



**COLORADO CHILD  
FATALITY  
PREVENTION  
SYSTEM**

Youth Suicide Data, 2013 - 2017



**COLORADO**  
Department of Public  
Health & Environment

# YOUTH SUICIDE DATA, 2013 - 2017

---

## INTRODUCTION

The Child Fatality Prevention Act (Article 20.5 of Title 25, Colorado Revised Statutes) established the Child Fatality Prevention System (CFPS), a statewide, multidisciplinary, multi-agency effort to prevent child deaths. Although not codified in Colorado Revised Statutes (C.R.S.) until 2005, CFPS has been conducting retrospective reviews of child deaths in Colorado since 1989. CFPS applies a public health approach to prevent child deaths by aggregating data from individual child deaths, describing trends and patterns of these deaths and recommending prevention strategies. Child fatality prevention review teams and their partners implement and evaluate the identified strategies at the state and local levels with the goal of preventing similar deaths in the future.

The data presented within this data summary come from comprehensive, statutorily-mandated reviews of deaths among those under 18 years of age occurring in Colorado between 2013 and 2017. Local child fatality prevention review teams are responsible for conducting individual, case-specific reviews of deaths of children meeting the statutory criteria. Reviewable child deaths result from

one or more of the following causes: undetermined causes, unintentional injury, violence, motor vehicle and other transportation-related, child maltreatment, sudden unexpected infant death (SUID) and suicide. During the 2018 fiscal year, local teams reviewed deaths that occurred in 2017.

The CFPS review process includes deaths of Colorado residents occurring in Colorado, as well as deaths of out-of-state residents who died in Colorado or were transported to a Colorado hospital and died. CFPS does not review deaths of Colorado residents that occur outside Colorado. These criteria are different from other reports of child fatality data and many other Colorado government data sources. As a result, the data presented in this topic-specific data brief may not match other statistics reported at both the state and national levels. This data brief provides an overview of youth suicide data from CFPS. Additional CFPS data is available in a state-level overview, cause-specific data briefs and an interactive data dashboard at:

[www.cochildfatalityprevention.com/p/reports.html](http://www.cochildfatalityprevention.com/p/reports.html).

## STRUCTURAL INEQUITY

CDPHE acknowledges that generations-long social, economic and environmental inequities result in adverse health outcomes. They affect communities differently and have a greater influence on health outcomes than either individual choices or one's ability to access health care. Reducing health disparities through policies, practices and organizational systems can help improve opportunities for all Coloradans.<sup>1</sup>

Some families lose infants, children and youth to the types of deaths reviewed by CFPS not as the result of the actions or behaviors of those

who died, or their parents or caregivers. Social factors such as where they live, how much money or education they have and how they are treated because of their racial or ethnic backgrounds can also contribute to a child's death.<sup>2</sup> In the United States, most residents grew up and continue to live in racially and economically segregated neighborhoods, which can lead to marginalization.<sup>3,4</sup> This marginalization of groups into segregated neighborhoods further impacts access to high-quality education,<sup>5</sup> employment opportunities,<sup>6</sup> healthy foods<sup>7</sup> and health care.<sup>8</sup> Combined, the economic injustices associated with residential, educational

and occupational segregation have lasting health impacts that include adverse birth outcomes, infant mortality,<sup>9</sup> high rates of homicide and gun violence<sup>10</sup> and increased motor vehicle deaths.<sup>11</sup>

When interpreting the data, it is critical not to lose sight of these systemic, avoidable and unjust factors. These factors perpetuate the inequities

that we observe in child deaths across populations in Colorado. Research is making progress in understanding how race and ethnicity, economic status, 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 eradicate them.

