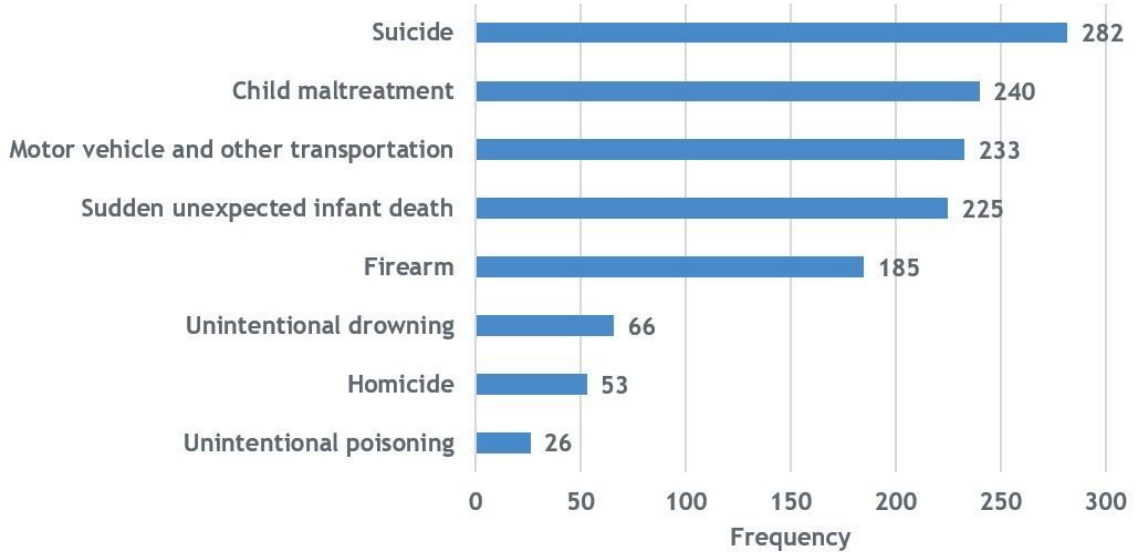
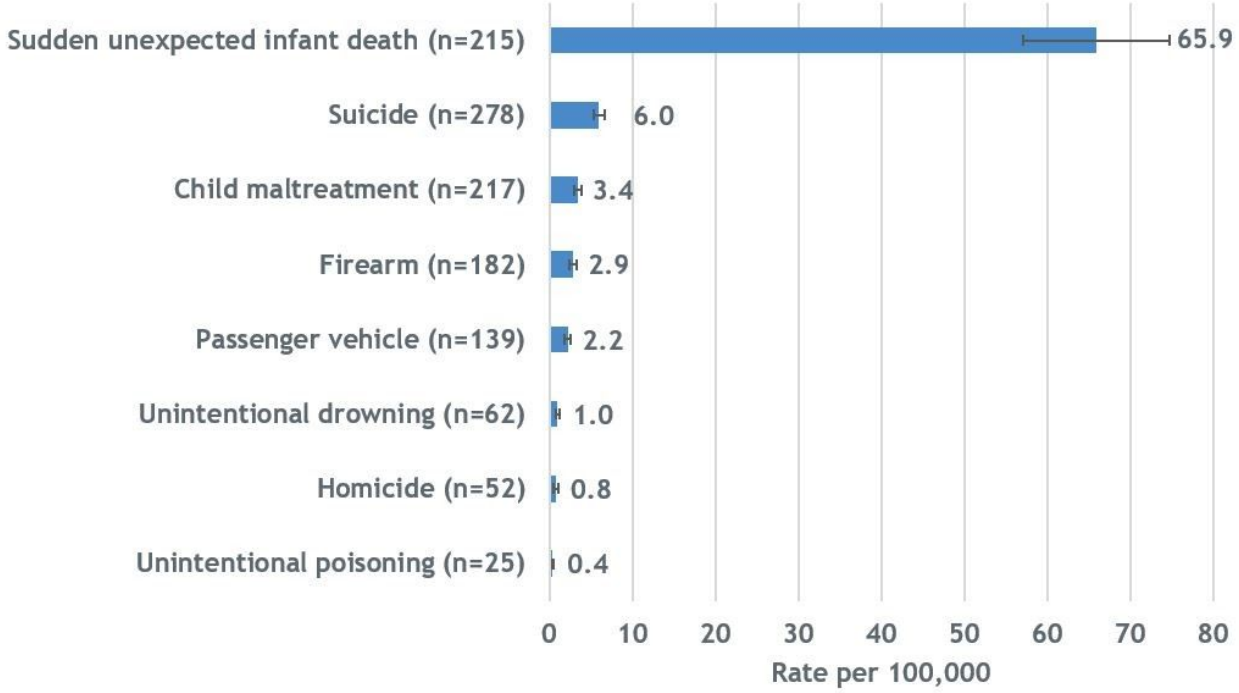


