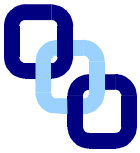

Colorado Child Fatality Prevention System

Colorado Child Fatality Prevention System

Annual Report
2010

To the Governor,
Health and Human Services Committees and
Judiciary Committees of the
House of Representatives and the Senate of the
Colorado General Assembly

Document Information

Title:	Colorado Child Fatality Prevention System 2010 Annual Report
Submitted By:	The members of the Colorado State Child Fatality Prevention Review Team (See Attachment One for a list of members)
Subject:	A description of trends in child deaths reviewed by the Colorado Child Fatality Prevention Review Team and, as required in statute, specific recommendations for changes in laws or policies most likely to reduce child deaths in Colorado.
Statute:	Article 20.5 of Title 25 of the Colorado Revised Statutes
Date:	November 30, 2010

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Executive Summary

The Child Fatality Prevention Act (Article 20.5 of Title 25, Colorado Revised Statutes) established the Child Fatality Prevention System, a statewide, multidisciplinary, multi-agency effort to prevent child deaths. Although not codified in Colorado Revised Statues until 2005, the Child Fatality Prevention System Review Team (State Review Team) has been reviewing child deaths in Colorado since 1989. The purpose of these reviews is to describe trends and patterns of child death in Colorado and to identify prevention strategies. As mandated in statute, this report identifies specific policy recommendations to reduce child deaths in Colorado and provides an overview of programmatic accomplishments over the last year. Additionally, in order to describe the trends and patterns of child death in Colorado, this report presents aggregated case review findings from 1,262 child deaths that occurred during 2004-2006.

STATE REVIEW TEAM POLICY RECOMMENDATIONS

1. **Strengthen Colorado's graduated driver license law by: 1) increasing the minimum age for a learner's permit from 15 to 16; 2) increasing the minimum age for an intermediate license from 16 to 17; and 3) expand the restricted hours for intermediate drivers from between 12 a.m. and 5 a.m. to between 10 p.m. and 5 a.m.**
2. **Increase resources and support for the Colorado Children's Trust Fund to enhance communities' capacity to prevent child abuse and neglect.**
3. **Continue to support the Office of Suicide Prevention to enhance communities' capacity to address suicide and to provide suicide prevention resources, outreach, and training throughout Colorado.**
4. **Establish a statutory requirement that allows for primary enforcement of the seat belt law, making it possible for a driver to be stopped and issued a citation if anyone in the vehicle is not properly restrained.**

The State Review Team conducts comprehensive reviews of preventable child deaths. The National Center for Child Death Review defines a child's death as preventable if the community or an individual could reasonably have acted to change the circumstances resulting in death. Based on this definition, the State Review Team considers deaths due to child abuse/neglect, homicide, suicide, motor vehicle-related incidents and other accidental injuries to be preventable. Therefore, the State Review Team reviews all deaths of children ages 0-17 certified on death certificates as accidental, homicidal, suicidal, or undetermined manner. All natural manner deaths of children between 29 days old through 17 years are also reviewed. Deaths from natural causes in infants younger than 28 days old, which are defined as neonatal deaths, are only reviewed if the cause of death listed on the death certificate is sudden infant death syndrome (SIDS) or if there is something in the circumstances surrounding the death that indicates the death may have been preventable. Most neonatal deaths do not meet the State Review Team's definition of preventability and are not reviewed.

Sixty-two percent (1,262) of the 2,250 child deaths (ages 0-17) that occurred in Colorado between 2004 and 2006 met the State Review Team's criteria for review. The 988 deaths that were not reviewed were all natural manner, neonatal deaths. This report examines the key findings from 1,262 comprehensive case reviews by manner and cause.

2004-2006 Key Findings

Natural Deaths
Fifty-two percent (657) of the 1,262 reviews were from natural causes, including 109 deaths from sudden infant death syndrome (SIDS).

Accidental Deaths
Accidents, including unintentional injuries such as motor vehicle crashes, drowning, fires, falls, and poisoning accounted for 29.6 percent (374/1,262) of the cases reviewed. Motor vehicle-related incidents were the leading cause of accidental death among children in Colorado (63.9 percent). Motor vehicle occupant deaths comprised 77.4 percent (185/239) of motor vehicle related deaths. Twenty-six percent (47/185) of the motor vehicle occupant deaths were teen drivers. Fifty-nine percent (99/168) of the children who died in motor vehicle occupant crashes were not buckled in the proper restraint system (seat belt, car seat or booster seat) and another 9.5 percent (16/168) were using their restraint incorrectly. Drivers under age 18 caused 44.3 percent (82/185) of all the accidental child motor vehicle occupant fatalities reviewed by the State Review Team during this time period.

Suicide Deaths
Suicide accounted for 6.7 percent (85/1,262) of the deaths reviewed. Nearly three times as many males ages 10-17 died by suicide (61) than females (24). Forty-four percent (37/85) of children who died by suicide previously talked about suicide to friends or family members and 27.1 percent (23/85) were known to have attempted suicide in the past. At least 22.4 percent (19/85) of the youth had recently broken-up with a boyfriend or a girlfriend.

Homicide Deaths
The State Review Team reviewed 82 child homicides. A majority of these deaths occurred among children under 5 years old (59.8 percent). In 56.1 percent (46/82) of the cases the perpetrator was the child's primary caregiver.

Deaths of Undetermined Manner
Deaths are classified as undetermined manner when the investigation of the circumstances surrounding the death and examination through autopsy do not clearly identify the way in which the death occurred. Five percent (64/1,262) of the cases reviewed were classified as undetermined manner by Colorado coroners. The majority of undetermined child deaths occurred among infants under one year of age (60.9 percent).

Child Abuse and Neglect Deaths
The State Review Team identified 63 cases where the underlying cause of death was related to circumstances involving child abuse and/or neglect. Eighty-three different perpetrators caused or contributed to these deaths. Twenty-two percent (18/83) of the child abuse and/or neglect perpetrators were the biological mother's boyfriend.

Infant Sleep-Related Deaths
During clinical case reviews, the State Review Team identified 159 cases that occurred between 2004 and 2006 where an infant died in a sleep environment. Coroners classified 67.3 percent (107/159) of sleep-related infant deaths as natural manner due to SIDS. Sixteen percent (25/159) of these deaths were classified as accidental and 17 percent (27/159) were ruled undetermined manner. Bed-sharing was a significant factor identified in forty-six percent (73/159) of the infant deaths.

The State Review Team brings significant medical, psychosocial, legal and law enforcement expertise to the process of child fatality review. This expertise has been utilized over the last 20 years to develop recommendations for effective prevention strategies. **The State Review Team determined that 89 percent of the 2004-2006 child deaths classified as accidental, suicidal, homicidal, or undetermined manner were preventable, and is confident that child fatalities can be reduced in Colorado if the four recommendations made in this report are adopted.**

Colorado Child Fatality Prevention System
Annual Report

Introduction

The Child Fatality Prevention Act (Article 20.5 of Title 25, Colorado Revised Statutes) established the Child Fatality Prevention System, a statewide, multidisciplinary, multi-agency effort to prevent child deaths. The Child Fatality Prevention System Review Team (State Review Team) is required to report annually to the Governor, and to the Health and Human Services and Judiciary Committees of the House of Representatives and the Senate of the Colorado General Assembly. As mandated in statute, this report identifies specific policy recommendations to reduce child deaths in Colorado and provides an overview of programmatic accomplishments over the last year. Additionally, in order to describe the trends and patterns of child death in Colorado, this report presents aggregated case review findings from 1,262 child deaths that occurred during 2004-2006.

The Colorado Child Fatality Prevention System is housed at the Colorado Department of Public Health and Environment (CDPHE) in the Prevention Services Division's Injury, Suicide and Violence Prevention Unit. The State Review Team, a volunteer multidisciplinary committee composed of clinical and legal experts in child health and safety, works collaboratively with state staff to review deaths of children less than 18 years of age. Members of the State Review Team are experts in the fields of child abuse prevention, pediatrics, family law, death investigation, motor vehicle safety and sudden infant death syndrome (SIDS). The variety of disciplines involved and the depth of expertise provided by the State Review Team results in a comprehensive review process, allowing for a broad analysis of both contributory and preventive factors in each case of child death. The Child Fatality Prevention System's legislative mandate is included in Attachment One, and a list of the State Review Team members is provided in Attachment Two.

PART ONE: STATE REVIEW TEAM POLICY RECOMMENDATIONS

Although the Child Fatality Prevention System was not codified in statute until 2005, the Colorado Department of Public Health and Environment has been conducting reviews of child deaths since 1989. Over the years, the State Review Team has analyzed circumstance data from thousands of child deaths and identified hundreds of possible prevention strategies. In order to select the four policy recommendations included in this report, the State Review Team synthesized prevention strategies gathered from the analysis of many similar cases of child fatality over the last 20 years.

The State Review Team's decision to endorse the following recommendations was based on the review of aggregated circumstance data from 2004-2006 child deaths, as well as multidisciplinary expertise about the best strategies to protect the health and wellbeing of children. All four recommendations are in keeping with evidence-based practice and are cost-effective means of reducing child death rates in Colorado.