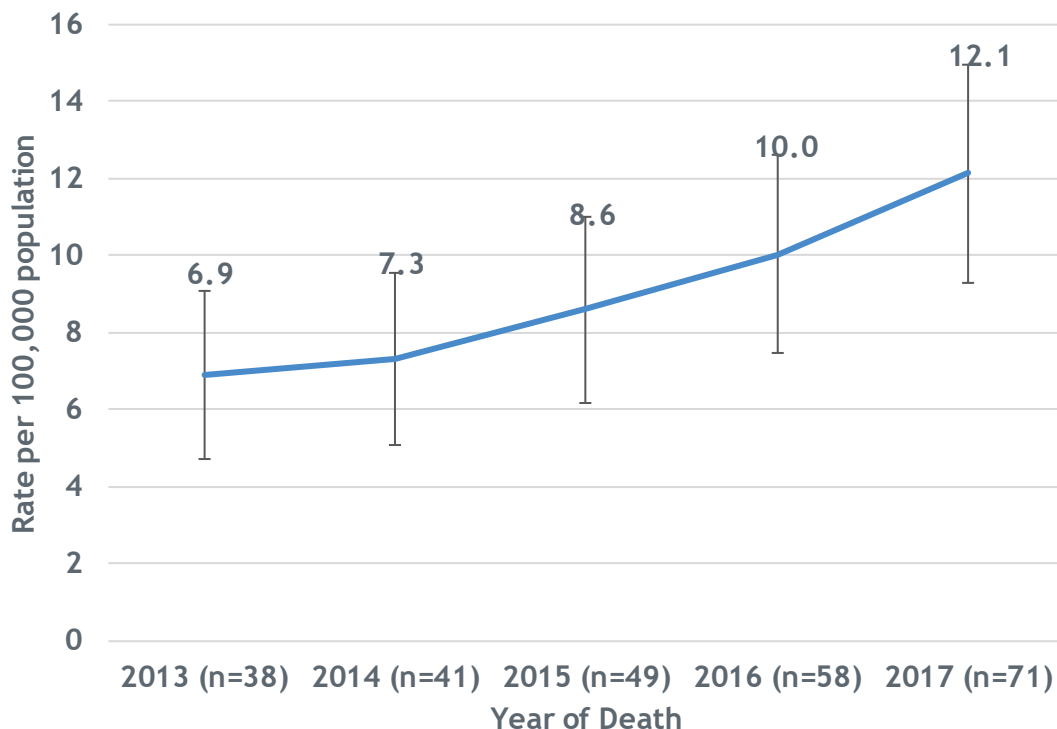
A note about terminology: While “Latinx” is becoming the preferred way to identify people of Latin descent, this report uses “Hispanic” throughout the data section to reflect how CFPS data is collected and to align with terminology used in cited literature and research.<sup>13</sup>

### OVERVIEW OF YOUTH SUICIDE DEATHS

Suicide is the leading cause of death among youth ages 10-17 in Colorado. In total, 261 youth died by suicide in Colorado from 2013-2017. The number of youth suicide deaths increased steadily from 39 in 2013 to 72 in 2017, an 84.6 percent change for the period. Figure 1 shows that the rate of youth suicide among Colorado residents

also increased from 2013-2017, and that this increase was statistically significant. Colorado’s age-specific rate of youth suicide among 10-17 year olds (9.0 per 100,000 population) was two-fold higher than the national youth suicide rate for 10-17 year olds (4.4 per 100,000 population) over the same time period.<sup>12</sup>

**Figure 1. Crude rate of deaths by suicide occurring in Colorado among Colorado residents ages 10-17 by year, 2013-2017 (n=257)**

