COLORADO

Child Fatality Prevention System

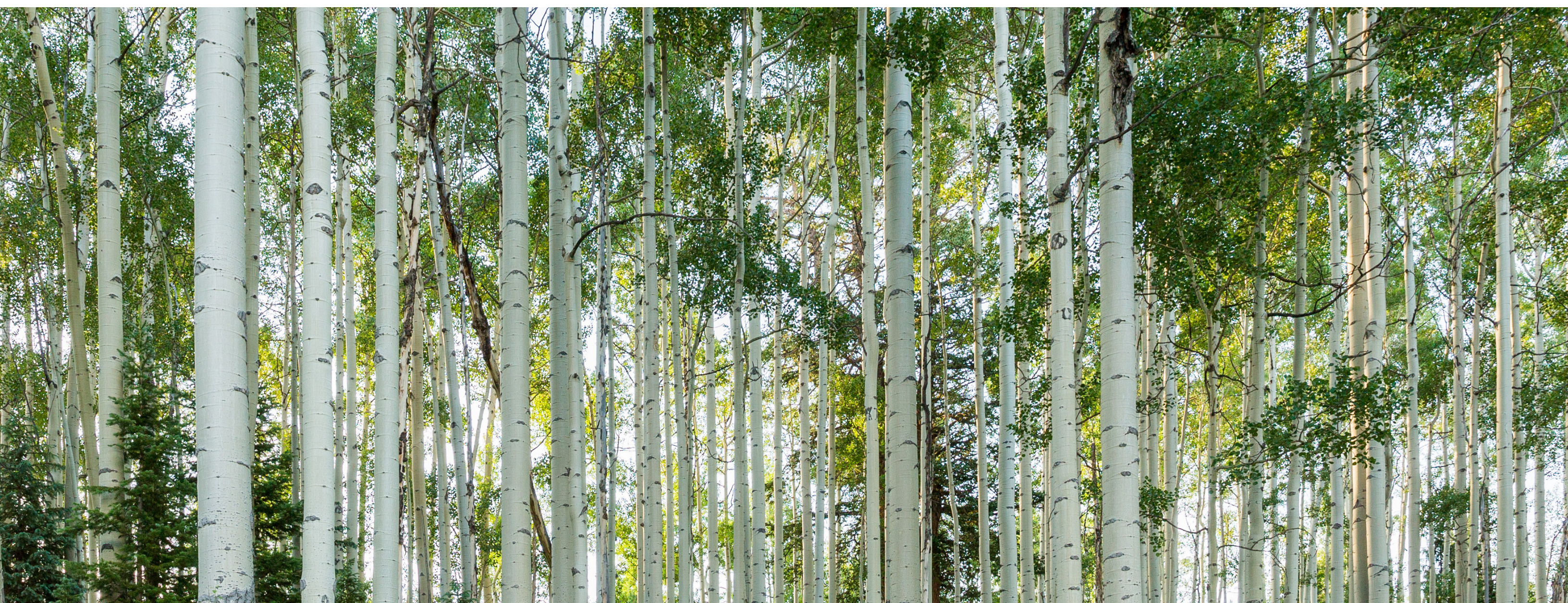
Sudden Unexpected Infant Death Data, 2012 - 2016

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 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 the 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 2012 and 2016. 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/transport-related, child maltreatment, sudden unexpected infant death (SUID) and suicide. During Fiscal Year 2018, local teams reviewed deaths that occurred in 2016.

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 of the state. These criteria are different from other reports of child fatality data and in 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 SUID data from CFPS. For more details on CFPS data, access cause-specific data briefs and an interactive data dashboard here: www.cochildfatalityprevention.com/p/reports.html.



Sudden Unexpected Infant Death Data, 2012-2016

Overview of SUID

Sudden unexpected infant death (SUID), also referred to as sleep-related infant deaths, are deaths of infants under one year of age that occur suddenly and unexpectedly in sleep environments. SUID include sudden infant death syndrome (SIDS), accidental suffocation and strangulation in bed, positional asphyxia and overlays, as well as deaths occurring in sleep environments that are due to undetermined causes.

From 2012-2016, CFPS identified and reviewed 225 SUID, representing 13.0 percent of all infant deaths (under 1 year of age) in Colorado for the period. The annual crude rate of SUID occurring in Colorado among residents remained stable over the period from 2012-2016 (Table 1). Consistent with national trends, the majority of SUID occurred among those under 5 months of age.[1] Colorado also observed a significant disparity in the rate of SUID by race and ethnicity. The rate of SUID among non-Hispanic Black or African American decedents was 3.4 times higher (199.9 per 100,000 live births) than for non-Hispanic White decedents (58.7 per 100,000 live births), which is also consistent with national data.[2] The reason that some families lose infants to SUID is not the result of parents or caregivers' behaviors, but due to social factors such as where they live, how much money or education they have, access to care and how they are treated because of their racial or ethnic backgrounds. Research supports the impact of these factors on health and wellbeing.[3]

