CHILD FATALITY PREVENTION SYSTEM: SUICIDE DATA, 2016 - 2020

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 local review teams, a State Review Team, and the CFPS state support team at CDPHE. Local teams and the CFPS State Review Team 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. As part of the case review process, CFPS partners develop and share out recommendations for how to prevent child deaths annually.

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 child and youth suicide data from CFPS. Additional CFPS data are available at: www.cochildfatalityprevention.com/p/reports.html.

For purposes of this brief, ***inequities*** are defined as systemic, avoidable, and unjust factors that prevent people from reaching their highest level of health. ***Disparities*** are differences in health outcomes between people related to social or demographic factors such as race, ethnicity, gender, sexual orientation, or geographic region. Measuring disparities helps measure our progress toward achieving equity.[1,2]

The impact of policies and systems on child deaths

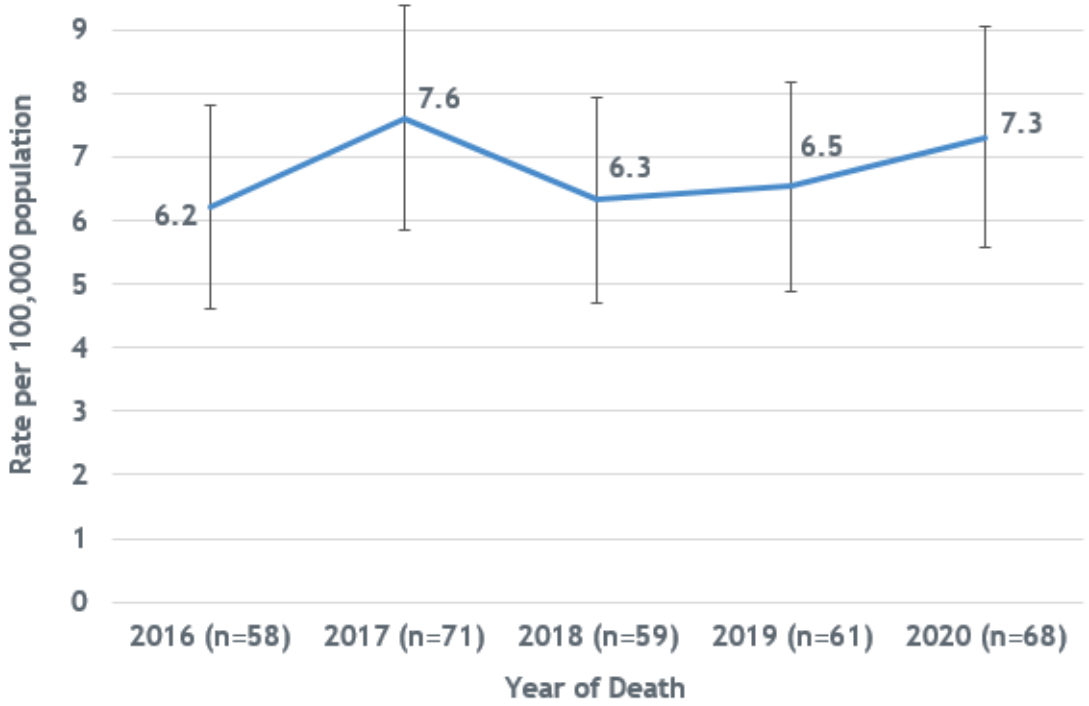
Generations of social, economic, and environmental inequities contribute to the deaths of infants, children, and youth.[3] People exposed to these factors (outlined in the table below) experience additional harm, resulting in higher rates of death. When interpreting the data, it is critical to not lose sight of these systemic, avoidable, and unjust factors. 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 and understand the life-long inequities that persist across groups in order to eliminate them. When limitations in the data system exist due to how data are collected, or because data are 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.[4] Increased stigma associated with mental illness and seeking help.[5] Longer response times by emergency medical services.[6] **→ These and other factors contribute to higher death rates in rural areas, including suicide[7] and passenger vehicle deaths.[8]**	Racism, discrimination, and historical trauma.[9,10] Limited access to high-quality education,[11] employment opportunities,[12] healthy foods,[13] culturally traditional foods,[14] and health care.[15] Chronic stress.[16] **→ These factors result in lasting health impacts for people of color that include infant mortality,[17] high rates of homicide and gun violence,[18] and increased motor vehicle deaths.[19]**	Discrimination, stigma, and bias.[20] Rejection from family, friends, and community.[21] Non-inclusive school curricula and anti-harassment policies.[22] Insufficient access to LGBTQ+-informed health care.[23] **→ This chronic social stress that LGBTQ+ children and youth experience influences health across the lifespan, including higher rates of suicide[24] and substance use.[25]**

Overview of Suicide Deaths

In total, 322 children and youth ages 5-17 died by suicide in Colorado from 2016-2020. The number of suicide deaths fluctuated across the time period, ranging from 60 in 2016 to 72 in 2017. Figure 1 shows that the rate of suicide among Colorado residents ages 5 to 17 also fluctuated. Colorado's age-specific rate of suicide among children and youth ages 5-17 (6.8 per 100,000 population) was over two-fold higher than the national suicide rate for those same ages (3.2 per 100,000 population) from 2016-2020.[26]

Figure 1. Rates of suicide occurring in Colorado among Colorado residents ages 5-17 by year, 2016-2020 (n=317)



*Error bars represent 95% confidence limits for rates.

The impact of the COVID-19 pandemic on suicide deaths.
Due to the changes that the COVID-19 pandemic brought to communities, child death review teams were asked to consider how the pandemic may have been a factor in deaths occurring after March 1, 2020. Teams considered questions including:

- Was this death an indirect result of the outbreak?;
- Did mandated or voluntary closures (i.e., schools, places of business, community centers, courts, social services) affect the outcome of this case?; and
- Was risk increased in this case due to social isolation of the child or the caregiver(s)?

CFPS teams ultimately determined that the COVID-19 pandemic indirectly contributed to 60.7% (n=34) of suicide deaths reviewed by CFPS that occurred between March 1, 2020 and December 31, 2020. CFPS teams will continue to answer these questions about the impact of the pandemic on child deaths for cases reviewed in 2021 and beyond.

Demographic Characteristics

Change in Methodology
Prior to 2020, CFPS legislative reports and versions of this topic-specific data brief calculated suicide rates for *youth ages 10-17 only*. Acknowledging that children ages 5-9 are at risk of suicidal ideation, suicide attempts, and dying by suicide,[27,28] CFPS changed methodology to report suicide rates for *children and youth ages 5-17*. Given this change, **please be careful when comparing rates presented in this data brief and the 2022 CFPS Legislative Report to the rates published in past reports**. Please contact the CFPS state support team if you have any questions or concerns.