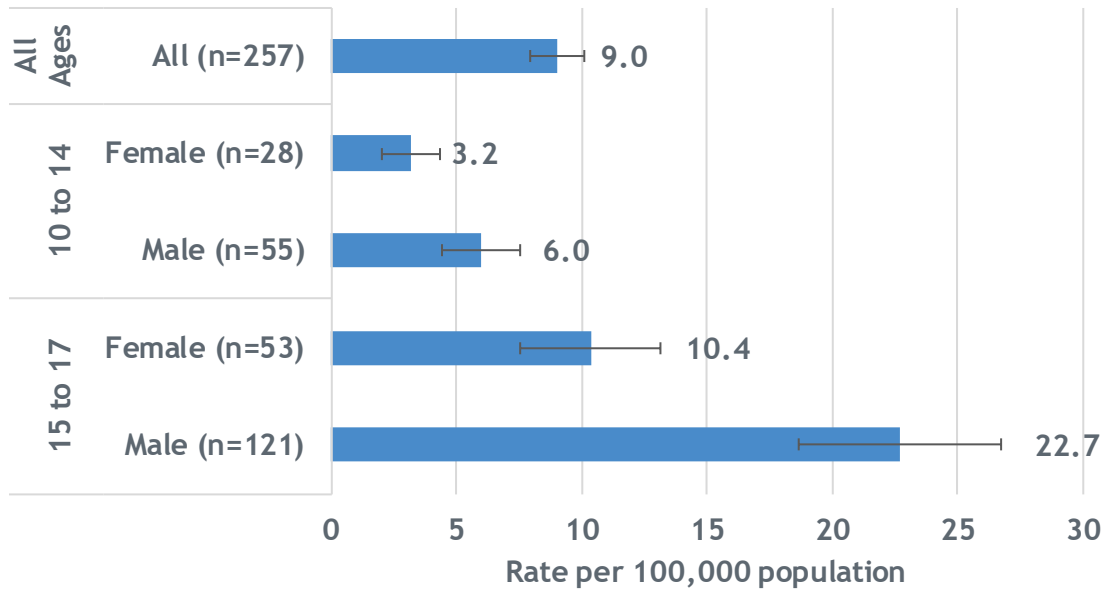


\*Error bars represent 95% confidence limits for rates.

Males account for the majority of suicides among youth ages 10-17 in Colorado, representing 68.2 percent (n=178) of all suicides. This may be explained in part by the fact that females are more likely to use less lethal means (i.e. poisoning) in a suicide attempt compared to males who often use highly lethal means (i.e. firearms).<sup>14</sup> Figure 2 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 across both age groups. The risk of death by suicide increases with age for both males and females. Males ages 15-17 experienced more than double the rate of death by suicide as their same-aged female peers and represented the category with the highest rate.

**Figure 2. Age-specific rates of deaths by suicide occurring in Colorado among Colorado residents ages 10-17 by age and sex, 2013-2017**



\*Error bars represent 95% confidence limits for rates.

## RACIAL AND ETHNIC INEQUITIES

The majority of youth who died by suicide were non-Hispanic white (69.4 percent, n=181) and 22.6 percent (n=59) were of Hispanic origin. When comparing youth suicide rates by race and ethnicity, the rate for non-Hispanic white youth (10.8 per 100,000 population) was significantly higher than for Hispanic youth (6.4 per 100,000 population). This is consistent with national trends from 2013-2017, where the suicide death rate is lower among Hispanic youth (7.0 per 100,000 population) as compared to non-Hispanic youth (10.3 per 100,000 population).<sup>15,16</sup>

In contrast, Hispanic youth have consistently higher rates of suicidal ideation, plans and behavior when compared to their non-Hispanic counterparts.<sup>17</sup> When further examined by sex, Hispanic female youth represent the

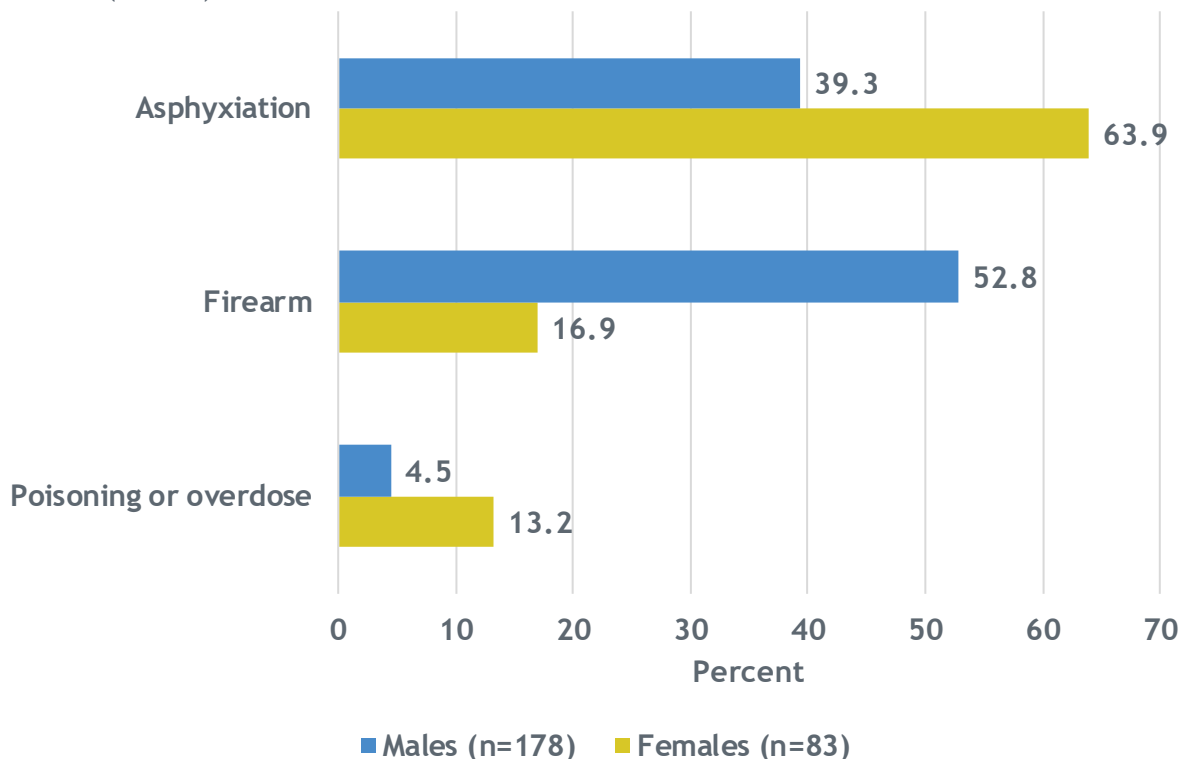
highest rate of suicide attempts, compared to male and female youth across all other racial and ethnic groups.<sup>18</sup> Current empirical research has been unable to explain the differences in these trends with certainty. However, research has shown that Hispanic youth have several factors in their lives which can protect them from suicide. These factors include familialism, which is described as strong feelings of commitment, connection, loyalty and obligation to family members.<sup>19</sup> Significant protective factors for suicide, such as familialism, that policymakers should bolster across all racial and ethnic populations include: access to effective mental health and substance abuse services; positive social norms; connections to individuals, family, community, and school; and good problem-solving and coping skills.<sup>20</sup>