<u>Recommendation One</u>: Strengthen Colorado's graduated driver license law by: 1) increasing the minimum age for a learner's permit from 15 to 16; 2) increasing the minimum age for an intermediate license from 16 to 17; and 3) expand the restricted hours for intermediate drivers from between 12 a.m. and 5 a.m. to between 10 p.m. and 5 a.m.

Motor vehicle crashes are the leading cause of death for children ages 15-17. Data from the Child Fatality Prevention System shows that between 2004 and 2006, motor vehicle crashes accounted for 35.5 percent of all deaths in this age group. Drivers under age 18 caused 41.2 percent (82) of all the child motor vehicle fatalities reviewed by the State Review Team during this time period.

Colorado's graduated driver licensing (GDL) law was first enacted in 1999 to increase the amount of behind the wheel training necessary for beginning drivers. In 2005, the Colorado General Assembly passed additional components to the GDL law restricting the number of passengers that a minor driver can transport and prohibiting any minor driver who has held a license for less than one year from driving between midnight and 5 a.m. These passenger and curfew restrictions went into effect on July 1, 2005. Child fatality review data suggests that this piece of legislation may have been successful in reducing child fatalities. In 2004, before the law went into effect, 59 teenagers (ages 15-17), died in motor vehicle occupant crashes. There were 25 motor vehicle crash fatalities in this age group in 2005, as well as in 2006. This represents a 57.6 percent reduction in motor vehicle occupant fatalities among teens aged 15-17 in just one year.

Although Colorado's current GDL law is better than laws in many other states, it still has room for improvement. To date, no state has an optimal graduated licensing system. In order to be line with best practice, Colorado needs to: 1) increase the minimum age for a learner's permit from age 15 to 16; 2) increase the minimum age for an intermediate (restricted) license from age 16 to 17; and 3) expand the restricted hours for intermediate drivers to between 10 p.m. to 5 a.m.[1] The Insurance Institute for Highway Safety estimates that the combined effect of making these three changes would further reduce teen driver fatalities in Colorado by 34 percent.[2]

[1] National Highway Traffic Safety Administration (2008). *Graduated Drive Licensing System*. Retrieved from http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/Traffic%20Injury%20Control/Teen%20Driver/files/810888GradDriverLicense.pdf.

[2] Insurance Institute for Highway Safety (2009). *Graduated Driver Licensing*. Presentation given by Keli Braitman at the Colorado Child and Adolescent Motor Vehicle Symposium.

<u>Recommendation Two</u>: Increase resources and support for the Colorado Children's Trust Fund to enhance communities' capacity to prevent child abuse and neglect.

Clinical reviews of 2004-2006 child deaths identified 63 cases where the underlying cause of death was related to circumstances involving child abuse and/or neglect. The State Review Team has repeatedly identified the need for Nurturing Parenting and/or child development programs as strategies to improve the skills and knowledge of parents and caregivers.

The Colorado Children's Trust Fund (CCTF) is authorized in Colorado Statute within the Children's Code (C.R.S. 19-3.5-101) and was established in 1989 to prevent abuse and neglect among Colorado's children. The CCTF Board of Directors approves funds for programs that are evidence-based, replicable, and evaluation-ready. Currently, CCTF supports 19 Nurturing Parenting programs and 24 family resource centers throughout the state. Evaluation results from the past three years demonstrate that parents who attend the Nurturing Parenting Program experience statistically significant improvement across five areas known to predict/prevent child abuse.[3]

Due to record job losses, home foreclosures, and the recent decline in the financial markets in Colorado, community-based programs that provide family support and parent education services may be needed more than ever. Research indicates that economic and psychological stress related to both poverty and an unstable economic system at home is related to child abuse.[4] Funding for the Colorado Children's Trust fund should be maintained to help prevent abuse among Colorado children and to give parents the training to handle stressful situations.

<u>Recommendation Three</u>: Continue to support the Colorado Office of Suicide Prevention to enhance communities' capacity to address suicide and to provide suicide prevention resources, outreach, and training throughout Colorado.

Suicide is the second leading cause of death among children ages 10-17 in Colorado. Between 2004 and 2006, 85 children in this age group completed suicide. Over the years, the State Review Team has consistently identified the need for coordinated suicide prevention efforts and community-based programs that effectively provide education about the risk factors and warning signs associated with suicide.

Ten years ago, the Colorado General Assembly created the Office of Suicide Prevention (OSP) within the Colorado Department of Public Health and Environment to reduce the burden of suicide in Colorado. The OSP prevents suicide by building partnerships with local suicide prevention coalitions and funding community-based grantees to implement data driven, research-based prevention programs. The suicide rate in Colorado has decreased since the inception of the OSP nine years ago. From 1990 through 1998, the average suicide rate among children ages 10-17 in Colorado was 7.1/100,000. From 1999 through 2008, the average suicide rate for this age group dropped to 5.1/100,000, a 28.2 percent decline in the Colorado youth suicide death rate since just prior to the creation of the OSP. Given these data, which indicate a statistically significant decline in Colorado's youth suicide rate, efforts to coordinate suicide prevention and intervention statewide may be having an impact.

As a result of funding and coordination by the OSP, Colorado has the largest per capita network of trainers in the Applied Suicide Intervention Skills Training (ASIST) program in the United States. This training is

[3] Caroll, M.J. (2009). Colorado Children's Trust Fund 2008-2009 Nurturing Patenting AAPI Data Results. Evaluation Report
[4] Straus, M.A. & Smith, C. (1988). Family Patterns and Child Abuse, Research in Brief. National Criminal Justice No. 117804.

the leading suicide prevention training program in the world, and prepares individuals to recognize and effectively intervene with anyone in suicidal crisis.

Additionally, through *Project Safety Net*, OSP's youth-at-risk suicide prevention initiative, 150 Coloradans were trained to recognize and intervene with suicidal youth in 2008-2009. The goal of *Project Safety Net* is to build a safety net for adolescents and young adults who are at a heightened risk for suicidal behavior. This initiative, which is funded through a grant from the Substance Abuse and Mental Health Services Administration, focuses on gatekeeper training for adults working with adolescents in the juvenile justice and child welfare systems. More than 2,500 individuals in the participating counties were trained as gatekeepers during the first three years of *Project Safety Net*. Funded communities also developed referral protocols across all youth serving agencies that enable the efficient exchange of information about suicidal youth between youth-serving agencies. Thirty-five percent of those trained identified someone who was suicidal within six months of receiving the training and referred them to appropriate services. A three month follow-up survey of trainees showed that of the youth identified as suicidal by trainees, 81 percent were referred for services. Evaluation results also showed that training participants would benefit from additional training to refresh and refine their skills. This information led the developers of the training to create "booster" sessions, which may increase the long-term effectiveness of the training. Colorado's efforts and evaluation under *Project Safety Net* are influencing changes to training programs used all over the nation, including strengthening the ASIST training.

The OSP is charged by the state Legislature to serve as the lead entity for statewide suicide prevention and intervention efforts in Colorado. Despite limited funding and a small staff, the OSP effectively develops and implements innovative and cost-effective initiatives throughout Colorado to help reduce the burden of suicide. The support that State of Colorado gives the OSP provides the infrastructure necessary to make Colorado competitive for federal and foundation grants to address suicide. The OSP has demonstrated its ability to successfully obtain grants, such as *Project Safety Net*, that fund local communities and agencies throughout Colorado to implement youth suicide prevention programs. Suicide is both a serious and costly public health problem. Without the OSP, Colorado's ability to prevent youth suicide would be greatly reduced. The importance of sustaining the efforts of the OSP to coordinate focused, data driven, research-based suicide prevention statewide is paramount.

Recommendation Four: Establish a statutory requirement that allows for primary enforcement of the seat belt law, making it possible for a driver to be stopped and issued a citation if anyone in the vehicle is not properly restrained.

Sixty percent (100) of the 187 children ages 0-17, who died in Colorado as a result of injuries sustained in a motor vehicle crash, were completely unrestrained in the vehicle at the time of the crash (not in either a child safety seat or seat belt). Increasing safety belt use is the single most effective way to save lives and reduce injuries due to crashes on Colorado roadways. Studies show that safety belts are 45 to 60 percent effective in preventing deaths and reducing the risk of severe injuries.[5]

States with primary safety restraint laws, which allow law enforcement officers to issue citations to drivers solely for not buckling up, have seat belt use rates that are 10 to 15 percent higher than states with secondary laws, which require officers to first stop a motorist for another violation before issuing a seat belt citation.[6] Currently, 31 states have a primary safety restraint law. According to a systematic

[5] National Highway Traffic Safety Administration. (2006). Primary Enforcement Saves Lives: The Case for Upgrading Secondary Safety Belt Laws. Retrieved from http://www.nhtsa.gov/people/injury/enforce/PrimaryEnforcement/images/PrimaryEnforcement.pdf

[6] National Highway Traffic Safety Administration. (2006). Fact Sheet available on line: http://www.nhtsa.dot.gov

review of 13 published studies on restraint laws, primary safety belt laws are incrementally more effective in decreasing fatal injuries and increasing safety belt use than secondary safety belt laws.[7]

Currently, Colorado has primary restraint laws for children ages 0-15, as well as for teen drivers under age 18, but the restraint law for adults remains secondary enforcement. The fact that there are different types of enforcement for different age groups makes it difficult for law enforcement to properly enforce the laws, particularly for teen drivers who may appear to be older than they are. Additionally, since Colorado child passenger restraint laws only cover children through age 15, and the safety belt components of the graduated driver license law only apply when a vehicle is driven by a teen driver, children ages 16-17 that ride in a vehicle driven by an adult driver are subject to the secondary law. Making all safety restraint laws primary would close the gap in Colorado's law and make them and easier to enforce.