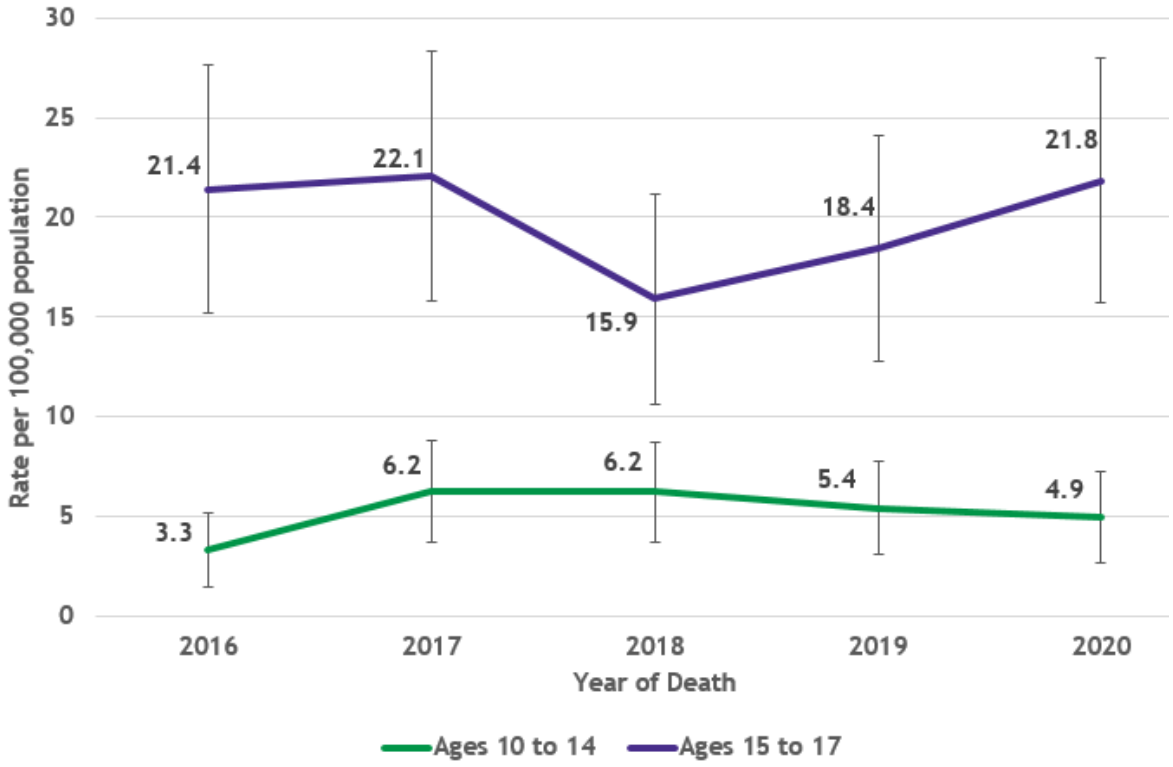
Age

Suicide ideation, attempt, and death data must be considered across the lifespan, beginning at age 5, and it is important to consider differences by age group. Between 2016 and 2020, the Centers for Disease Control and Prevention reported 53 suicide deaths among children ages 5-9 nationally.[29] Among all elementary school-aged children (ages 5-11), suicide was the eighth leading cause of death from 2016-2020.[30] It is also understood that suicide in children and youth ages 5-17 is undercounted, and may sometimes be classified as undetermined or accident on the death certificate.[31]

In Colorado, suicide deaths for children younger than age 10 are infrequent. These deaths are so rare that they do not meet privacy criteria for sharing data publicly by age group. Although it is rare for children under age 10 to die by suicide, their deaths are devastating for their families and communities, and their lives and memories are honored in this brief.

Suicide is the leading cause of death among youth ages 10-17 in Colorado, with an age-specific rate of 10.7 per 100,000 population. When comparing youth suicide rates by age group, the rate for youth ages 15-17 (19.9 per 100,000 population) was significantly higher than for youth ages 10-14 (5.2 per 100,000 population). However, these two age groups have experienced different suicide trends over time. Figure 2 shows that the rate of suicide among Colorado residents ages 15 to 17 decreased in 2018 with subsequent increases in 2019 and 2020. Among Colorado residents ages 10 to 14, the rate increased between 2016 and 2017 and has steadily decreased since.

Figure 2. Age-specific rates of suicide occurring in Colorado among Colorado residents ages 5-17 by age and year, 2016-2020 (n=317)**



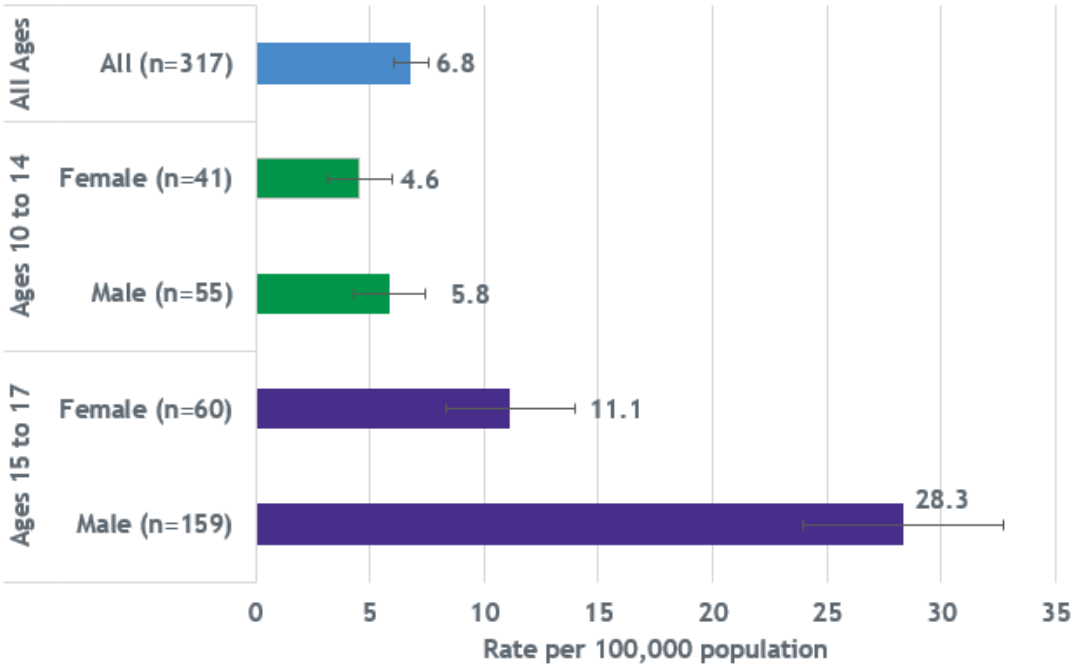
*Error bars represent 95% confidence limits for rates.
**Ages 5-9 suppressed due to counts less than 3.

The focus of this brief is suicide among children and youth ages 5-17. The stressors and contributing factors that lead to suicidal despair for children and youth may continue into young adulthood (ages 18-24). Suicidal despair encompasses a range of emotions, thoughts, and behaviors and can include feelings of hopelessness and being a burden, thoughts of suicide, suicidal ideation, chronic or acute suicidality, suicidal behaviors, and suicide attempts. In addition to big life transitions that can feel isolating or stressful, certain mental health diagnoses tend to emerge during young adulthood. The suicide rate for Colorado young adults ages 18-24 (25.8 per 100,000 population)[32] is more than double that of the rate for Colorado youth ages 10-17. It can be beneficial, from a suicide prevention perspective, to consider children, youth, and young adults when interpreting data and implementing suicide prevention strategies. See the report titled "*Suicide Among Young Adults in Colorado, 2014-2019: Ages 19-24*" for data and prevention recommendations.