## SUICIDE MEANS

Among youth ages 10-17 who died by suicide in Colorado, asphyxia (hanging) remained the most common cause of death, followed by firearm deaths and drug overdoses. CFPS identified 123 asphyxia suicides (47.1 percent), 108 firearm suicides (41.4 percent) and 19 drug overdose or poisoning suicides (7.3 percent). Among males, firearm suicides (52.8

percent, n=94) were most common, followed by asphyxia (39.3 percent, n=70) and drug overdose or poisoning suicides (4.5 percent, n=8) (Figure 3). Among females, asphyxia was the most common means of suicide (63.9 percent, n=53), followed by firearm (16.9 percent, n=14) and drug overdose or poisoning suicides (13.2 percent, n=11).

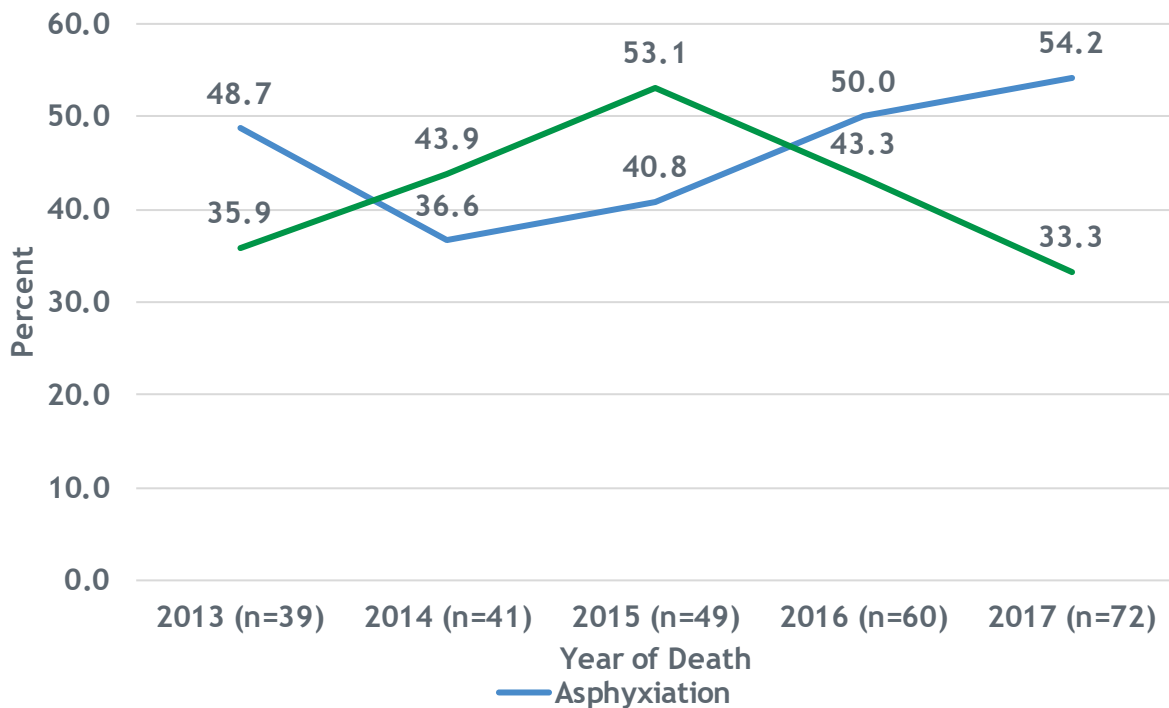
**Figure 3. Proportion of deaths by suicide occurring in Colorado among youth ages 10-17 by means and sex, 2013-2017 (n=261)**