Figure 4 demonstrates the rates of death among Colorado residents for the leading causes of death identified by CFPS from 2014-2018. The highest rate of death was SUID, at 65.9 deaths per 100,000 live births in Colorado. This rate was more than ten times the rate of any other cause of death reviewed by CFPS. Suicide among children and youth ages 5-17 was the second highest rate at 6.0 deaths per 100,000 population, followed by child maltreatment at 3.4 per 100,000 population. These rates varied by age group. The rate of child maltreatment was highest among infants under age 1 (25.7 per 100,000 population, n=85) and the rate of suicide was highest among youth ages 15-17 (17.2 per 100,000 population, n=183). The rate of child maltreatment deaths among infants under age 1 is nearly one and a half times higher than the rate of suicide among youth ages 15-17.

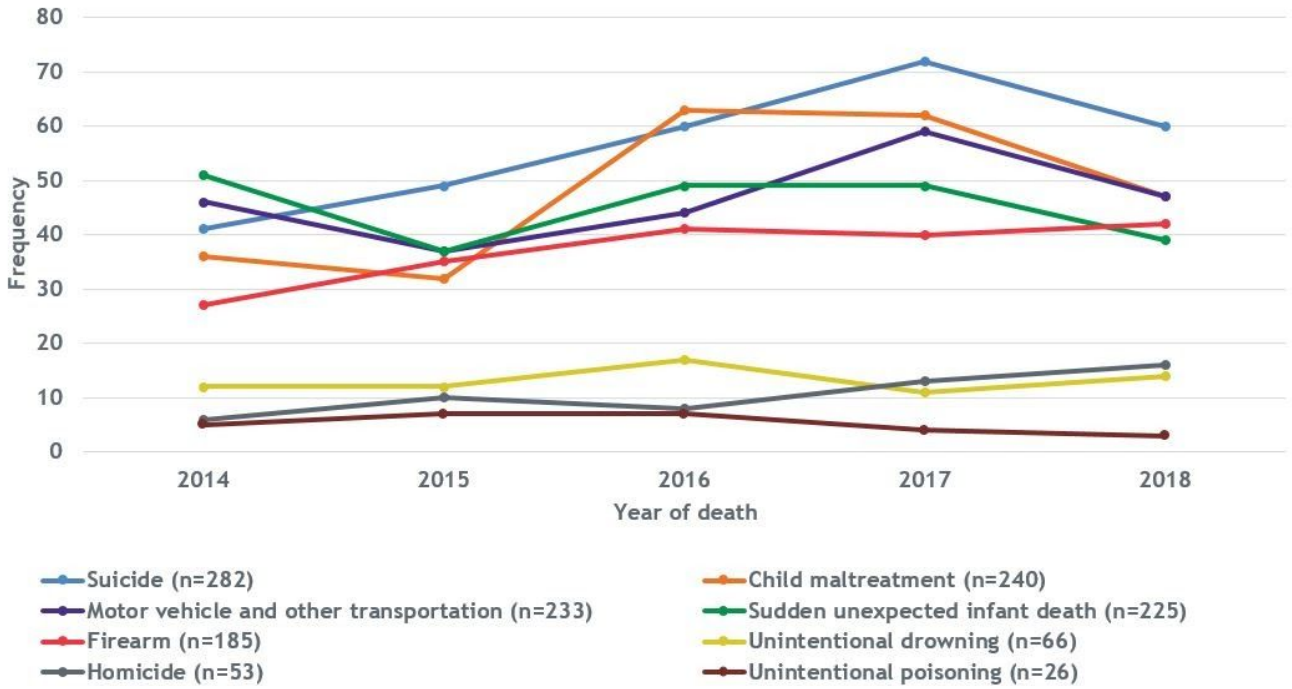
Figure 4. Rates of death for child fatalities occurring in Colorado among Colorado residents under age 18 and reviewed by CFPS, 2014-2018