Sex

Males account for the majority of suicide deaths among children and youth ages 5-17 in Colorado, representing 68.0% (n=219) of all suicides. This may be explained in part by the fact that females are more likely to use less lethal means (e.g., poisoning) in a suicide attempt compared to males who often use highly lethal means (e.g., firearms).[33] Figure 3 demonstrates that for those ages 10-14 and 15-17, males are at greater risk of death by suicide, and this difference was statistically significant in the 15-17 age group. The risk of death by suicide increases with age for both males and females. Males ages 15-17 experienced the highest rate of death by suicide, more than double the rate as females ages 15-17.

Figure 3. Age-specific rates of suicide occurring in Colorado among Colorado residents ages 5-17 by age and sex, 2016-2020**



*Error bars represent 95% confidence limits for rates.
**Ages 5-9 suppressed due to counts less than 3.

Sexual Orientation and Gender Identity

Defining Key Terminology

- Sex assigned at birth: The sex that the medical community labels a person at birth based on observable medical factors (e.g., appearance of genitals, informed assumptions about future sexual function and fertility, presumed course of hormone exposure to the brain).[34] Most people are assigned male or female, and this is what is put on their birth certificate. Although this is a culturally significant practice,

there is broad scientific consensus that the male/female categories used in this practice do not accurately represent human biology.[35,36] When someone's sexual and reproductive anatomy, genetics, or hormone development do not fit the typical definitions of female or male, they may be described as intersex.

- Gender identity: A person's innate, deeply felt sense of identifying as a man, as a woman, or gender-nonbinary, regardless of the sex assigned at birth. Gender identity is distinct from sexual orientation. The term "cisgender" means someone's gender identity is the same as their sex assigned at birth. "Transgender" refers to a gender identity that is different from the sex assigned at birth.
- Gender expression: A person's characteristics and behaviors that are socially defined as either masculine or feminine, such as dress, grooming, and mannerisms. Social or cultural norms can vary widely and some characteristics accepted as masculine, feminine, or gender-neutral in one culture may be different in another.
- Sexual orientation: A person's physical or emotional attraction to people of the same, neither, both, and/or opposite gender. "Heterosexual," "bisexual," and "homosexual" are all sexual orientations. A person's sexual orientation is distinct from a person's gender identity and expression.
- LGBTQ+: An umbrella term that collectively refers to people who are lesbian, gay, bisexual, transgender, queer, and questioning. The '+' represents those who are part of the community, but for whom LGBTQ does not accurately capture or reflect their identity (e.g., intersex, asexual, pansexual, agender, bigender, and genderqueer).

LGBTQ+ youth are systematically impacted by the stigma that stems from heterosexism and transphobia in families, schools, communities, and policies.[37] These systems of oppression are upheld by a society that privileges being heterosexual and cisgender as normative, while other sexual orientations and gender identities are devalued.[38] This structural stigma constrains LGBTQ+ children and youth, placing them at the margins, and making them more likely to experience poor health and wellbeing.[39]

LGBTQ+ people experience discrimination, bias, rejection from family, friends, and community, limited access to LGBTQ+ informed and affirming health care, and high rates of victimization such as sexual violence.[40,41] Lack of supportive environments in schools and communities (i.e., Gender and Sexuality Alliances, access to all gender restrooms, inclusive school curricula and policies) also play a role in the structural stigma experienced by LGBTQ+ young people.

Research is beginning to illuminate the connection between structural stigma, discrimination, and death. A recent study shows that exposure to structural stigma is associated with greater risk of death among adults who had a same-sex partner in the last year.[42] It is well-researched

that LGBTQ+ children and youth experience increased suicidal ideation and suicide attempts when compared to their heterosexual and cisgender peers.[43,44] However, it is also well-documented that these disparities are substantially reduced for LGBTQ+ children and youth who live in supportive and affirming communities.[45]

In order to better understand these disparities and address the unique needs of LGBTQ+ people, it is critical to gather complete and standardized data about sexual orientation and gender identity (SOGI). Unlike other demographic information, children and young people are rarely—if ever—asked about their gender identity or sexual orientation as a part of demographic information for their schooling or medical treatment. As such, records used to identify other demographic information during CFPS case reviews do not often contain SOGI data.

While CFPS does attempt to collect SOGI information, there are notable challenges for CFPS and other mortality data systems to accurately capture this information. As a result, little is known about causes of death in LGBTQ+ people. This has long hindered efforts to understand and prevent these deaths. There are multiple factors that directly affect collection of SOGI data at the time of death. The ability of death investigators to collect SOGI information is reliant on the knowledge of friends or family of the young person, who are the key reporting sources for coroner and law enforcement investigators. In many cases, the young person who died may have identified as LGBTQ+ but were not open about their identity. Friends and family of the young person who died may also not be willing to share SOGI information with investigators due to SOGI-related stigma. These challenges are amplified by a lack of training for death investigators in eliciting SOGI information from friends and family in an accurate and sensitive way.[46,47]

It is worth noting that during the time period when deaths that occurred from 2016-2020 were being reviewed, questions asking about sexual orientation and gender identity were inconsistently available in the National Fatality Review-Case Reporting System (NFR-CRS), the data tool that CFPS uses. In April 2018, existing sexual orientation and gender identity questions were removed from the NFR-CRS. CFPS added Colorado-specific sexual orientation and gender identity questions in April 2019, and in April 2020, the National Center for Fatality Review and Prevention added sexual orientation and gender identity questions back into the NFR-CRS for all states. In addition, the NFR-CRS added a life stressors section in its newest update, which will improve CFPS's ability to understand how stress caused by discrimination due to sexual orientation and/or gender identity contributes to deaths among children and youth.