Increasing adult seat belt use also has a significant impact on child passenger safety because drivers who wear seat belts are more likely to restrain their child passengers. Adult behavior affects children; properly belted adults are positive role models for children and young adults. A national study of fatal crashes found that when adult drivers used a seat belt, children riding with them also were restrained 94 percent of the time. If the adult driver was not using a seat belt, child restraint use decreased to 30 percent.[8]

On average more than 600 Colorado drivers and passengers (all ages combined) die each year in traffic crashes and more than half are not using safety belts at the time of the crash. In addition to pain and suffering to families, motor vehicle crashes cost Colorado more than $3.2 billion each year in medical expenses, lost productivity, property damage, and related costs. In 2009, Colorado's seat belt use rate was 81.1 percent,[9] three percent less than the national average and seven percent less than states that have a primary law.[10] The National Highway Safety Traffic Administration estimates that if Colorado increased its seat belt use rate to 90 percent, an additional 32 lives would be saved each year and the state would save $111 million per year.[11] Approximately 1.2 million dollars of this savings would come from a reduction in Medicaid expenditures in the first implementation year of a primary seat belt law.[12]

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[7] Dihn-Zarr, et al. (2001). Reviews of Evidence Regarding Interventions to Increase the Use of Safety Belts. *American Journal of Preventive Medicine*. 21 (4S). 48-65.
[8] National Highway Traffic Safety Administration. (2006). Fact Sheet available on line: http://www.nhtsa.dot.gov
[9] Colorado State University (2009). 2009 Colorado Statewide Seat Belt Survey.
[10] National Highway Traffic Safety Administration. (2009). Seat Belt Use in 2009—Overall Results. Retrieved from http://www-nrd.nhtsa.dot.gov/pubs/811100.pdf
[11] National Highway Traffic Safety Administration. (2009). The Increase in Lives Saved, Injuries Prevented, and Cost Savings if Seat Belt Use Rose to at Least 90 Percent in All States. Retrieved from http://www-nrd.nhtsa.dot.gov/Pubs/811140.PDF
[12] National Highway Traffic Safety Administration (2007). Estimated Minimum Savings to the Medicaid Budget in Colorado by Implementing a Primary Seat Belt Law. DOT HS 810 746. Retrieved from http://www.docstoc.com/docs/7126231/Colorado-Report

PART TWO: CHILD FATALITY PREVENTION SYSTEM 2009 PROGRAM HIGHLIGHTS

State Review Team Membership

In 2009, 40 of the 45 mandated State Review Team member positions were occupied. Over the last year, State Review Team members contributed approximately 520 volunteer hours to the Child Fatality Prevention System (CFPS). Members actively participated in quarterly Team meetings, responded to information requests for child death cases on behalf of their agencies, took part in clinical case reviews, and developed prevention recommendations.

Case Reviews

During 2009, the CFPS held 24 clinical review meetings to complete comprehensive reviews of 389 child deaths that occurred in Colorado in 2006. The State Review Team compiled community, system, and policy-level recommendations to prevent child deaths during each subcommittee meeting. In addition to the four policy recommendations included in this report, the State Review Team prioritized an additional 21 prevention strategies. A full list of prioritized recommendations is provided in Attachment Three.

Enhancement of Booster Seat Legislation

For the last six years, data from the CFPS has indicated that Colorado could reduce deaths among children ages 6-8 by strengthening its booster seat law. Children ages 6-8 do not fit well in adult seat belts, and booster seats are needed to position children so that an adult seat belt fits them properly. Best practice recommendations from the National Highway Traffic Safety Administration and the Centers for Disease Control and Prevention state that children should be secured in booster seats from about age 4 to at least age 8, or until they reach a height of four feet nine inches tall.[13,14] Booster seats reduce a child's risk of injury in a crash to less than one percent.[15] According to CFPS case review data, 16 children ages 6-8 died in motor vehicle crashes in Colorado between 2004 and 2006. Ninety-four percent (15/16) of the children who died were not properly restrained in booster seats. The State Review Team has used this data to promote child passenger safety best practices and to encourage policymakers to strengthen Colorado's booster seat law.

In April 2010, the Colorado General Assembly enhanced Colorado's booster seat law by passing legislation that requires children ages 4-7 to be properly restrained in a booster seat. This new law, which will go into effect on August 1, 2010, improves Colorado's current law that only mandates 4- and 5-year-olds to be in booster seats. Additionally, the new law requires all children under age 1 to be properly restrained in the rear seat of a vehicle and makes the all of the child passenger safety laws primary enforcement. The CFPS applauds the General Assembly's efforts to keep children safe on the road and believes that these changes to the law will result in fewer motor vehicle-related injuries and deaths among children in this age group.

Sudden Unexpected Infant Death (SUID) Grant

In July 2009, the CFPS was one of five states to receive a $120,000 grant from the Centers for Disease Control and Prevention to participate in a three year pilot project to create a Sudden Unexpected Infant Death (SUID) Case Registry. Causes of SUID include: sudden infant death syndrome, suffocation, asphyxia, poisoning, falls, accidental drowning, assault, or undetermined causes. SUID cases are

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[13] Department of Transportation (US), National Highway Traffic Safety Administration (NHTSA). BoosterSeat.gov. Washington (DC): NHTSA; 2006. Available from URL: http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.9f8c7d6359e0e9bbbf30811060008a0c/.

[14] Centers for Disease Control and Prevention. *Child Passenger Safety Fact Sheet.* Retrieved from http://www.cdc.gov/MotorVehicleSafety/Child_Passenger_Safety/CPS-Factsheet.html.

[15] The Children's Hospital of Philadelphia (2009). *Three STEPS to Optimizing Child Passenger Safety Laws*. Retrieved from http://stokes.chop.edu

frequently subject to misclassification when information necessary for determining cause of death is not collected or is inconsistently reported.

Currently, the CFPS retrospectively reviews SUID cases approximately three years after death. However, the Colorado SUID Case Registry will use the established CFPS case review process to gather comprehensive data from multiple sources about the circumstances and factors associated with SUID deaths, as soon as possible after the death occurs. Data collection on 2010 SUID deaths will begin in March 2010. The information gathered in the case registry will allow more accurate and consistent classification of SUID, which will improve our understanding about the incidence, risk factors, and trends associated with SUID cases. The data collected will be used for prevention program planning and evaluation, as well as modifying public health practice and public health policy for material and child health programs.

Challenges

The ability of the CFPS to identify prevention strategies for child deaths is limited by the availability of pertinent case information. For example, in child abuse deaths, greater detail about the history of the perpetrator or the psychosocial factors affecting the family would better inform the development of prevention strategies. In suicide deaths, more information about the child's mental status, school performance or social live would inform critical points for intervention. These gaps in information could be addressed through outreach and training to law enforcement, coroners, and social service agencies conducting scene investigations.

Management and analysis of data collected during the clinical review process remains challenging. Limited federal funds provided by CDPHE, through its Maternal and Child Health Block Grant, and by the Colorado Department of Human Services, through the Child Abuse Prevention Treatment Act (CAPTA), have been used to support the work of the coordinator. No state funds are provided to coordinate the Child Fatality Prevention System. Resources are only available to support basic data collection and coordination of the clinical reviews. Additional funding is needed to support the work of a data analyst. Currently, the Child Fatality Prevention System does not have funding to implement the recommendations for the prevention of child deaths.

PART THREE: CHILD FATALITY REVIEW DATA, 2004-2006

Colorado Child Fatality Case Identification

The Child Fatality Prevention System (CFPS) uses death certificates provided by the Office of Vital Statistics at CDPHE to identify deaths of children less than 18 years of age that occur in Colorado. The cases considered for review include deaths of Colorado residents, as well as deaths of out-of-state visitors who died in Colorado, and non-Colorado residents who were transported to a Colorado hospital and died. These criteria are different than those used in other reports of child fatalities, meaning that data presented in this report may not match other statistics reported on both the state and national levels.

The State Review Team conducts comprehensive reviews of preventable child deaths. The National Center for Child Death Review defines a child's death as preventable if the community or an individual could reasonably have acted to change the circumstances resulting in death. Based on this definition, the State Review Team considers deaths due to child abuse/neglect, homicide, suicide, motor vehicle-related incidents and other accidental injuries to be preventable. Therefore, the State Review Team reviews all deaths of children ages 0-17 certified on death certificates as accidental, homicidal, suicidal, or undetermined manner. All natural manner deaths of children between 29 days old through 17 years are also reviewed. Deaths from natural causes in infants younger than 28 days of age, which are defined as neonatal deaths, are only reviewed if the cause of death listed on the death certificate is sudden infant death syndrome (SIDS) or if there is something in the circumstances surrounding the death that indicates the death may have been preventable. Most neonatal deaths do not meet the State Review Team's definition of preventability and are not reviewed.

