

CHILD FATALITY PREVENTION SYSTEM: POISONING & OVERDOSE DEATH 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 poisoning and overdose death 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
<p>Limited access to Level 1 trauma centers and mental and behavioral health services.⁴</p> <p>Increased stigma associated with mental illness and seeking help.⁵</p> <p>Longer response times by emergency medical services.⁶</p> <p>→ These and other factors contribute to higher death rates in rural areas, including suicide⁷ and passenger vehicle deaths.⁸</p>	<p>Racism, discrimination, and historical trauma.^{9,10}</p> <p>Limited access to high-quality education,¹¹ employment opportunities,¹² healthy foods,¹³ culturally traditional foods,¹⁴ and health care.¹⁵</p> <p>Chronic stress.¹⁶</p> <p>→ 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</p>	<p>Discrimination, stigma, and bias.²⁰</p> <p>Rejection from family, friends, and community.²¹</p> <p>Non-inclusive school curricula and anti-harassment policies.²²</p> <p>Insufficient access to LGBTQ+-informed health care.²³</p> <p>→ This chronic social stress that LGBTQ+ children and youth experience influences health across the lifespan, including higher rates of suicide²⁴ and substance use.²⁵</p>

Overview of Poisoning & Overdose Deaths

From 2016-2020, there were 52 poisoning and overdose deaths among infants, children, and youth in Colorado. **Poisoning and overdose deaths include those of accidental and undetermined manners of death, as determined by the coroner, not those that are intentionally caused such as those deaths that are the result of homicide or suicide.** They can include deaths due to overdose by prescription, illicit, or over-the-counter drugs. They may also result from poisoning with other substances, such as household cleaners, carbon monoxide, plants, or pesticides.

Figure 1 demonstrates the number of poisoning and overdose deaths by year. These deaths ranged from a low of 3 in 2018 to a high of 26 in 2020 and averaged about 10 deaths per year for the period. The rate increased significantly across the period, from 0.6 per 100,000 in 2016 to 2.1 per 100,000 in 2020. The overall rate of poisoning and overdose deaths for the

period was 0.8 per 100,000 population, significantly higher than the national rate over the same period (0.4 per 100,000 population).²⁶

Figure 1. Poisoning and overdose deaths occurring among those under age 18 in Colorado by year, 2016-2020 (n=52)



The recent rise in fentanyl-related deaths.

Prior to 2019, none of the unintentional overdose deaths that occurred in Colorado among those under age 18 involved fentanyl. However, in 2019, 33.3% (n=4) of unintentional overdose deaths reviewed by CFPS involved fentanyl, and this further increased to 76.9% (n=20) in 2020. This is consistent with national data showing rises in fentanyl-involved deaths, and CFPS will be monitoring this trend closely.²⁷