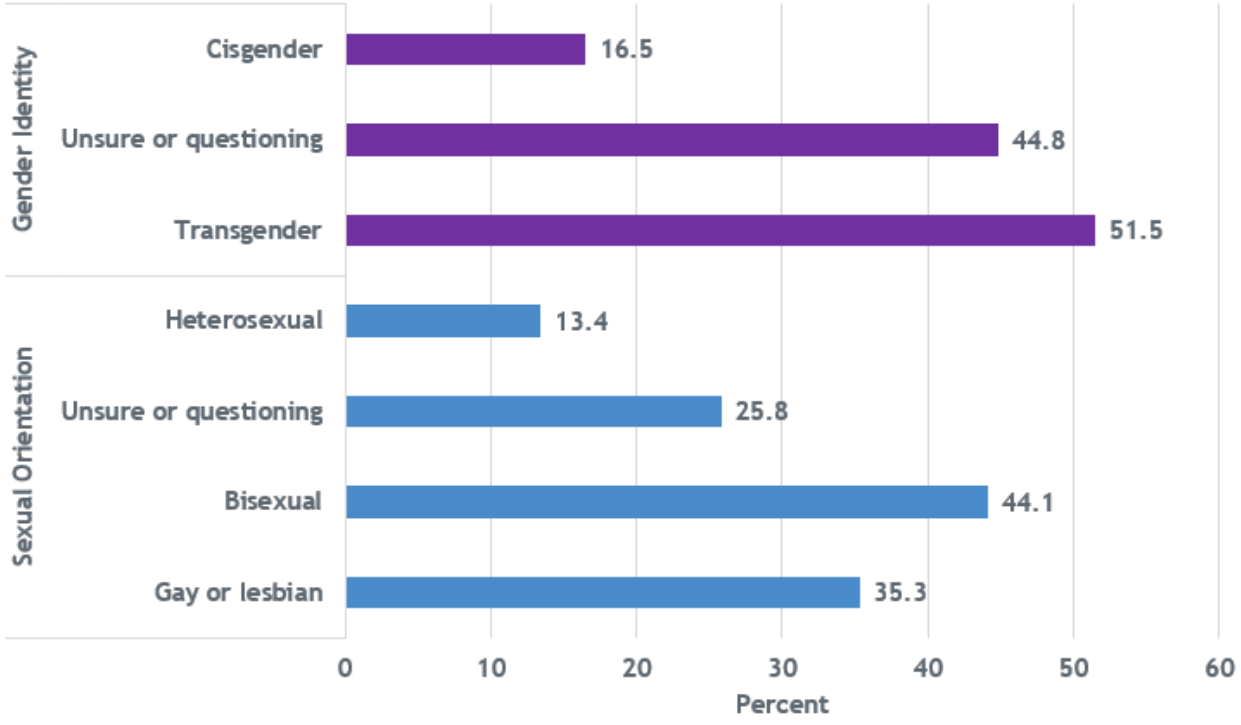
In an effort to reduce barriers in collecting this information, local child fatality prevention review teams receive guidance on how to discuss sexual orientation and gender identity during fatality reviews. In addition, the CFPS 2022 Legislative Report includes a data quality improvement recommendation to encourage and incentivize law enforcement agencies and coroner offices in Colorado to use the Suicide Death Investigation Form

(cdphe.colorado.gov/suicide-prevention/suicide-investigation-form) to improve collection of this information. This form includes detailed information and guidance for death scene investigators about collecting SOGI information where a child, youth, or adult died by suicide.

Although CFPS faces challenges in collecting data about sexual orientation and gender identity, there are other data sources in Colorado to provide information about suicidality by sexual orientation and gender identity. The Healthy Kids Colorado Survey (HKCS) is Colorado's only comprehensive survey on the health and well-being of young people. The purpose is to better understand youth health and the factors that help young people make healthy choices.[48] The HKCS asks high school students to self-identify as lesbian, gay, bisexual, or heterosexual, and if they self-identify as transgender or cisgender, or not sure for each category.

Similar to national data, HKCS data show that suicidal ideation and attempts are a bigger risk and concern for LGBTQ+ youth in Colorado when compared to heterosexual and cisgender youth (Figure 4).[49] For more information about HKCS and additional mental health data, please visit cdphe.colorado.gov/healthy-kids-colorado-survey-data-tables-and-reports.

Figure 4. High school students in Colorado who seriously considered attempting suicide during the past year by sexual orientation and gender identity, 2019



Data source: Healthy Kids Colorado Survey 2019, Colorado Department of Public Health and Environment.

Race and Ethnicity

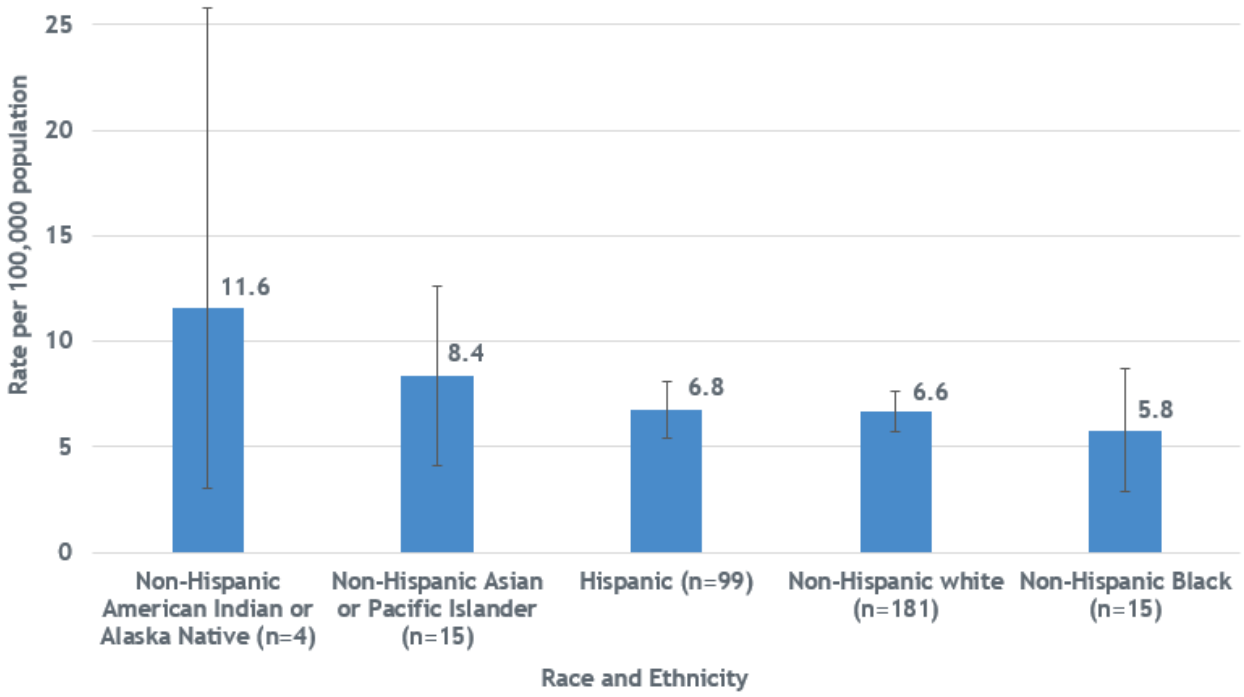
A note about terminology: Hispanic ethnicity as collected on the Colorado death certificate includes those that identify as Mexican, Mexican American, Chicano, Chicana, Puerto Rican, Dominican, Cuban, Central American, South American, Latin American, Spanish, and other Latin or Hispanic descent.[50,51] Additionally, "Latinx" and "Chicanx" are increasingly used gender inclusive terms, respecting those with a non-binary gender identity.[52] To ensure clarity, this report uses "Hispanic" throughout the data section to reflect how CFPS data are collected from the death certificate and to align with terminology used in cited literature and research.[53]

Between 2016 and 2020, 57.5% (n=185) of children and youth ages 5-17 who died by suicide in Colorado were non-Hispanic white, 30.8% (n=99) were of Hispanic origin, 4.7% (n=15) were non-Hispanic Black, 4.7% (n=15) were non-Hispanic Asian or Pacific Islander, and 1.6% (n=5) were non-Hispanic American Indian or Alaska Native (AI/AN).