Clinical Review Methodology

In preparation for the clinical review of each case, the Child Fatality Prevention System Coordinator identifies deaths of children ages 0-17 and develops a case file by requesting information from county coroners, law enforcement, county district attorneys, hospitals, the Department of Human Services, local health departments and newspapers. Deaths are then grouped into six major categories for clinical review: child abuse and neglect, violence, motor vehicle, accidental/unintentional, natural, and Sudden Infant Death Syndrome (SIDS)/ undetermined.

Five to ten experts then meet to study the information summarized in each case file. Data from these clinical reviews are collected using a tool developed by the National Center for Child Death Review (NCCDR). At the end of each clinical review, team members identify any system failures associated with the case and make recommendations for prevention. Data gleaned from the case abstraction and clinical reviews are then entered into the NCCDR web-based Case Reporting System and analyzed by program staff. A graphic representation of the review process is included in Attachment Four.

2004-2006 Child Mortality Demographics

Between 2004 and 2006, 2,250 children ages 0-17 died in the state of Colorado, including 200 children that were out-of-state residents. Seventy-three percent (1,645/2,250) of these deaths were due to natural causes and 45.9 percent (1,032/2,250) occurred in infants younger than 28 days of age. More males (1302) died than females (947). A majority of child deaths occurred among the white non-Hispanic population (54.5 percent). However, white Hispanic children, who comprise 23.5 percent of the child population in Colorado, represented 34.6 percent (700/2050) of the deaths among Colorado residents. A comprehensive data table describing the demographic characteristics of the 2,250 child fatalities that occurred between 2004 and 2006 is included in Attachment Five.

2004-2006 Case Review Demographics

In 2004-2006, 605 deaths were classified as accidental, homicidal, suicidal, or undetermined manner. An additional 647 deaths of children ages 29 days through 17 years occurred by natural manner. Five neonatal deaths were determined to be due to SIDS and another five deaths had circumstances suggesting they may have been preventable. Therefore, the State Review Team completed comprehensive reviews of 1,262 child deaths occurring between 2004 and 2006 (61.6 percent of all 2004-2006 child deaths). The data presented in this report are based on these cases.

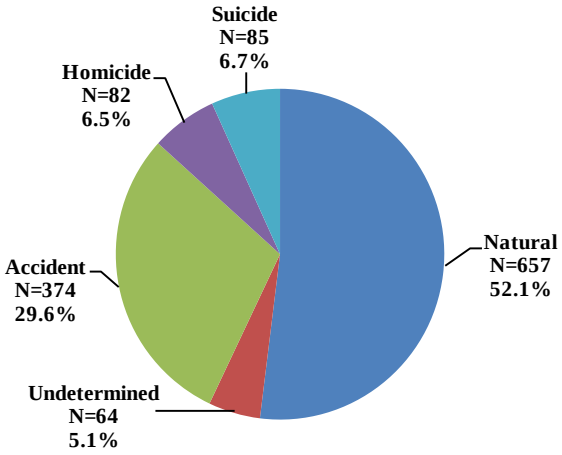
Table 1 shows the demographic characteristics of reviewed child death cases by year. There was a 12.8 percent reduction in the number of child fatalities from 2004 to 2006. This decrease was largely due to the reduction of fatalities in the 29-to-365-days age group and the 15-to-17-year-old age group. The reduction in the 29-to-365-days age group was driven by a 25 percent decrease in natural manner deaths between 2004 and 2006, whereas the decrease in deaths among 15-to-17-year olds was driven by a 57.6 percent drop in the number of youth dying in motor vehicle occupant crashes. However, there was a 56.9 percent increase in deaths among 1-to-4-year olds in this time period, due to an increase in natural and accidental manner deaths in this age group. Males consistently represented a larger percentage of child deaths than females in this time period. Fifty-eight percent (734/1,262) of the child deaths between 2004 and 2006 occurred among the white non-Hispanic population. When the data are limited to Colorado residents, it is apparent that both white Hispanic children (29.8 percent) and black children (9.4 percent) were overrepresented in the cases reviewed compared to their percentage in the general Colorado population (23.5 percent and 5.4 percent, respectively). Each year, approximately 10 percent of the deaths reviewed were not Colorado residents.

Table 1. Demographic Characteristics of Reviewed Child Death Cases 2004-2006

Characteristic	2004 (N = 446)		2005 (N = 427)		2006 (N = 389)		Total (N = 1262)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Gender								
Male	266	59.6	245	57.4	231	59.4	742	58.8
Female	180	40.4	182	42.6	158	40.6	520	41.2
Age Group								
Birth - 28 days	15	3.4	19	4.4	10	2.6	44	3.5
29 - 364 days	132	29.6	119	27.9	101	26.0	352	27.9
1-4 years	58	13.0	86	20.1	91	23.4	235	18.6
5-9 years	47	10.5	52	12.2	36	9.3	135	10.7
10-14 years	68	15.2	63	14.8	58	14.9	189	15.0
15 - 17 years	126	28.3	88	20.6	93	23.9	307	24.3
Race/Ethnicity								
White non-Hispanic	256	57.4	249	58.3	229	58.9	734	58.2
White Hispanic	137	30.7	126	29.5	102	26.2	365	28.9
Black (both Hispanic and non-Hispanic)	37	8.3	34	8.0	40	10.3	111	8.8
American Indian/Native Alaskan	9	2.0	8	1.9	8	2.1	25	2.0
Other	7	1.6	10	2.3	10	2.6	27	2.1
State of Residency								
Colorado	400	89.7	391	91.6	356	91.5	1147	90.9
Other	46	10.3	36	8.4	33	8.5	115	9.1

Manner of death is a classification of death, determined by a coroner that is based on the circumstances surrounding a cause of death. The Colorado death certificate has five manners of death categories: natural, accident, homicide, suicide, and undetermined. Of the cases reviewed between 2004 and 2006, 52.1 percent were classified as natural manner, 29.6 percent as accident, 6.5 percent as homicide, 6.7 percent as suicide, and 5.1 percent as undetermined (Figure 1).

Figure 1. Reviewed Child Deaths by Manner
2004-2006
N=1262



The following pages describe the case review demographics and key findings for each manner of death. Additionally, there are separate pages dedicated to two types of death that can be classified by multiple manners, but are characterized by special circumstances: cases involving child abuse and neglect, and infant cases that occurred in sleep environments.

Limitations

Although the CFPS requests information from a variety of sources for each case, data are occasionally missing from the case file because incident investigators did not collect the information during the initial investigation, agencies did not respond to the coordinator's request for information, or documentation lacked pertinent details. The percentages included in this report are based on the number of cases that contained the complete data for a given question. The circumstance data presented on the following pages are based on the information the CFPS received by December 31, 2009.

Additionally, case data from 2004, 2005, and 2006 have been aggregated in order to ensure that the numbers for any given manner of death is large enough to report data for a particular age, race/ethnicity, or cause of death. This report does not include time trends because the CFPS database currently only holds three years of data, which is not sufficient to trend data associated with child deaths over time. As the CFPS reviews additional years of data, trending will become possible. Finally, due to the fact that the CFPS reviews child death occurrences, rather than only deaths of Colorado residents, it is not possible to calculate rates using the full sample of reviewed cases.

NATURAL MANNER

Case Review Demographics

Deaths of natural manner are the result of a natural process such as disease, prematurity, or congenital defect. Between 2004 and 2006, 1,645 children ages 0-17 died of natural causes. Forty percent (657/1,645) of these deaths met the State Review Team's criteria for comprehensive review. Therefore, natural deaths accounted for 52.1 percent (657/1,262) of the child deaths reviewed by the State Review Team. Figure 2 shows the demographic characteristics of the deaths reviewed in the natural manner category.

- The deaths reviewed involved more males (55.7 percent) than females (44.3 percent).
- Infants comprised 42.3 percent (278/657) of the reviewed natural deaths.
- The majority of reviewed deaths in his category occurred among the white non-Hispanic population (56.7 percent). However, white Hispanics, which represent 23.5 percent of the Colorado child population, made up 30.9 percent (187/605) of the natural deaths among Colorado residents. Similarly, black children that were residents of Colorado represented a higher percentage of reviewed natural deaths (9.9 percent) than their representation in the general child population (5.2 percent). This disparity also exists among the 988 natural, neonatal deaths not reviewed by the State Review Team.