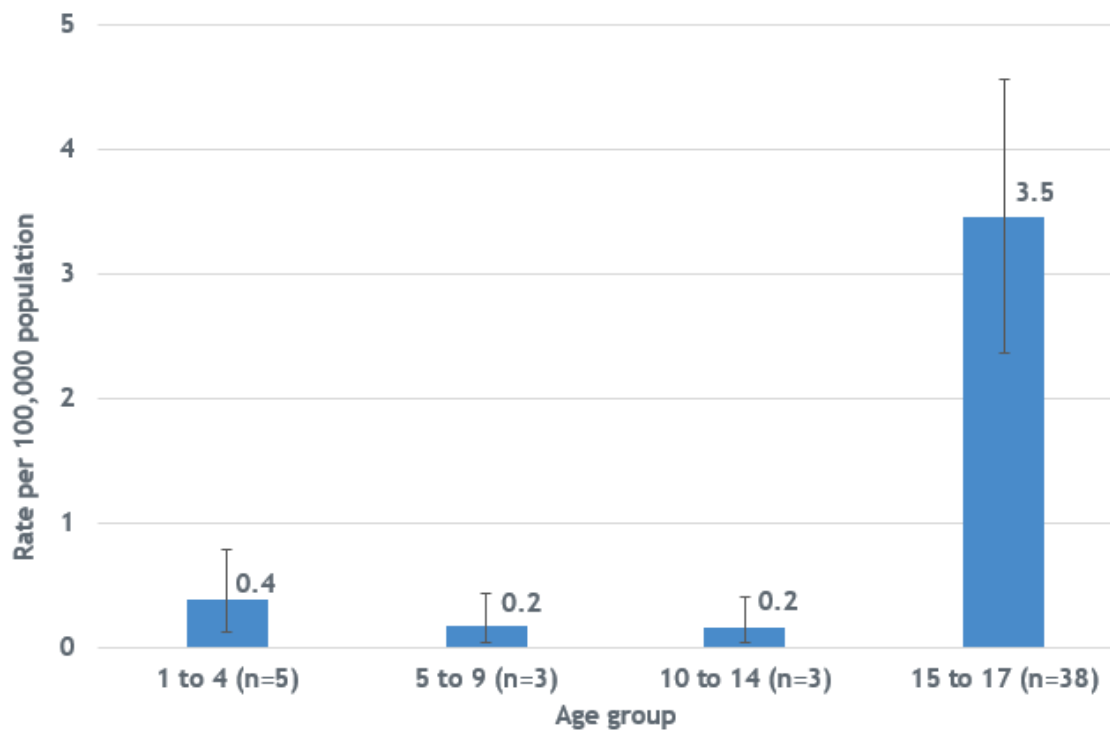
Demographic Characteristics

Age

The majority of poisoning and overdose deaths occurred among youth ages 15-17 (75.0%, n=39), while 9.6% (n=5) were children ages 1-4, 5.8% (n=3) were ages 5-9, and 5.8% (n=3) were youth ages 10-14. Too few deaths occurred among those under age 1 to report in accordance with applicable privacy standards. The rate of poisoning and overdose deaths among youth ages 15-17 was 3.5 per 100,000 population, significantly higher than other age groups (Figure 2).

The focus of this brief is poisoning or overdose deaths among those under age 18. Particularly for youth ages 15-17, the stressors and contributing factors that lead to overdose may continue into young adulthood. The rate of overdose deaths for Colorado young adults ages 18-24 (16.6 per 100,000 population) is nearly five times the rate for Colorado youth ages 15-17.²⁸ It can be beneficial, from an overdose prevention perspective, to consider both youth and young adults when interpreting data and implementing overdose prevention strategies.

Figure 2. Age-specific rates of poisoning and overdose deaths occurring in Colorado among Colorado residents under age 18 by age group, 2016-2020 (n=51)



*Error bars represent 95% confidence limits for rates.

Sex

Among those who died of poisoning or overdose, 63.5% (n=33) were males. The rate of poisoning and overdose death among males (1.0 per 100,000 population) was higher than among females (0.6 per 100,000 population), but this difference was not statistically significant.

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).²⁹ 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.^{30,31} 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.³² 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.³² This structural stigma constrains LGBTQ+ children and youth, placing them at the margins, and making them more likely to experience poor health and wellbeing.³²

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.^{35,36} 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.³⁷ It is well-researched that LGBTQ+ children and youth experience increased substance use and abuse when compared to their heterosexual and cisgender peers.^{38,39} Research shows that disparities in substance use are even greater in areas with high community-level stigma.⁴⁰ However, it is also well-documented that these disparities are substantially reduced for LGBTQ+ children and youth who live in supportive and affirming communities.⁴¹

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 often do not 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 medicolegal 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.^{42,43}