Asphyxiation was the most common means of suicide among Colorado youth and the proportion of asphyxia suicide deaths increased between 2013 and 2017. In 2014, 36.6 percent (n=15) of youth suicide deaths involved asphyxiation compared to 54.2 percent (n=39) in 2017 (Figure 4). The proportion of youth suicide deaths

involving a firearm increased between 2013 and 2015, but then decreased to 33.3 (n=24) percent in 2017. CFPS will monitor these trends in coming years, especially given that the national rate of asphyxiation suicide deaths in the 10-17 age group significantly increased from 2013 to 2017 as well.<sup>21,22</sup>

**Figure 4. Percentage of deaths by suicide occurring in Colorado among youth ages 10-17 by means and year, 2013-2017 (n=261)**



## FIREARM SUICIDES

Between 2013-2017, 41.4 percent (n=108) of all suicide deaths occurring among youth in Colorado were by firearm. Among all firearm suicides, 87.0 percent (n=94) occurred among males. Additionally, 52.8 percent (n=57) of firearms used in youth suicide deaths were owned by a biological parent (data not shown), and 62.0 percent (n=67) of owners of firearms used in youth suicide deaths in Colorado were male.

CFPS 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.<sup>23</sup> From 2013-2017, only 18.5 percent (n=20) of firearms used in suicide deaths among youth ages 10-17

were known to be stored locked and only 22.2 percent (n=24) were known to be stored unloaded.

In 27.8 percent (n=30) of cases, the information on if the firearm was stored locked was missing or unknown. In 50.9 percent (n=55) 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 review team members may not be asking about firearm storage. The [CFPS 2019 Legislative Report](#) includes a data quality improvement recommendation to provide technical assistance to local teams on best practices for firearm death reviews.