Figure 2. 2004-2006 Natural Manner Child Deaths Reviewed by Sex, Age, and Race/Ethnicity (N = 657)

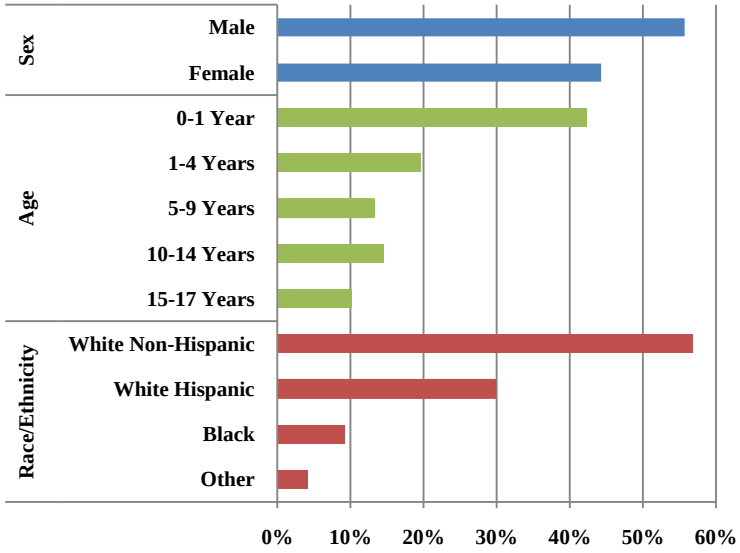


Table 2. 2004-2006 Natural Manner Child Deaths Reviewed by Cause (N=657)

Medical Cause of Death	Number	Percent
Cancer	100	15.2
Cardiovascular	36	5.5
Congenital Anomaly	156	23.7
Neurological Disorder	66	10.1
Sudden Infant Death Syndrome	109	16.6
Other Natural Causes	190	28.9

Key Review Findings (2004-2006)

The leading medical causes of the reviewed natural manner deaths are listed in Table 2. Of the natural deaths reviewed, 23.7 percent (156/657) were due to congenital anomalies, 16.6 percent (109/657) were due to sudden unexpected infant death syndrome, and 15.2 percent (100/657) were due to cancer. Other natural causes included prematurity, influenza, pneumonia, and other infections and medical conditions.

Sudden Unexpected Death Syndrome (SIDS)

SIDS is defined as the sudden death of an infant less than one year of age that remains unexplained after a complete autopsy, a thorough death scene investigation, and a review of the infant's medical history. According to death certificates, county coroners designated 115 of the 1266 infant deaths occurring between 2004 and 2006 as SIDS deaths. However, seven of these SIDS deaths were classified as undetermined manner instead of the natural manner. Findings from the 115 SIDS case reviews (natural and undetermined manner) included:

- In 36.5 percent (42/115) of the SIDS deaths, the infant was sharing a bed with one or more adults and/or other children.
- In 59.3 percent (51/86) of the SIDS deaths where sleep position was known, the child was not put to sleep on his/her back, as recommended by the American Academy of Pediatrics.
- In 49.5 percent (51/103) of the SIDS deaths where sleep surface was known, the child was placed on an adult bed, futon, or couch to sleep, rather than in a crib or bassinette.

ACCIDENTAL MANNER

Case Review Demographics

Deaths of accidental manner result from unintentional acts, including motor vehicle crashes, drowning, fires, falls, and other types of accidental injuries. The State Review Team reviewed all 374 accidental deaths that occurred among children between 2004 and 2006. Figure 3 shows the demographic characteristics of the deaths in this category.

- More males died by accidental manner (60.7 percent) than females (39.3 percent).
- Teens ages 15-17 (40.6 percent) were more likely to die by accidental manner than any other age group. Over 80 percent of deaths in this age group were due to motor vehicle-related incidents.
- Sixty-nine percent (25/36) of accidental deaths due to asphyxia were infants.
- Forty-nine percent (19/39) of accidental drowning cases occurred among children under age five.

Figure 3. 2004-2006 Accidental Manner Child Deaths Reviewed by Sex, Age, and Race/Ethnicity (N=374)

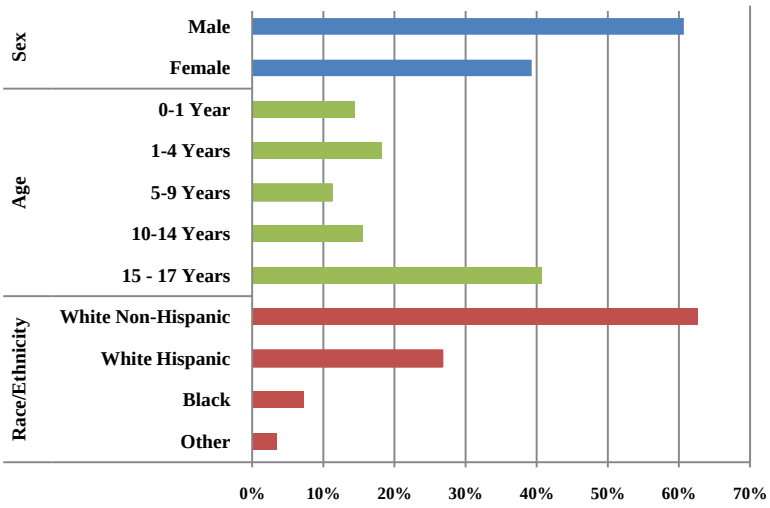
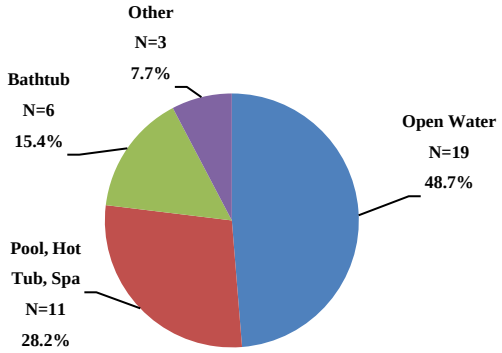


Table 3. 2004-2006 Accidental Manner Child Deaths Reviewed by Cause (N=374)

Cause of Accidental Death	Number	Percent
Motor Vehicle	239	63.9
Drowning	39	10.4
Asphyxia	36	9.6
Fall	16	4.3
Fire	11	2.9
Poisoning	10	2.7
Other	23	6.1

Figure 4. 2004-2006 Accidental Drowning Deaths Reviewed by Location (N=39)



Key Review Findings (2004-2006)

The leading causes of child accidental deaths are listed in Table 3.

- Motor vehicle-related incidents (i.e. traffic, bicycle and pedestrian-related crashes) were the leading cause of accidental death among children in Colorado (63.9 percent). Motor vehicle occupant deaths comprised 77.4 percent (185/239) of all motor vehicle-related deaths. Key review findings specifically for motor vehicle occupant deaths are presented on page 15. Additionally, 13.8 percent (33/239) of accidental deaths were pedestrians and 2.1 (5/239) were bicyclists that were killed when they were struck by a motor vehicle. Sixty percent (3/5) of these children were not wearing helmets.
- Drowning was the second leading cause of accidental child deaths. As shown in Figure 4, a higher percentage of children drowned in open bodies of water (48.7 percent) than in pools, hot tubs, or bathtubs. Eighty-four percent (16/19) of the open water drowning deaths were males. Sixty-three percent (12/19) of the open water drowning deaths occurred in a river, creek, or canal, while the remaining 36.8 percent (7/19) occurred in a pond or lake.
- Sixty-seven percent (24/36) of the asphyxia deaths occurred in sleep environments.
- Six children died in ski or snowboard-related incidents. Sixty-seven percent (4/6) of these children were not wearing helmets and died from severe head injuries.
- Sixty percent (6/10) of the accidental poisoning deaths occurred among children ages 15-17. Fifty percent (5/10) of the children who died by unintentional poisoning overdosed on prescription or over-the-counter drugs.

MOTOR VEHICLE OCCUPANT TRAFFIC DEATHS

Case Demographics

The State Review Team reviewed 187 cases from 2004 to 2006, where a child died while riding in a motor vehicle such as a car, truck, van, or SUV on a public road. Figure 5 shows the demographic characteristics of the motor vehicle occupant traffic deaths. This category excludes motorcycle, pedestrian, and bicycle deaths, as well as motor vehicle occupant deaths that occurred off the roadways in places like driveways or parking lots.

- Fifty-five percent (103/187) of the children who died in motor vehicle crashes were male.
- A majority of the children who died in motor vehicle crashes were ages 15-17 (58.3 percent).
- Nineteen percent (36/187) of the children who died in motor vehicle crashes were under 6 years old and were required to be properly restrained in a car seat or booster seat by Colorado law.