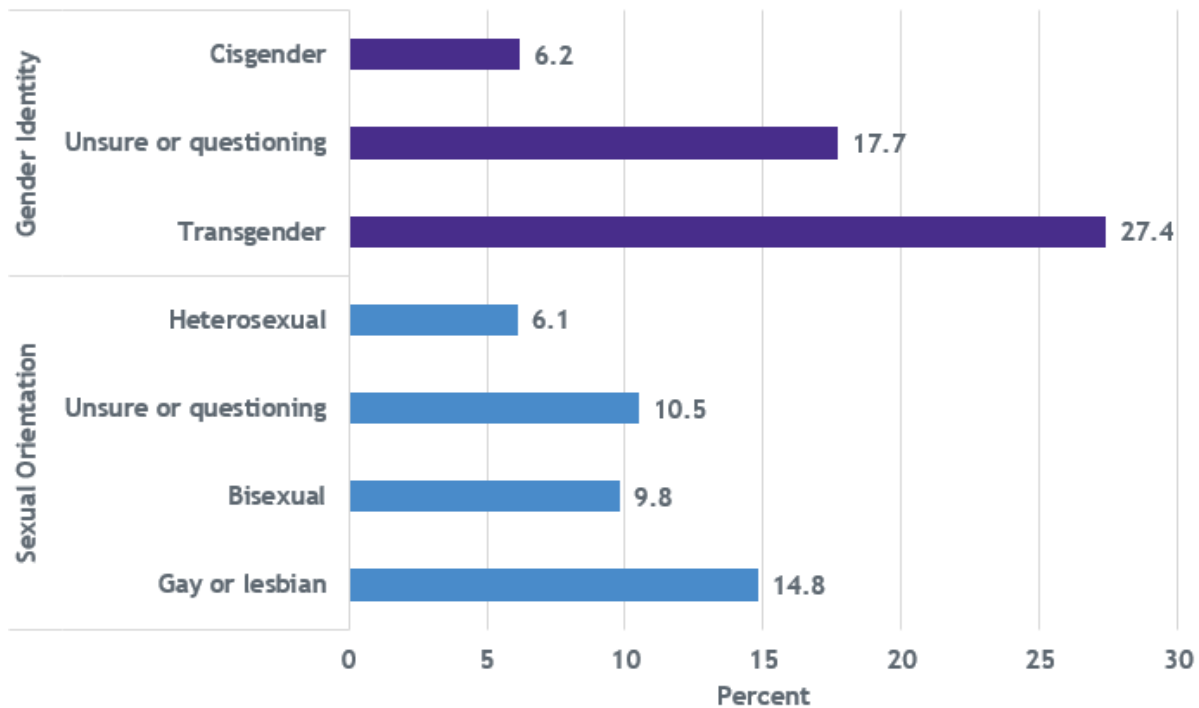
It is worth noting that during the time period when deaths that occurred from 2016-2020 were being reviewed, questions asking about sexual orientation and gender identity were inconsistently available in the National Fatality Review-Case Reporting System (NFR-CRS), the data tool that CFPS uses. In April 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.

Although CFPS faces challenges in collecting data about sexual orientation and gender identity, there are other data sources in Colorado to provide information about substance use 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 of HKCS is to better understand youth health and the factors that help young people make healthy choices.⁴⁴ The HKCS asks high school students to self-identify as lesbian, gay, bisexual (LGB), 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 substance misuse is a bigger risk and concern for LGBTQ+ youth in Colorado when compared to heterosexual and cisgender youth (Figure 3).⁴⁵ For more information about HKCS and additional substance use data, please visit cdphe.colorado.gov/healthy-kids-colorado-survey-data-tables-and-reports.

Figure 3. High school students in Colorado who took prescription pain medicine without a doctor’s prescription in the last month by sexual orientation and gender identity, 2019