Figure 5 demonstrates that when comparing suicide rates by race and ethnicity, the rate for AI/AN (11.6 per 100,000 population) and non-Hispanic Asian or Pacific Islander children and youth (8.4 per 100,000 population) was higher than for Hispanic (6.8 per 100,000 population) and non-Hispanic white children and youth (6.6 per 100,000 population). Although these differences between racial and ethnic groups were not statistically significant, they are similar to national trends. In the U.S. from 2016-2020, the suicide rate is highest among non-Hispanic AI/AN (9.7 per 100,000 population) and lower among Hispanic children and youth ages 5-17 (2.2 per 100,000 population).[54,55]

Research has shown that Hispanic youth often have positive cultural factors in their lives which can protect them from suicide death. This includes familialism, described as strong feelings of commitment, connection, and loyalty to family members.[56] However, in contrast to low rates of suicide death, Hispanic children and youth have consistently higher rates of suicidal ideation, plans, and attempts when compared to their non-Hispanic white counterparts.[57] For example, 2019 data from HKCS shows that 9.4% of Hispanic only/Hispanic white students had attempted suicide in the past year compared with 6.1% of non-Hispanic white students.[58]

Figure 5. Rates of suicide occurring in Colorado among Colorado residents ages 5-17 by race and ethnicity, 2016-2020 (n=317)



*Error bars represent 95% confidence limits for rates.

When reviewing the data by race, ethnicity, and sex, Hispanic female youth represent the highest rate of suicide attempts, compared to male and female youth across other racial and ethnic groups.[59] Current empirical research does not explain the differences in these trends with certainty. Possible reasons for increased rates of suicide attempts among Hispanic female youth include the cultural expectation of conforming to the female gender role, which may include suppressing feelings of anger and fulfilling numerous obligations to parents and family.[60] Future research prioritizing Hispanic youth may further identify why these differences exist.

It is also important to note that there have been reports of misclassification of race and ethnicity of AI/AN people on death certificates.[61] Given this limitation, it is important to highlight again that nationally from 2016 to 2020, AI/AN children and youth experienced a significantly higher suicide rate when compared to all other races.[62] Additionally, 2019 data from HKCS shows that AI/AN youth report the highest prevalence of having attempted suicide (15.8%) when compared to their peers by race and ethnicity, a prevalence more than double that of state estimates (7.6%).[63]

The increased likelihood of suicide and suicidal despair among AI/AN populations may stem from the historical and cumulative loss of population, land, language, and culture that was endured by these communities.[64,65] Historical trauma originates in colonization (the brutal and forcible removal of Indigenous AI/AN people from their lands in the U.S. and Canada) and

results in population decline and subjugation of Indigenous peoples.[66] Following colonization, AI/AN children were forcibly removed from their families and taken to boarding schools that were designed to strip them of their culture.[67] Attendance at these schools was mandatory, and AI/AN children were forbidden to practice their culture through hairstyle, clothing, language, and spirituality. Paralleling indigenous AI/AN experiences, Native Hawaiian or Pacific Islander (NH/PI) populations endured colonization by the U,S. and historical trauma that includes the overthrow of the Hawaiian monarchy and contamination of their lands and people by U.S. military nuclear testing.[68] This historical trauma and legacy of colonization across the U.S., including in Colorado, accrues across generations of AI/AN and NH/PI people, leading to substantial socioeconomic and health disparities, including increased suicidality.[69]

In addition, when looking at social and systemic factors, it is also important to consider the schools and communities in which many AI/AN people live, learn, work, and play. For example, AI/AN students in predominantly non-Native school settings may be exposed to regular psychosocial and psychological stress. These experiences may influence success rates in school as well as self-esteem and overall mental health. The continued presence of racialized stereotypes in schools and communities, such as Native American mascots, are psychologically detrimental to Native American students and contribute to "modern prejudice toward Native Americans."[70]

Although CFPS reviews deaths of children and youth through age 17, a report published by Colorado's Office of Suicide Prevention, titled "*Suicide Among Youth in Colorado, 2013-2017: Part 1, Ages 10-18*," found recent upward trends in the youth suicide rate for Black and Asian or Pacific Islander youth in Colorado when expanding the age range by one year to ages 10-18.[71] In addition, recent national research found that for elementary-school aged children (ages 5-12), the suicide rate was two times higher for Black children compared with white children, a finding observed in both boys and girls.[72] In addition to the overall higher suicide rate for Black children, the suicide rate significantly increased in Black boys ages 5-11 over the last few decades, and significantly decreased in white boys of the same age.[73] Although too few deaths occurred during this time period in Colorado among Black children ages 5-12 to replicate and report these findings in accordance to CFPS privacy standards, these national findings make clear the significant age and sex-related racial disparity in childhood suicide and highlight an important opportunity for suicide prevention with Black, elementary-aged male children.

There are limitations to how CFPS collects and reports on data related to social and economic stressors experienced by a young person, their family, and their community. However, the NFR-CRS added a life stressors section in its newest update, which will improve CFPS's ability to analyze and interpret this data in the future. For instance, the new section asks if the young person, their family, or their community experienced racism, discrimination, poverty, food insecurity, or housing instability. In order to further understand the relationship between social and economic life stressors and suicide, it is worth noting that research has found a link between county-level poverty concentration and increased rates of child and youth suicide.[74]

Data show 17.9% of AI/AN, 16.8% of Black, and 14.8% of Hispanic Coloradoans live below the poverty level, compared to 7.7% of non-Hispanic white Coloradans.[75] These disparities are largely driven by discriminatory federal, state, and local policies, such as redlining, that create unjust geographic divisions among racial and ethnic groups.[76,77] This racial segregation leads to neighborhood disadvantage by concentrating neighborhood poverty, increasing exposure to environmental stressors, creating barriers to and fewer opportunities for a healthy lifestyle, limiting access to health services, and increasing housing and food insecurity.[78]

Finally, research found that Black children and youth may be disproportionately exposed to community and household violence;[79] experience more aggressive school discipline;[80] and are less likely to seek help for depression, suicidal ideation, and suicide attempts.[81] For instance, data from the Healthy Kids Colorado Survey (HKCS) show notable racial and ethnic disparities in the measure that asks students if they have an adult to go to for help with a serious problem. In response to this question, 76.5% of non-Hispanic white students answered in the affirmative, whereas 66.9% of AI/AN youth; 66.6% of Black/African American youth; and 66.3% of NH/PI youth answered in the affirmative.[82] These factors may influence the increasing suicide rates among Black children and youth. Although there are limitations to how CFPS collects and reports on data related to social stressors, the new life stressors section in the NFR-CRS will improve CFPS's ability to analyze this data. For instance, the new section asks if the young person witnessed violence in the community or in their home. CFPS will continue to report on this information in future data briefs and presentations as more years of data become available.

Geography

To calculate statistics by geographic location within the state, counties in Colorado are categorized as urban, rural, or frontier, according to standards applied by the Colorado Rural Health Center.[83] All counties that are not designated as parts of Metropolitan Areas are considered rural. Frontier counties are further classified as those with a population density of six or fewer persons per square mile. It is worth noting that these county designations are limited in that they do not account for the geographic nuance experienced by several large counties in Colorado (e.g., Arapahoe, El Paso, Larimer, Mesa) that have both populous urban centers and broad rural areas.

Between 2016 and 2020, the majority of Colorado residents ages 5-17 who died by suicide in Colorado resided in an urban county (87.4%, n=277), while 10.4% (n=33) lived in a rural county and 2.2% (n=7) lived in a frontier county. Although not statistically significant, the rate of suicide among children and youth living in a rural county (7.4 per 100,000 population) was higher than those living in a urban county (6.7 per 100,000 population).