Figure 5. 2004-2006 Motor Vehicle Occupant Traffic Deaths Reviewed by Sex, Age, Race/Ethnicity (N=187)

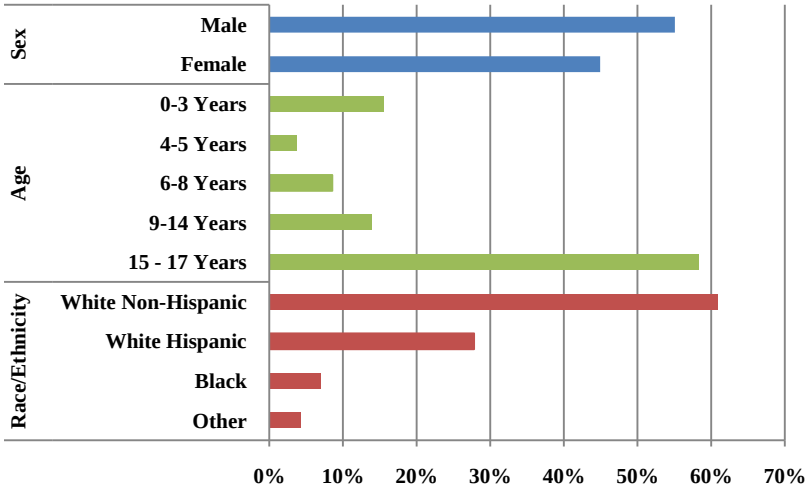


Figure 6. 2004-2006 Motor Vehicle Occupant Traffic Deaths by Restraint Use (N=187)

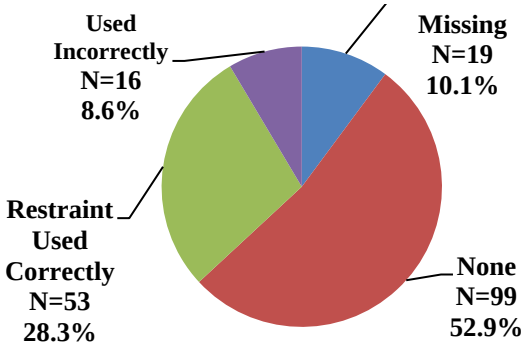
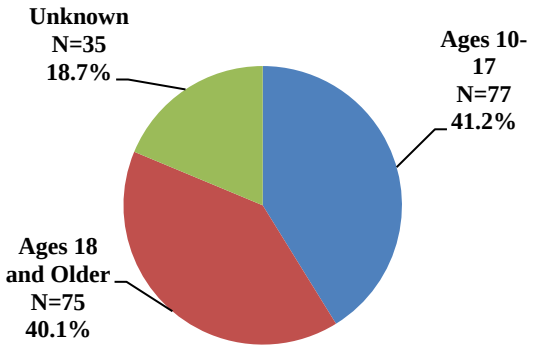


Figure 7. 2004-2006 Motor Vehicle Occupant Traffic Deaths by At-Fault-Driver (N=187)



Key Review Findings (2004-2006)

- As shown in Figure 6, 52.9 percent (99/187) of the children who died in motor vehicle occupant crashes were not buckled in the proper restraint system (seat belt, car seat or booster seat) and another 8.6 percent (16/187) were using their restraint incorrectly. Ten percent (19/187) of the cases had unknown or missing restraint use data. Of the 168 cases where restraint use was known:
  - Forty-four percent (11/25) of children ages 0-3 who died should have been riding in a car seat by Colorado law, but were either unrestrained or were restrained with only an adult seat belt.
  - Eighty-six percent (6/7) of children ages 4-5 who died were not in a booster seat, as required by Colorado law.
  - Ninety-four percent (14/15) of children ages 6-8 who died were either unrestrained or restrained with only an adult seat belt.
  - Seventy-one percent (69/97) of youth ages 15-17 who died were unrestrained.
- Of the 47 cases where the child killed was the driver, 35 were determined to be responsible for the incident (74.5 percent). In another 42 cases, the child killed was a passenger in a vehicle driven by a driver under 18 years of age. In total, drivers under age 18 caused 41.2 percent of the cases reviewed (Figure 7).
- Significant risk factors related to motor vehicle traffic crashes included: speeding (41.2 percent), recklessness (46.0 percent), driver inexperience (26.7 percent), and driver distraction (16.6 percent).
- Alcohol was a significant factor in 14.4 percent of the deaths due to motor vehicles.

SUICIDAL MANNER

Case Review Demographics

Deaths of suicidal manner are the result of intentional, self-inflicted injuries from suffocation, firearms, poison, or other causes. The State Review Team reviewed all 85 child suicides that occurred between 2004 and 2006. Figure 8 shows the demographic characteristics of the deaths in this category.

- Nearly three times as many males ages 10-17 died by suicide (61) than females (24).
- Seventy-two percent (62/85) of the children that completed suicide were ages 15-17.
- The majority of child suicides occurred among the white non-Hispanic population (71.7 percent).

Figure 8. 2004-2006 Suicidal Manner Child Deaths by Sex, Age, and Race/Ethnicity (N=85)

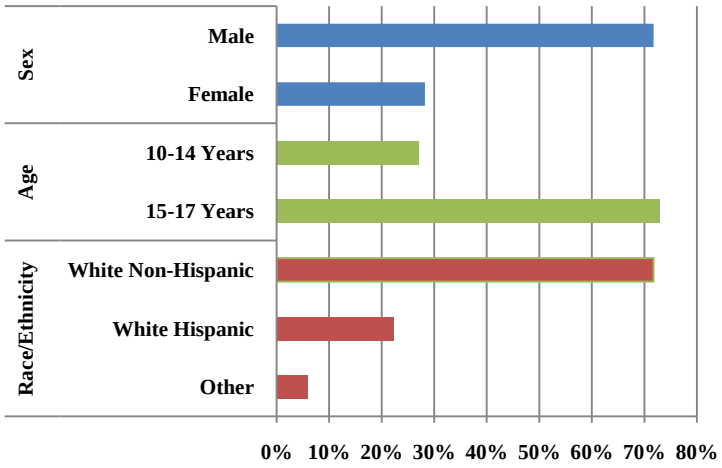


Figure 9. 2004-2006 Reviewed Child Suicides by Means (N=85)

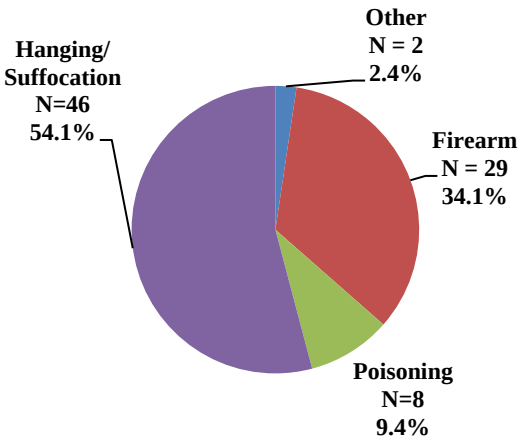


Table 4. Risk Factors and Warning Signs Associated with Reviewed Child Suicides, 2004-2006 (N=85)

Suicide Risk Factors*	Number	Percent
Family discord	24	28.2
Argument with parents/caregivers	24	28.2
Argument or Breakup with boyfriend/girlfriend	19	22.6
Suicide by friend or relative	7	8.2
Other death of friend or relative	9	10.6
School failure	10	11.8
Physical abuse/assault/rape/sexual abuse	11	12.9
Problems with the Law	8	9.4
Drugs/Alcohol	28	32.9
Suicide Warning Signs*	**Number**	**Percent**
Suicide Note	29	34.1
Previous talk about suicide	27	43.5
Prior suicide threats	35	41.2
Prior suicide attempts	23	27.1
History of running away	15	17.7
History of self injury	16	18.2

*A child can have multiple risk factors and/or warning signs.

Key Review Findings (2004-2006)

Although Colorado coroners diagnosed 85 child suicides between 2004 and 2006, the State Review Team identified five additional cases that were ruled as either accidental or unintentional manner, which had significant risk factors and/or warning signs associated with suicide.

- As shown in Figure 9, hanging/suffocation was the most common means of suicide for youth in Colorado (54.1 percent). Additionally, 34.1 percent (29/85) of youth suicides were completed using a firearm and 9.4 percent (8/85) were the result of poisoning.
- Males comprised 89.7 percent (26/29) of the suicides completed by firearm.
- Of the firearm cases where information regarding storage of the firearm was known , 44.4 percent (8/18) of the firearms were either not stored or stored unlocked. In the remaining 55.6 percent (10/18) of these cases, the firearm was stored locked, but the child was able to find the key. Law enforcement reports did not comment on firearm storage in the remaining 11 suicide cases where are firearm was used.
- Table 4 highlights several known risk factors and warning signs associated with the 85 child suicides.

HOMICIDAL MANNER

Case Review Demographics

Deaths of homicidal manner are violent deaths caused by injuries inflicted by another person. The State Review Team reviewed all 82 child homicides that occurred between 2004 and 2006. Figure 11 shows the demographic characteristics of the deaths in this category.

- Males were the victims in 61 percent (50/82) of child homicides.
- Thirty percent (25/82) of child homicides occurred among children under one year of age.
- A majority of child homicides occurred among children under 5 years old (59.8 percent).
- Twenty-seven percent (22/82) of child homicides occurred among children ages 15-17.
- White Hispanic children, ages 0-17, comprise 23.5 of Colorado's population, but represented 43.4 percent (33/77) of child homicides that occurred among Colorado residents.
- A greater percentage of child homicide deaths occurred among black children who were Colorado residents (14.5 percent) relative to their representation in the general population (5.2 percent).