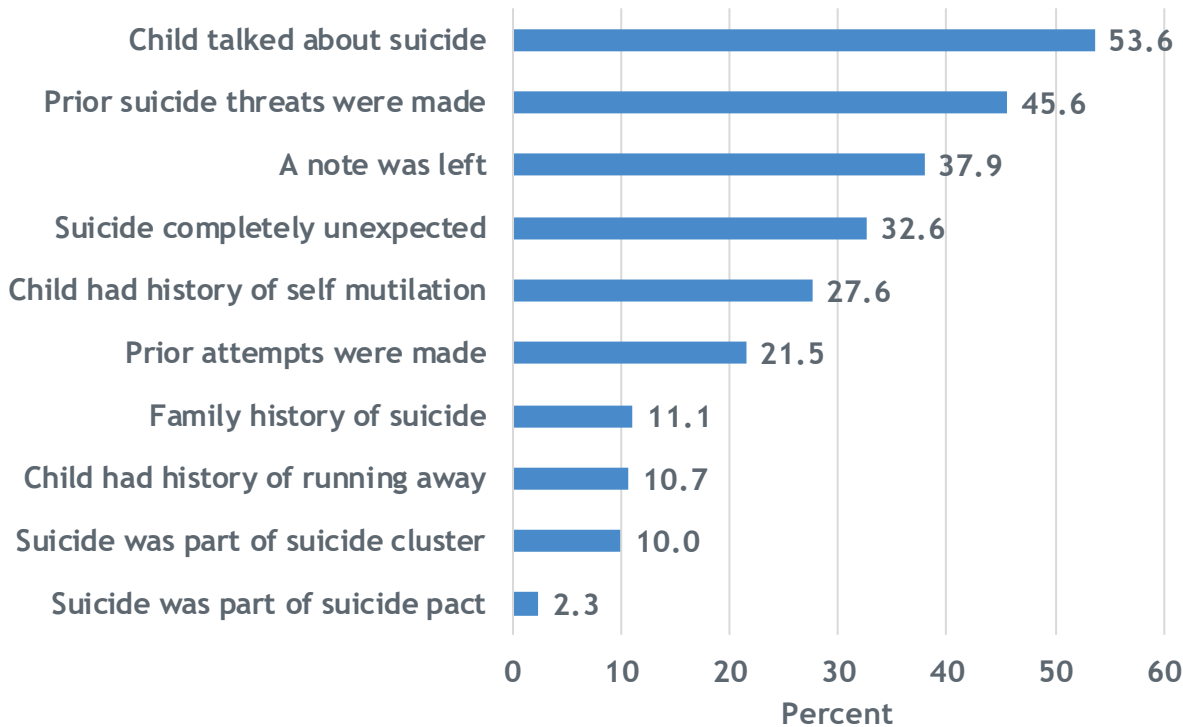
## SUICIDE CIRCUMSTANCES

The CFPS review teams collect circumstance information, including details of youth history of suicide-related behavior and personal crises. This data showed that those who died by suicide most commonly talked about suicide (53.6 percent, n=140), made prior suicidal threats (45.6 percent, n=119) or left a suicide note (37.9 percent, n=99) prior to dying (Figure 5). CFPS case reports indicated the suicide was completely unexpected in 32.6 percent (n=85) of cases. However, the National Center for Fatality Review and Prevention (NCFRP) recently revised this question in Version 5 of the case reporting system, the data tool that CFPS uses. This revision ensures that review teams can only indicate the suicide was completely unexpected if they do not select other options, like those listed above. In the past, suicide deaths could be designated as “completely unexpected”

even if the review team also indicated that the child or youth had previously considered suicide.

CFPS often has missing and unknown data for variables related to suicide circumstances, in part because death scene investigators typically collect limited information about a 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 2019 Legislative Report](#) includes a recommendation to encourage and incentivize law enforcement agencies and coroner offices to use the Suicide Death Scene Investigation Form ([www.colorado.gov/cdphe/suicide-investigation-form](http://www.colorado.gov/cdphe/suicide-investigation-form)) to ensure law enforcement officers and coroner investigators consistently collect circumstance data when investigating a suspected suicide death.

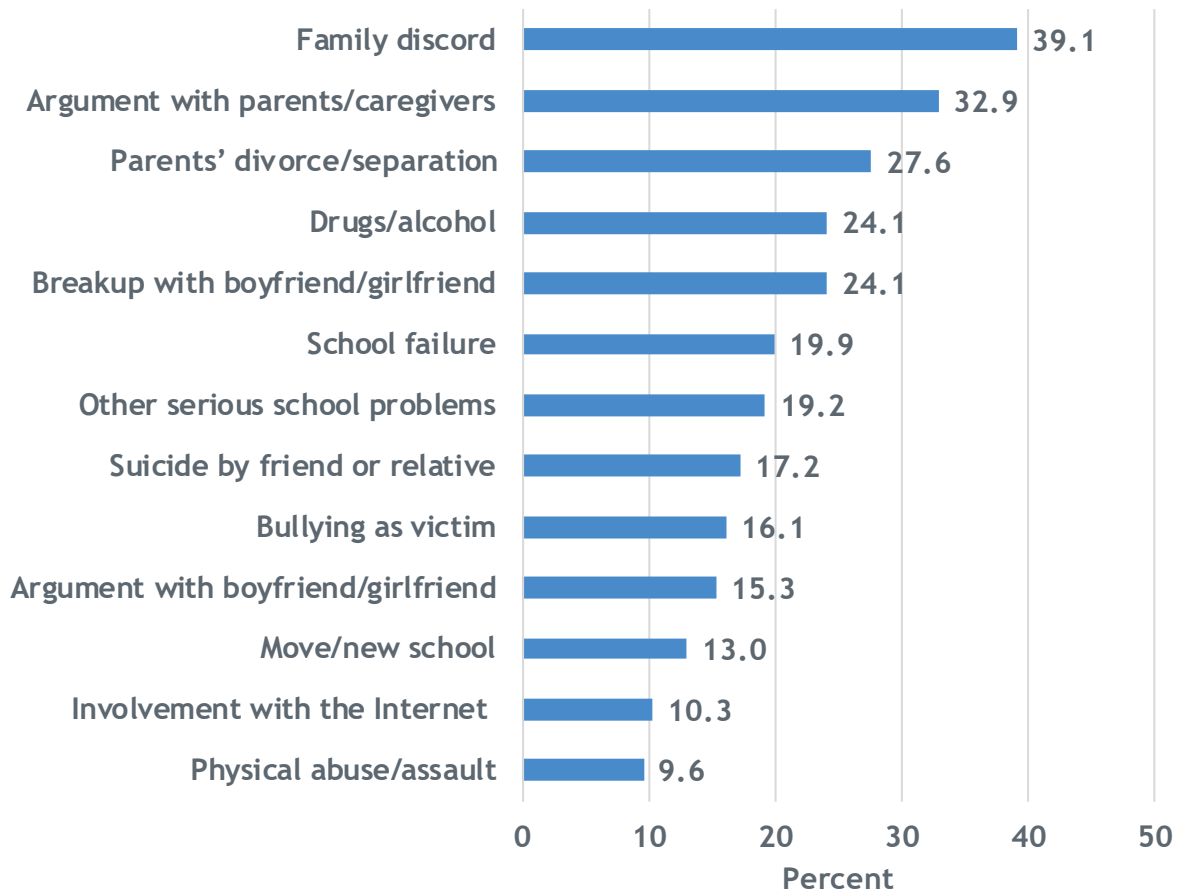
**Figure 5. Selected circumstances for deaths by suicide occurring in Colorado among youth ages 10-17, 2013-2017 (n=261)**