This rate data is consistent with national data showing higher suicide rates in rural areas.[84] Possible explanations for these disparities include limited availability and accessibility of

mental and behavioral health services and longer travel distances to seek health care.[85] Among Colorado residents ages 5-17 who died by suicide in Colorado and resided in a rural or frontier county, 40.0% (n=16) had received prior mental health services, compared to 56.0% (n=155) of those living in an urban county. Nationally, access to care has been a long-standing problem for rural communities, which is mostly due to shortages in qualified clinicians and long travel times to any health care facility. Nationally, there are about 6,000 areas that are federally designated as having a shortage of mental health care professionals, and about 70% of those are rural areas.[86] In Colorado, all geographic areas with a shortage of mental health care professionals are at least partially rural.[87] As a result, primary care physicians are often called on for mental health care, even though these physicians report feeling unprepared to treat mental illness. To compound the clinician shortage and longer travel times, many people living in rural communities are also less likely to have health insurance that even includes mental health benefits.[88]

Rural communities also experience increased stigma related to seeking help and mental health.[89] Even when services might be available, many people living in rural areas report not wanting to seek help because of the stigma and lack of anonymity when accessing services in a rural setting.[90] Additionally, people living in rural areas experience greater geographic and social isolation, with less face-to-face contact with support networks, which is associated with feelings of loneliness, depression, and suicidality.[91]

Although there are limitations to how CFPS collects data related to social and economic stressors experienced by young people residing in rural and frontier counties, the new life stressors section in the NFR-CRS will improve this data in the future. For instance, CFPS added Colorado-specific questions to this section asking if the young person, their family, or their community experienced lack of transportation, lack of access to health services, or limitations of their health insurance coverage.

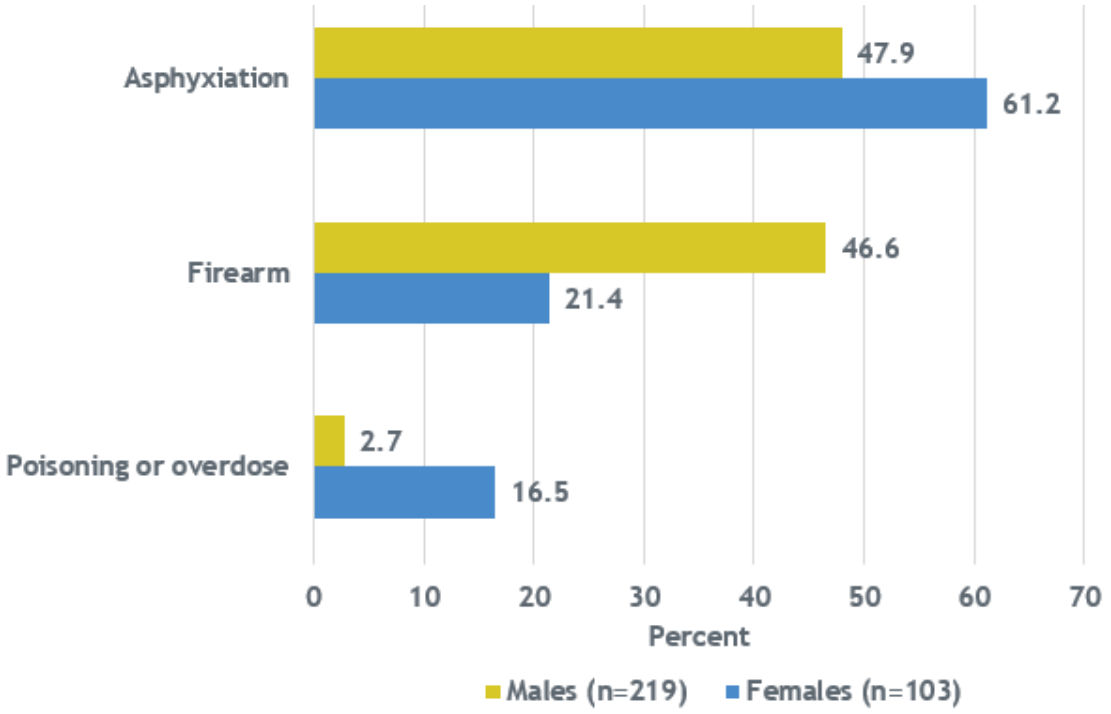
Finally, among Colorado residents ages 5-17 who died by suicide in Colorado and resided in a rural or frontier county, firearm was the most common cause of death (55.0%, n=22), compared to 36.5% (n=101) among those living in an urban county. Rural and frontier communities have greater access to firearms as a lethal means, as owning and using firearms is more common among rural residents and is a large part of the culture.[92] Rural residents often grow up around firearms, have firearms in their homes, and use them for hunting, agricultural needs, and recreation.[93]

Suicide Means

Among children and youth ages 5-17 who died by suicide in Colorado, asphyxia (hanging) remained the most common cause of death, followed by firearm deaths, and drug overdoses. CFPS identified 168 asphyxia suicides (52.2%), 124 firearm suicides (38.5%), and 23 drug overdose or poisoning suicides (7.1%). Among males, asphyxia suicides (47.9%, n=105) were

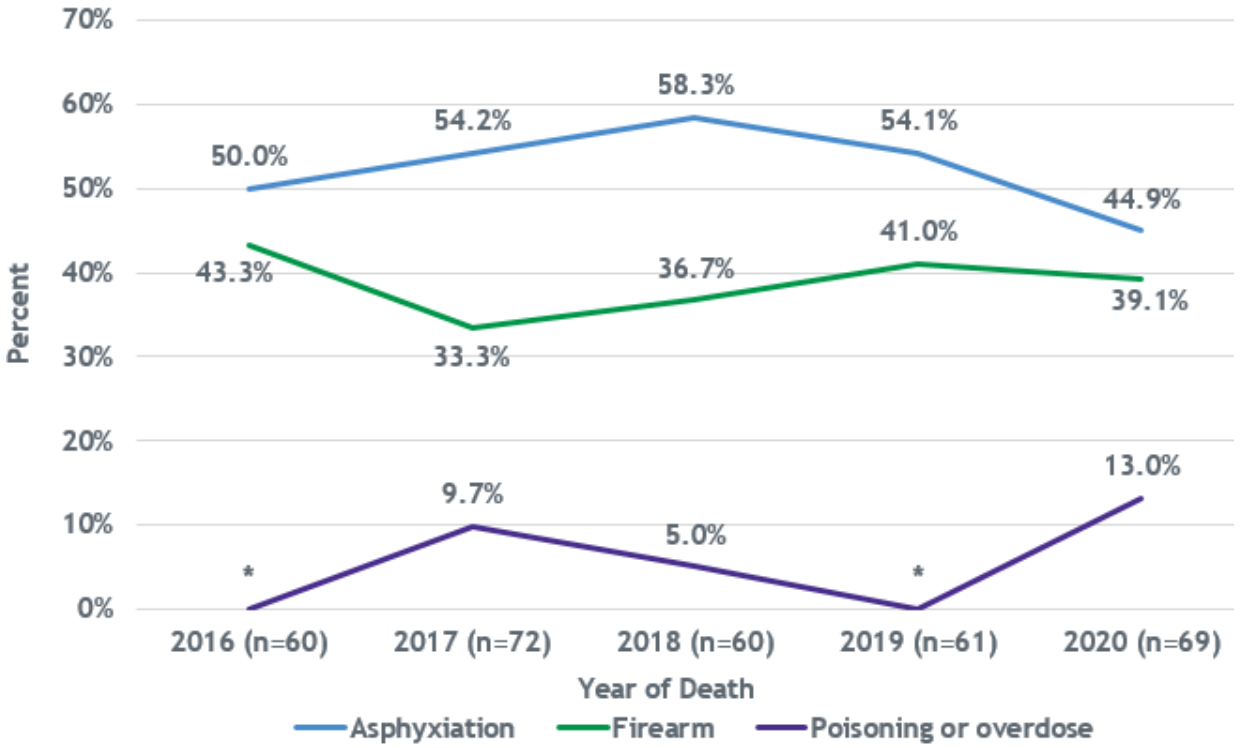
most common, followed by firearm (46.6%, n=102), and drug overdose or poisoning suicides (2.7%, n=6) (Figure 6). Among females, asphyxia was the most common means of suicide (61.2%, n=63), followed by firearm (21.4%, n=22), and drug overdose or poisoning suicides (16.5%, n=17).