Figure 11. 2004-2006 Homicidal Manner Child Deaths by Sex, Age, and Race/Ethnicity (N=82)

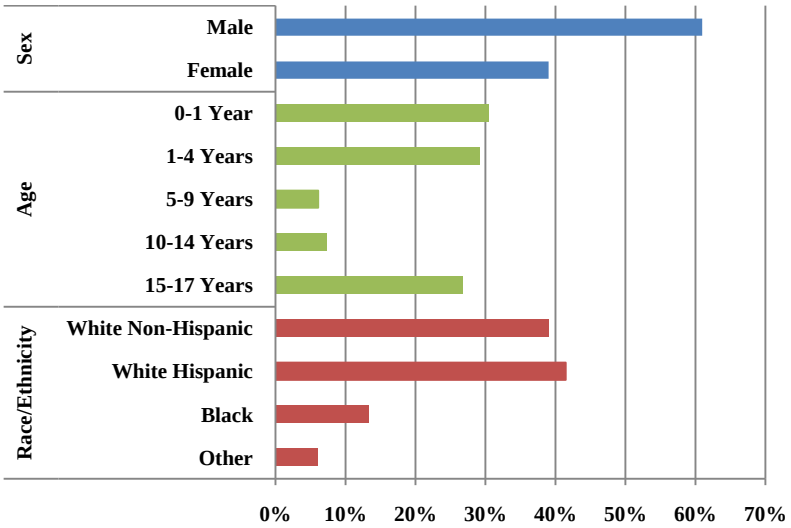


Table 5. 2004-2006 Homicidal Manner Child Deaths by Means (N=82)

Means of Death	Number	Percent
Firearm	27	32.9
Physical Assault by Body Part*	34	41.5
Sharp Instrument	5	6.1
Asphyxia	5	6.1
Other **	11	13.4

*Physical Assault by Body Part includes any part a person used as the primary instrument of the assault or injury. For example, fists for punching, feet for kicking.
**Includes vehicular homicide, poisoning, exposure, and drowning.

Key Review Findings (2004-2006)

Table 5 lists the means of child homicides.

- In 41.5 percent (34/82) of the homicide cases reviewed, a person's body part was used as the primary instrument of the assault or injury to the child. Children who suffered injuries inflicted by another person's body part were beaten, kicked, punched, pushed, shaken, strangled, or thrown. Ninety-one percent (31/34) of the physical assault by body part deaths occurred among children under 5 years of age.
- Fifty-six percent (46/82) of the homicide deaths involved child abuse and/or neglect. Key review findings specifically for child abuse and neglect cases are presented on page 19.
- Thirty-three percent (27/82) of child homicides were caused by firearms. Of the firearm deaths, 77.8 percent (21/27) were males, 66.7 percent (18/27) were 15-17 years old, and 40.7 percent (11/27) occurred among white Hispanics.
- Eighty percent (4/5) of the asphyxia deaths occurred among infants under one year of age.
- Eight of the deaths reviewed were murder-suicides where an adult killed one or more children and then completed suicide.

UNDETERMINED MANNER

Case Review Characteristics

Deaths are classified as undetermined manner when the investigation of the circumstances surrounding the death and examination through autopsy did not clearly identify the way in which the death occurred. The State Review Team reviewed all 64 child deaths that were classified as undetermined between 2004 and 2006. Figure 12 shows the demographic characteristics of the deaths in this category.

- More males died by undetermined manner (59.4 percent) than females (40.6 percent).
- The majority of undetermined child deaths occurred among infants under one year of age (60.9 percent).
- A greater percentage of undetermined manner deaths occurred among black children (14.1 percent), who were Colorado residents, relative to their representation in the Colorado child population (5.2 percent).

Figure 12. 2004-2006 Undetermined Manner Child Deaths by Sex, Age, and Race/Ethnicity (N=64)

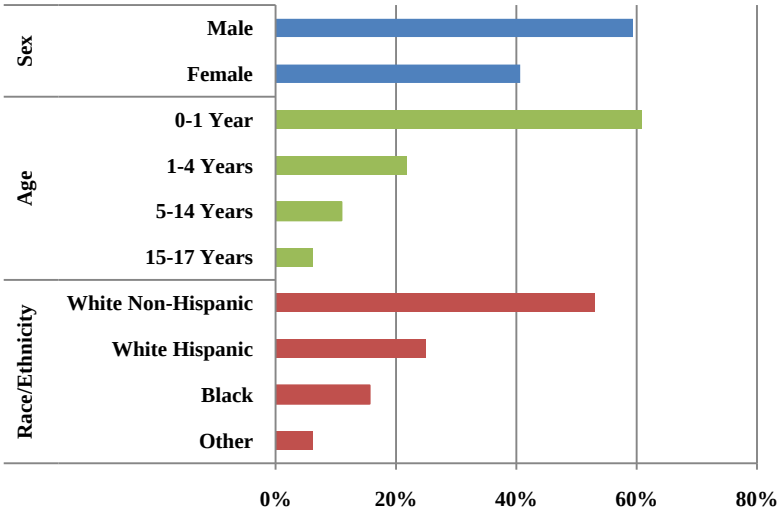
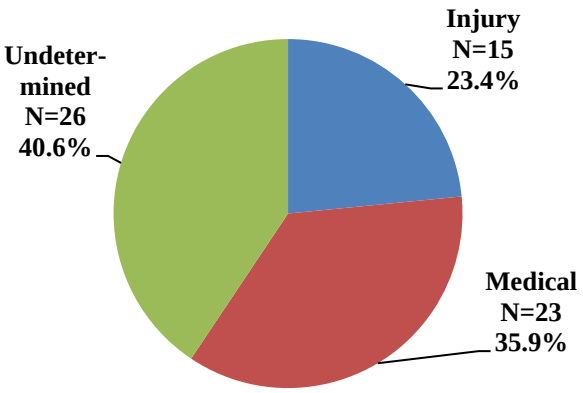


Figure 13. 2004-2006 Undetermined Manner Child Deaths by Cause Type (N=64)



Key Review Findings (2004-2006)

Deaths of undetermined manner can be caused from injuries (external causes) or medical causes. Deaths in this category can also be listed as having undetermined causes if the coroner is unable to determine if the death was caused by an injury or medical cause. Figure 13 shows the undetermined manner child deaths by cause type.

- Twenty-three percent (15/64) of the undetermined deaths were caused by injuries resulting from drowning, asphyxia, weapons, poisoning, or falls. Seventy-three percent (11/15) of these injury cause deaths occurred among males, and 60.0 percent (9/15) occurred among children between ages 10 to 17.
- Thirty-six percent (23/64) of the undetermined deaths were the result of medical causes such as prematurity, sudden unexpected infant death, or other medical conditions. Fifty-two percent (12/23) of the medical cause deaths were classified as having "undetermined medical causes." The majority of these medical cause deaths (82.6 percent) occurred among infants under one year of age.
- Coroners classified 40.6 percent (26/64) of undetermined manner deaths as also having undetermined cause. The majority of these undetermined cause deaths (69.2 percent) occurred among infants under one year of age.

CHILD ABUSE AND/OR NEGLECT

Case Review Characteristics

During clinical case reviews, the State Review Team identified 63 child deaths that occurred between 2004 and 2006 where the underlying cause of death was related to circumstances involving child abuse and/or neglect. Child abuse and neglect deaths are characterized by an act, or failure to act, on the part of a parent or caregiver, which results in death or presents an imminent risk of serious harm. Figure 14 shows the demographic characteristics of the deaths involving child abuse and/or neglect.

- Child abuse and/or neglect deaths occurred more among females (58.7 percent) than males (41.3 percent).
- The majority of child abuse and/or neglect cases occurred among children under 5 years of age (93.0 percent).
- White Hispanic children were overrepresented in the Colorado resident child abuse and/or neglect cases (45.8 percent) compared to their representation in the Colorado child population (23.5 percent).

Figure 14. 2004-2006 Child Abuse and Neglect Child Deaths by Sex, Age, and Race/Ethnicity (N=63)

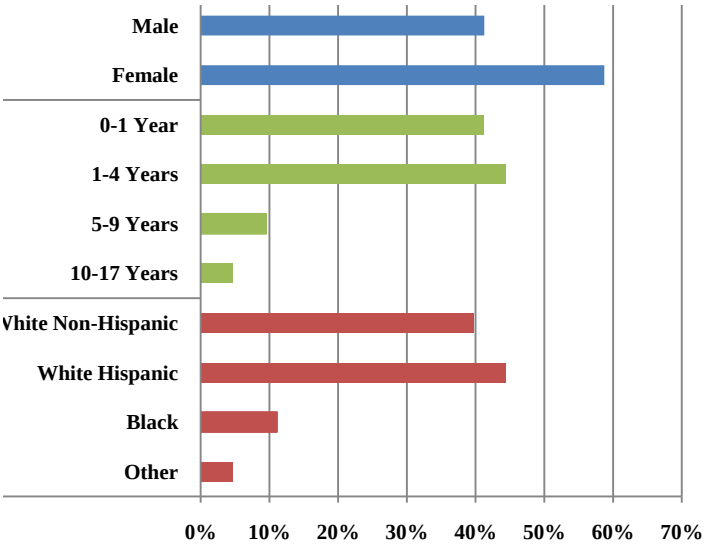


Table 6. 2004-2006 Child Abuse and Neglect Deaths by Means (N=63)

Means of Death	Number	Percent
Physical Assault by Body Part*	35	55.6
Asphyxia	6	9.5
Motor Vehicle	6	9.5
Drowning	4	6.4
Other Injury Causes	9	14.3
Undetermined	3	4.8

*Physical Assault by Body Part includes any part a person used as the primary instrument of the assault or injury. For example, fists for punching, feet for kicking.