*Error bars represent 95% confidence limits for rates.

Figure 5 shows the leading causes of death by year of death. Several leading causes of death that were trending upward in previous years, such as suicide, child maltreatment, and motor vehicle and other transportation deaths, observed a decrease between 2017 and 2018. The only causes of death that experienced any increase between 2017 and 2018 were firearm deaths, homicide, and unintentional drowning deaths. This increase in firearm deaths is attributed to the increase in firearm homicide deaths. CFPS will monitor these trends in coming years. More details about trends over time are available in cause-specific data briefs located at: www.cochildfatalityprevention.com/p/reports.html.

Figure 5. Leading causes of death occurring among those under age 18 in Colorado and reviewed by CFPS by year, 2014-2018 (n=1120)



Leading causes of death differ by age group. Table 1 displays the leading causes of death from 2014-2018 for deaths reviewed by CFPS occurring among those under age 18 in Colorado by age group.

Table 1. Leading causes of death occurring among those under age 18 in Colorado and reviewed by CFPS by age group, 2014-2018*

	n	Percent			n	Percent
All (n =1120)				**Ages 5 - 9 (n = 96)**		
Suicide	282	25.2		Motor vehicle and other transportation	45	46.9
Child maltreatment	240	21.4		Child maltreatment	31	32.3
Motor vehicle and other transportation	233	20.8		Unintentional drowning	13	13.5
Sudden unexpected infant death	225	20.1		Firearm	6	6.3
Firearm	185	16.5		Fall or Crush	6	6.3
Age < 1 (n = 297)				**Ages 10 - 14 (n = 178)**		
Sudden unexpected infant death	225	75.8		Suicide	95	53.4
Child maltreatment	91	30.6		Motor vehicle and other transportation	43	24.2
Other	11	3.7		Firearm	43	24.2
Unintentional drowning	8	2.7		Child maltreatment	26	14.6
Motor vehicle and other transportation	6	2.0		Homicide	7	3.9
Ages 1 - 4 (n = 154)				**Ages 15 - 17 (n=395)**		
Child maltreatment	70	45.5		Suicide	186	47.1
Unintentional drowning	29	18.8		Firearm	131	33.2
Motor vehicle and other transportation	25	16.2		Motor vehicle and other transportation	114	28.9
Asphyxia	10	6.5		Homicide	42	10.6
Fire	9	5.8		Child maltreatment	22	5.6

Data Source: Child Fatality Prevention System, Colorado Department of Public Health and Environment.
*Cause of death categories are not mutually exclusive. Totals may sum beyond 100%.

Conclusion

From 2014 to 2018, 37.4% of deaths occurring in Colorado among those under age 18 were due to injury and violence. That is 4 deaths every week. Upstream prevention strategies that address social and structural inequities can reduce deaths among infants, children, and youth due to injury and violence. To learn more about the prevention strategies recommended by CFPS, view the 2020 Legislative Report (www.cochildfatalityprevention.com/p/reports.html).

For more information and CFPS data, please contact the CFPS Support Team at the Colorado Department of Public Health and Environment:
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