Figure 6. Suicide occurring in Colorado among children and youth ages 5-17 by means and sex, 2016-2020 (n=322)



Asphyxiation was the most common means of suicide among Colorado children and youth and the proportion of asphyxia suicide deaths fluctuated across the time period. In 2016, 50.0% (n=30) of suicide deaths involved asphyxiation compared to 44.9% (n=31) in 2020 (Figure 7). The proportion of child and youth suicide deaths involving a firearm decreased between 2016 and 2017, but then gradually increased to 41.0% (n=25) in 2019. CFPS will monitor these trends in coming years.

Figure 7. Suicide occurring in Colorado among children and youth ages 5-17 by means and year, 2016-2020 (n=322)



*Suppressed due to counts less than 3.

Firearm Suicides

Between 2016-2020, 38.5% (n=124) of all suicide deaths occurring among children and youth in Colorado were by firearm. Among all firearm suicides, 63.7% (n=79) occurred among non-Hispanic white children and youth and 82.3% (n=102) occurred among males. Additionally, 50.0% (n=62) of firearms used in suicide deaths were owned by a biological parent, and 59.7% (n=74) of owners of firearms used in suicide deaths in Colorado were male.

The system also collects information on the storage of these weapons. Current best practice for safe firearm storage includes storing the firearm locked and unloaded, and storing ammunition locked and in a separate location from the firearm.[94] From 2016-2020, only 12.1% (n=15) of firearms used in suicide deaths among children and youth ages 5-17 were known to be stored locked and only 21.8% (n=27) were known to be stored unloaded.

In 28.2% (n=35) of cases, the information on if the firearm was stored locked was missing or unknown. In 50.8% (n=63) of cases, the information on if the firearm was stored loaded was missing or unknown. The cause for the high numbers of missing and unknown information is not clear, but may be due to lack of guidance on the importance of this information. Death

scene investigators and child fatality prevention review team members may not be asking about firearm storage. The CFPS 2022 Legislative Report includes a data quality improvement recommendation to encourage and incentivize law enforcement agencies and coroner offices in Colorado to use the Suicide Death Investigation Form (cdphe.colorado.gov/suicide-prevention/suicide-investigation-form) to improve collection of this information.

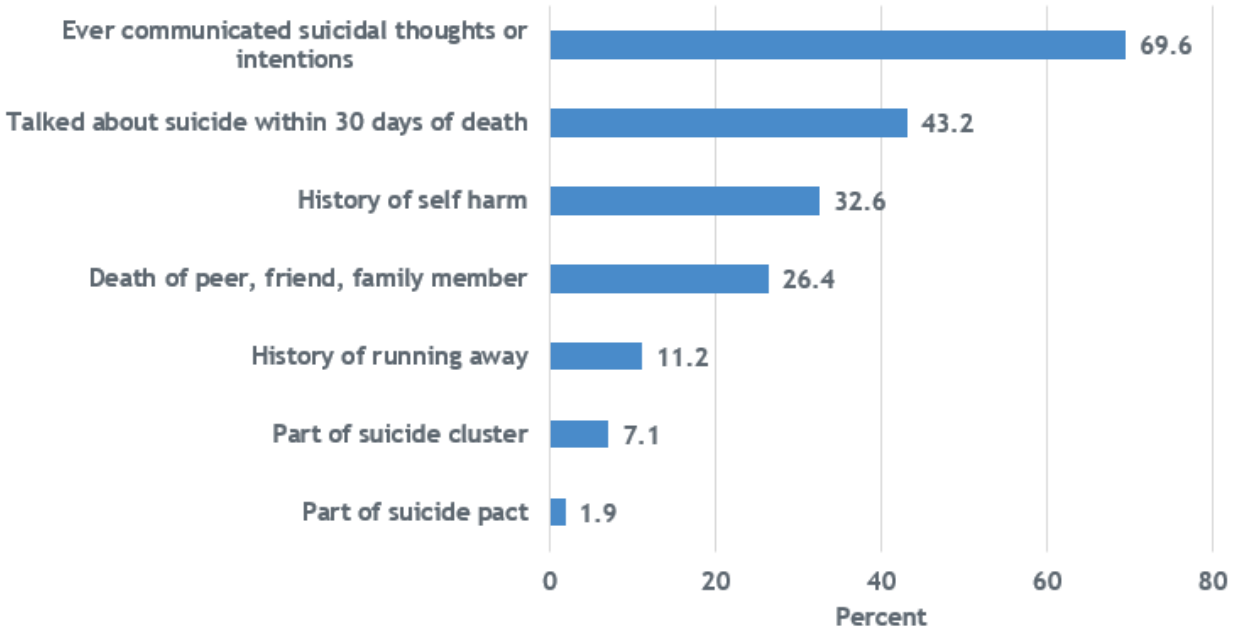
Suicide Circumstances

Contributing Circumstances

Suicide is a complex, multifaceted issue which is rarely the result of a single source of trauma or stress. CFPS review teams collect circumstance information, including details of child and youth history of suicide-related behavior and personal crises. This data showed that among children and youth who died by suicide in Colorado during this time period, 69.6% (n=224) had ever communicated suicidal thoughts or intentions, 43.2% (n=139) had talked about suicide within 30 days prior to their death, and 32.6% (n=105) had a history of self harm (Figure 8).

The system often has missing and unknown data for variables related to suicide circumstances, in part because death scene investigators typically collect limited information about a child or youth's mental health history and access to lethal means. In an effort to improve the case review process and conduct quality case-specific reviews, the CFPS 2022 Legislative Report includes a recommendation to encourage and incentivize law enforcement agencies and coroner offices to use the Suicide Death Scene Investigation Form (cdphe.colorado.gov/suicide-prevention/suicide-investigation-form) to ensure law enforcement officers and coroner investigators consistently collect circumstance data when investigating a suspected suicide death.