CFPS also collects information on acute or cumulative personal crises that may have contributed to these deaths. From 2013-2017, the most common personal crisis identified for youth suicide deaths was family discord

(39.1 percent, n=102), followed by arguments with parents/caregivers (32.9 percent, n=86), parents’ divorce or separation (27.6 percent, n=72) and drug or alcohol use (24.1 percent, n=63) (Figure 6).

**Figure 6. Selected acute or cumulative personal crises preceding death for deaths by suicide occurring in Colorado among youth ages 10-17, 2013-2017 (n=261)**



Child maltreatment includes physical, sexual and emotional abuse, as well as neglect. Experiences of child maltreatment have a large impact on health throughout the lifespan<sup>24</sup> and are associated with youth suicide.<sup>25</sup> 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.

Nearly 32 percent (n=82) of youth ages 10-17 who died by suicide experienced child maltreatment as a victim. Among those with a known child maltreatment history, 20.4 percent (n=37) experienced emotional abuse, 18.2 percent (n=33) experienced physical abuse and 16.6

percent (n=30) experienced neglect (data not shown). Information on history of child maltreatment was missing or unknown for 30.7 percent (n=80) of deaths by suicide among Colorado youth. Among Colorado youth who died by suicide, 49.8 percent (n=130) had received prior mental health services, 30.7 percent (n=80) were receiving mental health services at the time of their death and 21.2 percent (n=55) were on medications for mental illness. Of the youth who died by suicide, 9.2 percent (n=24) had issues preventing them from receiving mental health services (data not shown). Review teams most commonly identified issues related to 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.<sup>26</sup>

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

Sasha Mintz, Child Fatality Prevention System Epidemiologist | [sasha.mintz@state.co.us](mailto:sasha.mintz@state.co.us)