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

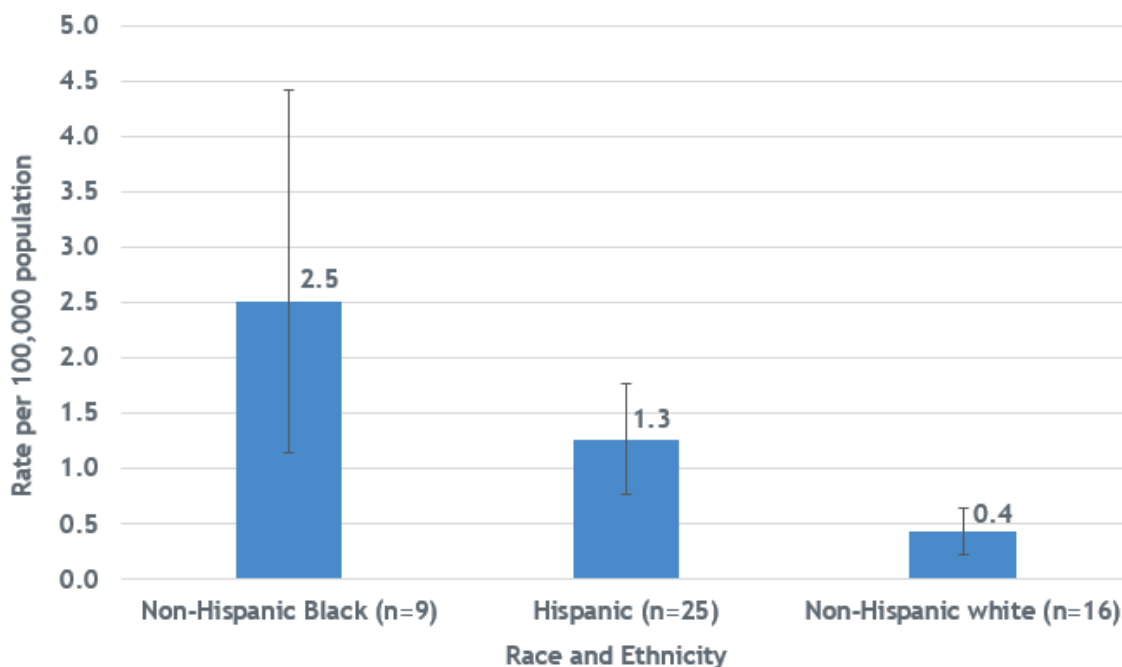
Race and Ethnicity

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.⁴⁶ Additionally, “Latinx” and “Chicanx” are increasingly used gender inclusive terms, respecting those with a non-binary gender identity.^{47,48} 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.⁴⁹

Of the 52 infants, children, and youth who died from poisoning or overdose, 50.0% (n=26) were Hispanic followed by non-Hispanic white (30.8%, n=16) and non-Hispanic Black (17.3%, n=9).

Colorado observed a significant disparity in the rate of poisoning and overdose deaths by race and ethnicity (Figure 4). The rate of poisoning or overdose among non-Hispanic Black infants, children, and youth was 5.8 times higher (2.5 per 100,000 population) than for non-Hispanic white (0.4 per 100,000 population). Additionally, the rate among Hispanic infants, children, and youth was 2.9 times higher (1.3 per 100,000 population) than for non-Hispanic white.

Figure 4. Rates of poisoning and overdose deaths occurring in Colorado among Colorado residents under age 18 by race and ethnicity, 2016-2020 (n=51)



*Error bars represent 95% confidence limits for rates.

The causes for racial and ethnic disparities in substance use are complex. The disparities result from historically rooted patterns of racism and discrimination, as well as persistent structural racism.

People of color who self-report experiencing unfair treatment, racism, and discrimination across the lifespan have a greater risk for poor mental and physical health. The health effects of racial discrimination are many, and include increased substance use.⁵⁰ Substance use may serve as a means of coping with increased levels of stress from experiencing racial discrimination.⁵¹ Increased chronic stress across the lifespan is further compounded by community-level inequities, such as poverty. People of color are disproportionately exposed to neighborhood poverty, with data showing that 16.8% of Black and 14.8% of Hispanic Coloradoans live below the poverty level, compared to 7.7% of non-Hispanic white Coloradans.⁵²

In addition to neighborhood poverty, conditions created by racial residential segregation can influence substance use. Racial residential segregation is largely driven by discriminatory federal, state, and local policies, such as redlining, that create unjust geographic divisions among racial and ethnic groups.⁵³ Racial segregation leads to neighborhood disadvantage by concentrating neighborhood poverty, increasing exposure to environmental stressors such as air pollutants, creating barriers to and fewer opportunities for a healthy lifestyle, limiting access to health services, and increasing housing and food insecurity.⁵⁴ The consequences of residential segregation resulting from historical practices like redlining continue to reverberate throughout communities of color today.