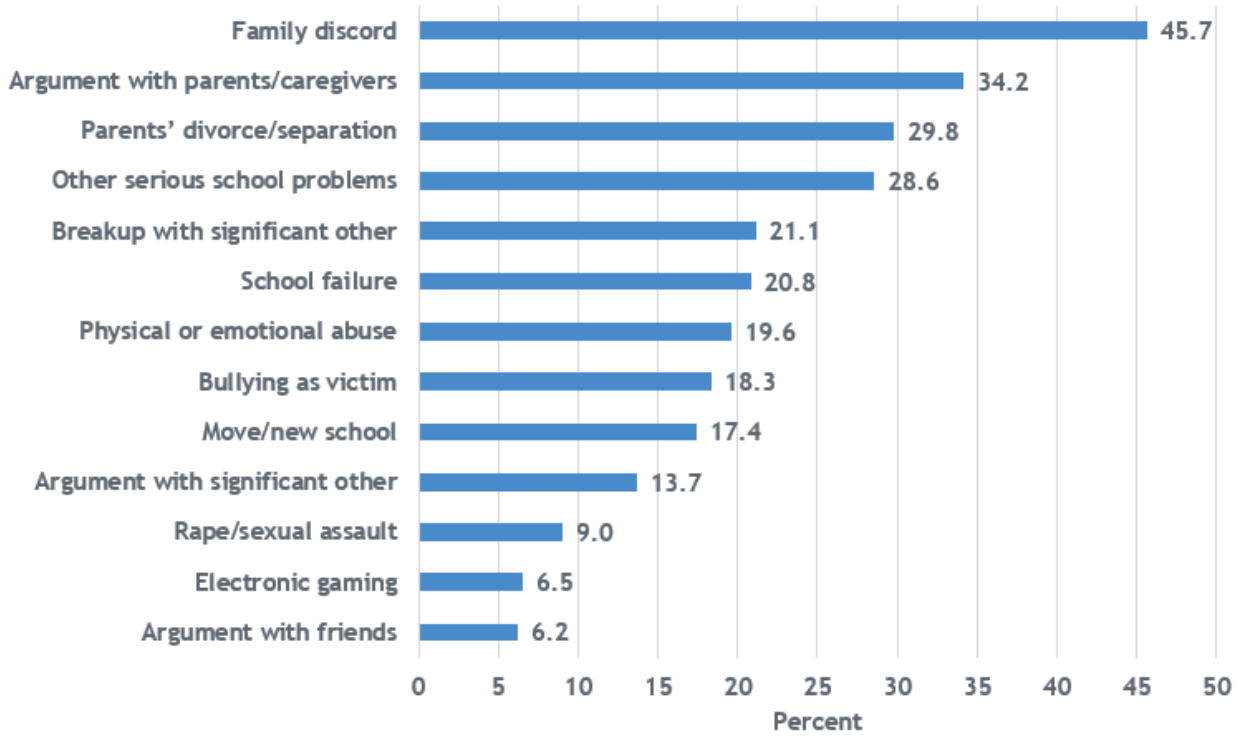
Figure 8. Selected circumstances for suicide occurring in Colorado among children and youth ages 5-17, 2016-2020 (n=322)



Life Stressors

CFPS also collects information on acute or cumulative life stressors that may have contributed to these deaths. From 2016-2020, the most common stressor identified for child and youth suicide deaths was family discord (45.7%, n=147), followed by arguments with parents/caregivers (34.2%, n=110), parents' divorce or separation (29.8%, n=96), and breakup with a significant other (21.1%, n=68) (Figure 9). These life stressors differ when stratified by age group (ages 10-14 or ages 15-17). For example, the proportion of suicide deaths preceded by a breakup with a significant other is higher among youth ages 15-17 (25.6%, n=57) when compared to youth ages 10-14 (11.3%, n=11). In addition, the proportion of suicide deaths where the young person had experienced bullying is higher among youth ages 10-14 (26.8%, n=26) when compared to youth ages 15-17 (14.8%, n=33).

Figure 9. Selected life stressors present for suicide occurring in Colorado among children and youth ages 5-17, 2016-2020 (n=322)



Child Maltreatment

Child maltreatment includes physical, sexual, and emotional abuse, as well as neglect. Experiences of child maltreatment, considered to be one of the significant Adverse Childhood Experiences (ACEs),[95] have a large impact on health throughout the lifespan[96] and are associated with suicide.[97] CFPS collects data about if any child or youth had a history of child maltreatment prior to their death. This data includes a referral or substantiation from child protective services or documentation on the autopsy report, law enforcement report, or medical records.

Of children and youth ages 5-17 who died by suicide, 33.2% (n=107) experienced child maltreatment as a victim. Among those with a known child maltreatment history, 21.5% (n=62) experienced neglect, 16.3% (n=47) experienced physical abuse, 14.6% (n=42) experienced emotional abuse, and 7.3% (n=21) experienced sexual abuse. Information on history of child maltreatment was missing or unknown for 10.6% (n=34) of deaths by suicide among Colorado children and youth. The CFPS 2022 Legislative Report includes a data quality improvement recommendation to provide technical assistance to local teams on best practices for collecting child maltreatment history. Additional CFPS data on child maltreatment is available at: www.cochildfatalityprevention.com/p/reports.html.

Mental Health Services

Among Colorado children and youth who died by suicide, 53.7% (n=173) received prior mental health services, 35.1% (n=113) were receiving mental health services at the time of their death, and 26.4% (n=85) were on medications for mental illness. Of the children and youth who died by suicide, 11.2% (n=36) had issues preventing them from receiving mental health services. Review teams most commonly identified issues related to children and youth choosing not to access or continue care. Research suggests this may be related to stigma about receiving mental health care and norms related to seeking help.[98]

Conclusion

Suicide is a complex, multifaceted issue which is rarely the result of a single source of trauma or stress. In 2020, suicide was the 12th leading cause of death for people of all ages in the U.S., and the second leading cause of death among children and youth ages 5-17.[99] This data brief highlights that suicide is the leading cause of death reviewed by CFPS among children and youth ages 5-17 in Colorado. The highest rates of child and youth suicide in Colorado were observed among youth ages 15-17 and among non-Hispanic American Indian or Alaska Native children and youth. Additionally, child and youth suicide in Colorado is largely caused by hanging and firearm and is most often precipitated by family discord, arguments with parents and/or caregivers, and parental divorce or separation. Given the all-encompassing impact of the COVID-19 pandemic, CFPS teams determined that the COVID-19 pandemic indirectly contributed to about 60% of suicide deaths reviewed by CFPS that occurred between March 1, 2020 and December 31, 2020.

Each of us has a role and must work together to prevent suicide through evidence-based programming, connection, and supporting young people, families, and communities. The steps you take to support a young person can be lifesaving. To learn more about the prevention strategies recommended by CFPS, view the 2022 Legislative Report (www.cochildfatalityprevention.com/p/reports.html). To learn even more about the inequities that contribute to child deaths, view the CFPS report "*The Role of Policies and Systems in Child Deaths in Colorado*."

Need help now? Call 1-844-493-TALK (8255), text TALK to 38255, or access resources via www.coloradocrisisservices.org. Help and hope are available 24 hours a day, 365 days of the year.

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