---

## REFERENCES

1. Office of Health Equity, Colorado Department of Public Health and Environment, Statement on structural inequity. Retrieved from [www.colorado.gov/pacific/cdphe/statement-on-structural-inequity](http://www.colorado.gov/pacific/cdphe/statement-on-structural-inequity).
2. Bailey, Z. D., Krieger, N., Agénor, M., Graves, J., Linos, N., & Bassett, M. T. (2017). Structural racism and health inequities in the USA: evidence and interventions. *The Lancet*, 389(10077), 1453-1463.
3. Pager, D., & Shepherd, H. (2008). The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets. *Annual Review of Sociology*, 34, 181-209.
4. Williams, D. R., & Collins, C. (2016). Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Reports*, 116(5), 404-16.
5. Williams, D. R., & Collins, C. (2016). Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Reports*, 116(5), 404-16.
6. Collins, C. A., & Williams, D. R. (1999). Segregation and mortality: the deadly effects of racism?. In *Sociological Forum*, 14(3), 495-523. Kluwer Academic Publishers-Plenum Publishers.
7. Larson, N. I., Story, M. T., & Nelson, M. C. (2009). Neighborhood environments: disparities in access to healthy foods in the US. *American journal of preventive medicine*, 36(1), 74-81.
8. White, K., Haas, J. S., & Williams, D. R. (2012). Elucidating the role of place in health care disparities: the example of racial/ethnic residential segregation. *Health Services Research*, 47(3pt2), 1278-1299.
9. Acevedo-Garcia, D., Lochner, K. A., Osypuk, T. L., & Subramanian, S. V. (2003). Future directions in residential segregation and health research: a multilevel approach. *American journal of public health*, 93(2), 215-221.
10. Collins, C. A., & Williams, D. R. (1999, September). Segregation and mortality: the deadly effects of racism?. In *Sociological Forum* (Vol. 14, No. 3, pp. 495-523). Kluwer Academic Publishers-Plenum Publishers.
11. King, M. (2017). *Under The Hood: Revealing Patterns Of Motor Vehicle Fatalities In The United States*. Publicly Accessible Penn Dissertations. 2396. Retrieved on June 19, 2019 from: [repository.upenn.edu/edissertations/2396](http://repository.upenn.edu/edissertations/2396).
12. Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999- 2017 on CDC WONDER Online Database, released December, 2018. Data are from the Multiple Cause of Death Files, 1999-2017, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/ucd-icd10.html> on May 2, 2019 10:33:26 AM.
13. Office of Health Equity, Colorado Department of Public Health and Environment, Health Inequities Fact Sheet 2019: Latinx Coloradans Fact Sheet. Retrieved from: [drive.google.com/file/d/1z1b15A9hGaRxxv4XTTa9BiPnz5lwjvfr/view](https://drive.google.com/file/d/1z1b15A9hGaRxxv4XTTa9BiPnz5lwjvfr/view).
14. Rhodes, A. E., Boyle, M. H., Bridge, J. A., Sinyor, M., Links, P. S., Tonmyr, L., ... Szatmari, P. (2014). Antecedents and sex/gender differences in youth suicidal behavior. *World Journal of Psychiatry*, 4(4), 120-132.
15. Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999- 2017 on CDC WONDER Online Database, released December, 2018. Data are from the Multiple Cause of Death Files, 1999-2017, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/ucd-icd10.html> on May 2, 2019 10:33:26 AM.
16. Suicide Prevention Resource Center. (2013). *Suicide among racial/ethnic populations in the U.S.: Whites*. Newton, MA: Education Development Center, Inc.
17. Suicide Prevention Resource Center. (2013). *Suicide among racial/ethnic populations in the U.S.: Hispanics*. Waltham, MA: Education Development Center, Inc.
18. Zayas, L. H., & Pilat, A. M. (2008). Suicidal behavior in Latinas: Explanatory cultural factors and implications for intervention. *Suicide and Life-Threatening Behavior*, 38(3), 334-342.
19. Suicide Prevention Resource Center. (2013). *Suicide among racial/ethnic populations in the U.S.: Hispanics*. Waltham, MA: Education Development Center, Inc.
20. Wilkins, N., Tsao, B., Hertz, M., Davis, R., & Klevens, J. (2014). *Connecting the Dots: An Overview of the Links Among Multiple Forms of Violence*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention Oakland, CA: Prevention Institute.
21. Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999- 2017 on CDC WONDER Online Database, released December, 2018. Data are from the Multiple Cause of

---

## REFERENCES

- Death Files, 1999-2017, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/ucd-icd10.html> on May 2, 2019 10:33:26 AM.
22. Bridge, J. A., Greenhouse, J. B., Sheftall, A. H., Fabio, A., Campo, J. V., & Kelleher, K. J. (2010). Changes in suicide rates by hanging and/or suffocation and firearms among young persons aged 10-24 years in the United States: 1992-2006. *Journal of Adolescent Health, 46*(5), 503-505.
23. Grossman, D. C., Mueller, B. A., Riedy, C., Dowd, M. D., Villaveces, A., Prodzinski, J., ... & Harruff, R. (2005). Gun storage practices and risk of youth suicide and unintentional firearm injuries. *Jama, 293*(6), 707-714.
24. Buckingham, E. T., & Daniolos, P. (2013). Longitudinal outcomes for victims of child abuse. *Current Psychiatry Reports, 15*(2), 342.
25. Miller, A. B., Esposito-Smythers, C., Weismore, J. T., & Renshaw, K. D. (2013). The relation between child maltreatment and adolescent suicidal behavior: a systematic review and critical examination of the literature. *Clinical Child and Family Psychology Review, 16*(2), 146-172.
26. Moskos, M. A., Olson, L. , Halbern, S. R. & Gray, D. (2007). Utah youth suicide study: barriers to mental health treatment for adolescents. *Suicide and Life-Threatening Behavior, 37*, 179-186.