Research suggests that racially segregated neighborhoods impact substance use behaviors of residents, particularly in predominantly Black neighborhoods.⁵⁵ Communities of color residing in segregated neighborhoods are disproportionately focused on by alcohol advertisers and have higher densities of retail alcohol outlets.^{56,57} Overall, research has found that neighborhood disadvantage, caused by structural racism, has contributed to substance use, heavy drinking, and alcohol-related problems.^{58,59,60}

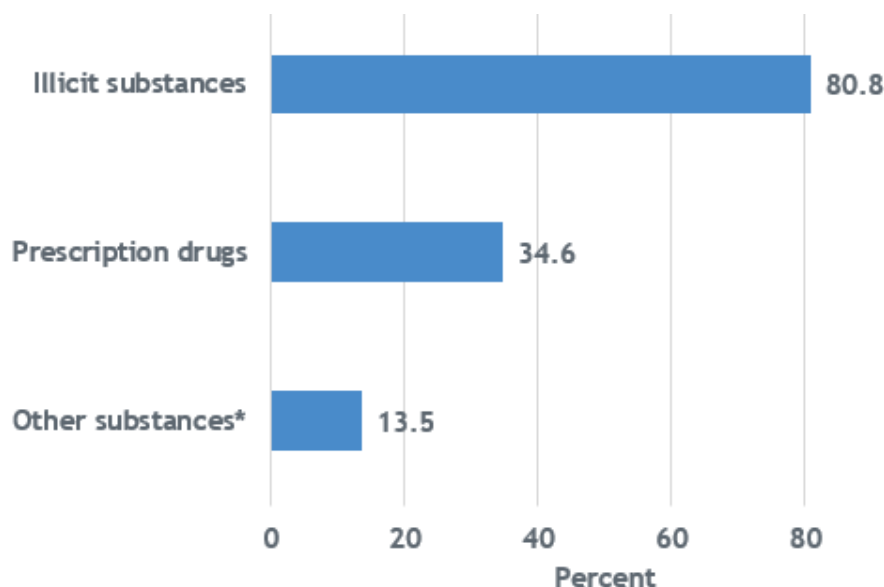
Based on the research presented in this section, individual-level behaviors do not fully explain racial/ethnic disparities in poisoning and overdose deaths. These disparities result from the social conditions facilitated by structural racism and discrimination.

Poisoning & Overdose Death Circumstances

Among the 52 poisoning and overdose deaths occurring from 2016-2020, 80.8% (n=42) involved illicit substances, including alcohol and other drugs, such as fentanyl, heroin, cocaine, synthetic cannabinoids, or methamphetamine (Figure 5). Following illicit substances, 34.6% (n=18) involved prescription drugs and 13.5% (n=7) involved other substances, including over-the-counter drugs and acute water intoxication. These substance categories are not

mutually exclusive as more than one substance could have been identified at the time of investigation as contributing to the death.

Figure 5. Poisoning and overdose deaths occurring among those under age 18 in Colorado by substance category, 2016-2020 (n=52)



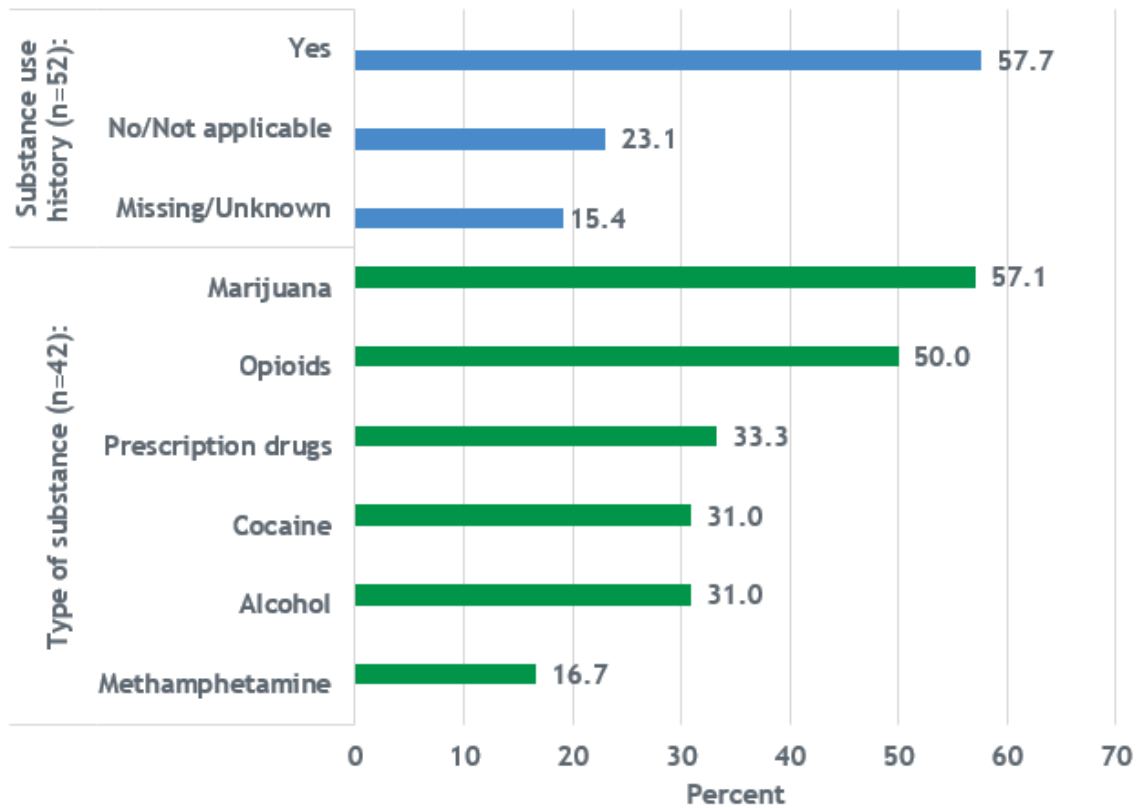
*Other substances include over-the-counter drugs and acute water intoxication.