Table 1. Crude rate of sudden unexpected infant death (SUID) occurring in Colorado among Colorado residents by year, 2012-2016.[1]

Year of Death	n	Live Births	Rate*	95% Confidence Interval	
				Lower Limit	Upper Limit
2012-2016	217	329,189	65.9	57.2	74.7
2012	44	65,188	67.5	47.6	87.4
2013	40	65,004	61.5	42.5	80.6
2014	51	65,817	77.5	56.2	98.7
2015	35	66,567	52.6	35.2	70.0
2016	47	66,613	70.6	50.4	90.7

[1]Per 100,000 live births among residents in Colorado, 2012-2016.
Data sources: Child Fatality Prevention System and Vital Statistics Program, Colorado Department of Public Health and Environment.

SUID Risk Factors

The American Academy of Pediatrics (AAP) developed recommendations to help reduce the risk of SUID.[4] The AAP updated these recommendations in fall 2016; however, nearly all of the SUID captured for this data brief occurred prior to the release of the new recommendations and the updated recommendations included few changes.[5] The 2011 recommendations, listed below, were used for the purpose of this report.

Level A Recommendations:

- Back to sleep for every sleep.
- Use a firm sleep surface.
- Room-sharing without bed-sharing is recommended.
- Keep soft objects and loose bedding out of the crib.
- Pregnant women should receive regular prenatal care.
- Avoid smoke exposure during pregnancy and after birth.
- Avoid alcohol and illicit drug use during pregnancy and after birth.
- Breastfeeding is recommended.
- Consider offering a pacifier at nap time and bedtime.
- Avoid overheating.
- Do not use home cardiorespiratory monitors as a strategy for reducing the risk of SIDS.
- Expand the national campaign to reduce the risks of SIDS to include a major focus on the safe sleep environment and ways to reduce the risks of all sleep-related infant deaths, including SIDS, suffocation, and other accidental deaths. Pediatricians, family physicians and other primary care providers should actively participate in this campaign.

Although the availability sleep environment data varies by case, Table 2 indicates none of the 225 infants who died between 2012 and 2016 met all of the AAP's Level A Recommendations for a safe infant sleeping environment.

Table 2. Adherence to American Academy of Pediatrics 2011 Safe Infant Sleeping Environment Recommendations for SUID in Colorado, 2012-2016.[1]

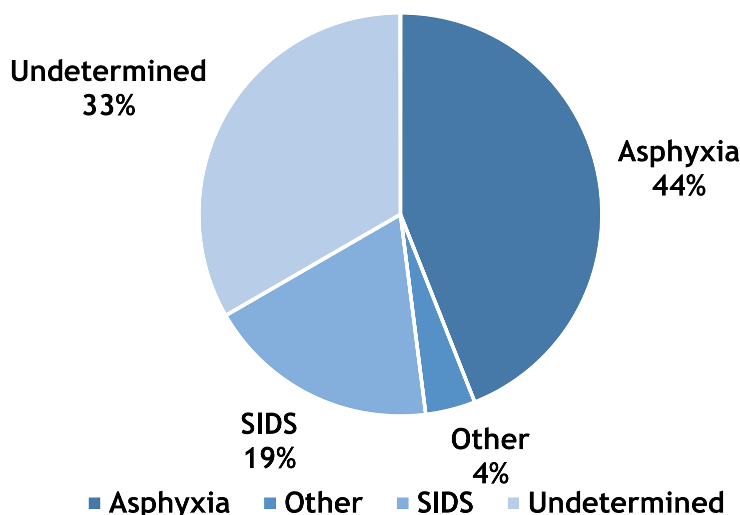
American Academy of Pediatrics 2011 Recommendation	Satisfied recommendation		Did not satisfy recommendation		Missing or unknown	
	n	Percent	n	Percent	n	Percent
All AAP recommendations satisfied	0	0.0	225	100.0	0	0.0
Infant and sleep environment recommendations						
Back to sleep for every sleep	127	56.4	53	23.6	39	17.3
Use a firm sleep surface	46	20.4	172	76.4	*	*
Room-sharing without bed-sharing is recommended	21	9.3	188	83.6	10	4.4
Keep soft objects and loose bedding out f the sleep environment	47	20.9	172	76.4	6	2.7
Consider offering a pacifier at nap time and bedtime	17	7.6	155	68.9	47	20.9
Caregiver-related recommendations						
Pregnant women should receive regular prenatal care (9 or more visits)	109	48.4	79	35.1	37	16.4
Breastfeeding is recommended	166	73.8	31	13.8	28	12.4
Avoid smoke exposure during pregnancy and after birth	69	30.7	95	42.2	61	27.1
Avoid alcohol or illicit drug use during pregnancy and after birth	176	78.2	49	21.8	0	0.0

*Data points with fewer than 3 observations are suppressed.
[1]Task force on Sudden Infant Death Syndrome (2011). Pediatrics (128), 1030-1039.
Data source: Child Fatality Prevention System, Colorado Department of Public Health and Environment.