Among overdose deaths involving illicit substances, 69.1% (n=29) involved opioids (e.g., fentanyl, oxycodone), 33.3% (n=14) involved cocaine, 16.7% (n=7) involved alcohol, 9.5% (n=4) involved heroin, and 31.0% (n=13) involved other illicit substances such as methamphetamine. These illicit substance categories are not mutually exclusive as more than one substance could have been involved in an overdose death.

Among overdose or poisoning deaths involving prescription drugs, 33.3% (n=6) involved opioid pain relievers including methadone (16.7%, n=3) and 22.2% (n=4) involved antidepressants. About 44.4% (n=8) of deaths involved other prescription drugs such as benzodiazepines. These prescription drug categories are not mutually exclusive as more than one prescription medication class could have been involved in an overdose death.

Figure 6 displays the types of substances previously used or abused by those who died of poisoning or overdose deaths. Of the 52 poisoning or overdose deaths, 57.7% (n=30) were indicated to have used or abused substances previously. Among those for whom a history of substance use or abuse was known (80.8%, n=42), 57.1% (n=24) had previously used or abused marijuana, 50.0% (n=21) had previously used or abused opioids, 33.3% (n=14) had previously used or abused prescription drugs, 31.0% (n=13) had previously used or abused cocaine, and 31.0% (n=13) had previously used or abused alcohol. Opioids are a category that most likely represents both prescription (diverted and otherwise) and illicit opioids (i.e. heroin).

Figure 6. Poisoning and overdose deaths occurring among those under age 18 in Colorado by substance use history, 2016-2020



CFPS review teams also collect information on the storage of substances causing poisoning and overdose deaths in Colorado. Best practice for safe storage differs by type of substance. The CDC recommends that all medicines and household products (e.g., chemical cleaners, pesticides) be stored up, away, and out of sight in a cabinet where a child cannot reach them.⁶¹

Too few deaths occurred where the substance was stored in a secure, closed cabinet to report in accordance with applicable privacy standards. Of the 52 poisoning and overdose deaths from 2016-2020, most were stored in unsecured locations or were not stored and rather were found in an open area. Storage information was missing or unknown for 63.5% (n=33) of these deaths,

Conclusion

From 2016 to 2020, poisoning and overdose was the eighth leading cause of death reviewed by CFPS among those under age 18 in Colorado. The highest poisoning and overdose rates were observed among youth aged 15-17 and among non-Hispanic Black and Hispanic infants, children, and youth. The majority of deaths involved illicit substances, followed by prescription drugs and other substances. Additionally, over half of young people who died by poisoning or overdose were known to have previously used or abused substances. Upstream prevention strategies that address social and structural inequities can reduce poisoning and overdose deaths among infants, children, and youth. To learn more about the prevention strategies recommended by CFPS, view the 2022 Legislative Report (www.cochildfataalityprevention.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*](#).”

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