SUID Investigative Circumstances

Figure 1 demonstrates the proportion of SUID occurring in Colorado by mechanism of death. Among the 225 SUID identified from 2012-2016, 44.0 percent (n=99) were attributed to asphyxia. This category includes accidental suffocation and strangulation in bed (ASSB), overlays and wedging. Of the remaining mechanisms, 33.3 percent (n=75) were attributed to undetermined causes, and 18.7 percent (n=42) of the remaining deaths fell under the criteria for SIDS. Nationally, and in Colorado, the rate of SIDS has been decreasing since the early 1990s, while the rates of SUID attributed to undetermined causes and ASSB have increased.[1,5] Improvements in investigations, a more thorough understanding of case definitions for these mechanisms of death and the collection of more detailed information about safe sleep circumstances have driven the changes in these rates.

Figure 1. SUID occurring in Colorado by cause category, 2012-2016 (n=225)



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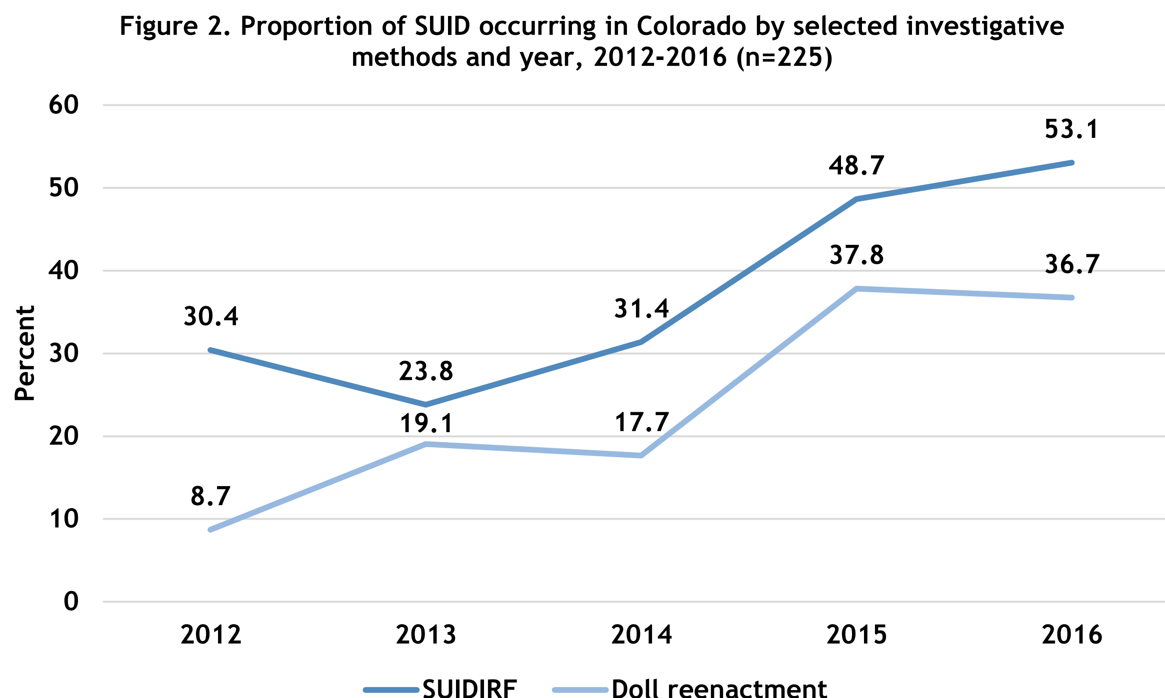
In 1996, the Centers for Disease Control and Prevention developed the Sudden Unexplained Infant Death Investigation Reporting Form (SUIDIRF) to aid in the investigation and understanding of SUID.[7] For the period, 95.1 percent (n=214) of all SUID had a death scene investigation. The SUIDIRF was used in 37.3 percent (n=84) of the investigations and 23.6 percent (n=53) of investigations included a scene reenactment with a doll (data not shown). Figure 2 demonstrates an trend toward both increasing utilization of the SUIDIRF and doll reenactments as part of death scene investigations for SUID in Colorado and suggests an increasing awareness of the utility of these tools in enhancing a statewide understanding of these events.

Figure 2. Proportion of SUID occurring in Colorado by selected investigative methods and year, 2012-2016 (n=225)



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7. Centers for Disease Control and Prevention. (1996). *Guidelines for death scene investigation of sudden, unexplained infant deaths: recommendations of the interagency panel on sudden infant death syndrome*. MMWR, 45 (No. RR-10).

For more information about CFPS data, please contact the CFPS Support Team at the Colorado Department of Public Health and Environment: support@cfps.freshdesk.com