Table 7. 2004-2006 Child Abuse and Neglect Perpetrators by Relation to Child (N=83)*

Perpetrator Relation to Child	Number	Percent
Biological Parent	50	60.2
Mother's Boyfriend	18	21.7
Step Parent	3	3.6
Babysitter	4	4.8
Other**	6	7.2
Unknown ***	2	2.4

*Some cases had two perpetrators.
*Other includes father's girlfriend, grandparent, other relatives, and licensed child care workers
**Unknown includes cases where the perpetrator relationship to child

Key Review Findings

- Of the 63 deaths involving child abuse and/or neglect, 69.8 percent (44/63) were classified as homicide manner, 20.6 percent (13/63) as accidental manner, and 7.9 percent (5/63) as undetermined manner.
- Sixty-eight percent (43/63) of the child abuse and/or neglect deaths occurred as the result of physical abuse. Seventy-seven percent (33/43) of the physical abuse cases involved abusive head trauma. In 72.7 percent (24/33) of the abusive head trauma cases, the child was shaken.
- The State Review Team determined that child neglect, such as the failure of parents or caregivers to provide for the basic needs of their children, caused or contributed to 30 child deaths. In 70 percent (21/30) of these deaths, the parent or caregiver failed to protect the child from hazards.
- Table 6 describes the means of child deaths that involved child abuse and/or neglect. Over half of these deaths were caused by injuries inflicted by another person's body part (beating, punching, kicking, shaking, and etc.).
- Eighty-three different perpetrators caused or contributed to the 63 child abuse and/or neglect deaths. Table 7 shows the perpetrator's relationship to the child. Twenty-two percent (18/83) of the child abuse and/or neglect perpetrators were the biological mother's boyfriend.
- Documents available to the CFPS at the time of the clinical case reviews indicated that 26.5 percent of the 83 perpetrators had known criminal histories; 33.7 percent of the perpetrators had histories of drug or alcohol abuse; 33.7 percent had known histories of child maltreatment as perpetrators; and another 9.6 percent had known histories of child maltreatment as victims.

SLEEP-RELATED INFANT DEATHS

Case Review Characteristics

During clinical case reviews, the State Review Team identified 159 cases that occurred between 2004 and 2006 where an infant died in a sleep environment. Sleep-related deaths can be difficult to classify. Some are diagnosed as sudden infant death syndrome (SIDS), while others are diagnosed as accidental suffocation, positional asphyxia, overlay, or undetermined. Figure 15 shows the demographic characteristics of the reviewed sleep-related infant deaths.

- More male infants died in sleep-environments (100) than females (59).
- Among Colorado residents, a higher percentage of black infants died in sleep-environments (14.1 percent) than their representation in the general infant population (5.2 percent).

Figure 15. 2004-2006 Infant Sleep-Related Deaths Reviewed by Sex and Race/Ethnicity (N=159)

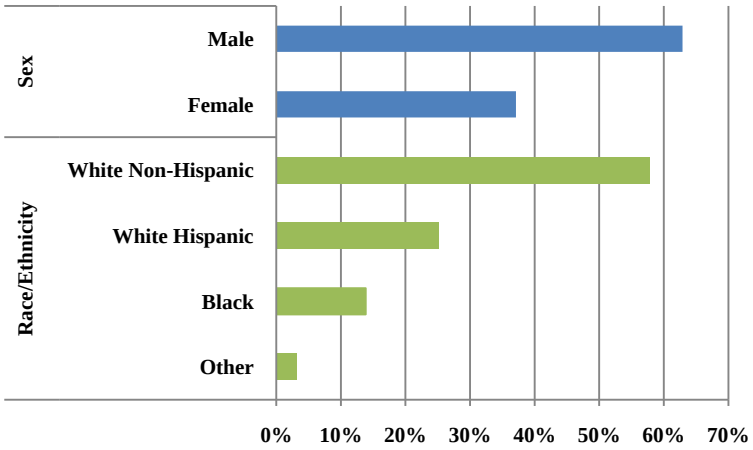


Figure 16. 2004-2006 Sleep-Related Infant Deaths by Manner (N=159)

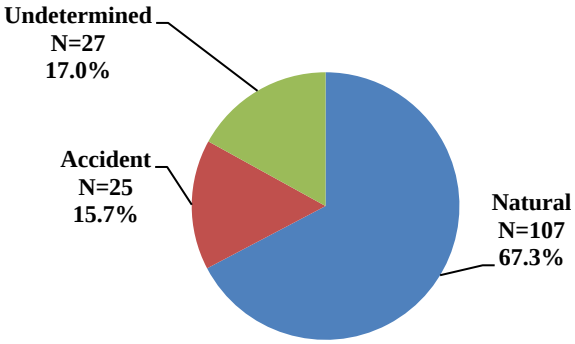


Table 8. 2004-2006 Infant Deaths Involving Bed-Sharing (N=73)

Infant Bed-Sharing	Number	Percent
With One Adult	37	50.7
With One Adult and Another Child	12	16.4
With Two Adults	17	23.3
With Two Adults and Another Child	3	4.1
With Another Child	4	5.5

Key Review Findings (2004-2006)

- As shown in Figure 16, coroners classified 67.3 percent (107/159) of the sleep-related infant deaths as natural manner due to SIDS. Sixteen percent (25/159) of sleep-related infant deaths were classified as accidental and 17.0 percent (27/159) were ruled undetermined manner.
- Thirty percent (48/159) of the infant sleep-related deaths occurred in cribs or bassinets.
- Fifty-five percent (87/159) of the infant sleep-related deaths occurred in locations considered to be unsafe sleep environments (adult bed, couch, or futon).
- Death scene investigators found an unused crib in 41.4 percent (46/111) of the cases where an infant was placed to sleep in an environment other than a crib or bassinet.
- Bed-sharing was a significant factor identified in 45.9 percent (73/159) of the infant deaths. Table 8 identifies who was sharing a bed with the infant at the time of the incident leading to the infant's death.
- Seventy-one percent (52/73) of the infants that were bed-sharing were sleeping in an adult bed, while 20.6 percent (15/73) were sleeping on a couch with an adult.
- Fifty-five percent (40/73) of the cases that involved bed-sharing were classified as SIDS by the coroner, 23.3 percent (17/73) were classified as accidental asphyxia, and 20.6 percent (15/73) were ruled undetermined manner.
- The percentage of black infants bed-sharing with an adult at the time of their death was disproportionally higher than their representation in the general population (17.8 percent compared to 5.2 percent).
- In 12.3 percent (9/73) of the cases bed-sharing cases, the infant was sleeping in a bed with an adult that was drug and/or alcohol impaired.

CONCLUSION

The definition of preventability used by the National Center for Child Death Review states that a child's death is preventable if the community or an individual reasonably could have acted to change the circumstances resulting in death. The vast majority of "preventable" deaths are due to unintentional injuries, suicide or violence. Deaths resulting from unintentional injuries, suicide and violence once were believed to be the result of chance or misfortune; however, science has proven otherwise. These deaths can also be prevented, and research on evidenced-based strategies for preventing injury-related deaths shows that change in policy and enforcement of existing laws are effective prevention strategies for a myriad of deaths. The State Review Team believed that 89 percent of the 2004-2006 child deaths classified as accidental, suicidal, homicidal, or undetermined manner could have been prevented.

The State Review Team brings significant medical, psychosocial, legal and law enforcement expertise to the process of child fatality review. This expertise has been utilized over the last 20 years to develop recommendations for effective prevention strategies. The four recommendations outlined in this report represent a synthesis of prevention strategies gathered from the analysis of child fatality in Colorado over the years and are based on best practices from around the world.

- Strengthening Colorado's Graduated Drivers Licensing law would potentially reduce the number of teen motor vehicle fatalities by 34 percent.

- Continued support for the Colorado Children's Trust Fund would ensure that local communities are able to implement effective programs that help increase parenting skills in local communities and protect Colorado youth from child abuse and neglect.

- Sustaining efforts of the Office of Suicide Prevention would mean that communities across the state could continue promoting optimal mental health and reduce the tragedy of youth suicide.

- Establishing a statutory requirement that allows for primary enforcement of the seat belt law would close gaps in the current seat belt law for children under age 18 and would lead to decreases in morbidity and mortality due to motor vehicle crashes for all ages.

The Child Fatality Prevention System Review Team is confident that child fatalities can be reduced in Colorado if these recommendations are adopted.

Attachment One
Child Fatality Prevention System Mandate

Excerpt from Colorado Revised Statues 25-20.5-402.

The mandate of the Child Fatality Prevention System is to

1) *review specified deaths* of children from birth to 18 years of age occurring in Colorado and involving circumstances where the child is receiving services from a county department or where there has been a report of suspected abuse or neglect;
2) *review the records* of all other unexpected and unexplained deaths of children from birth to 18 years of age occurring in Colorado;
3) *understand the incidences and causes* of childhood deaths;
4) *identify services* provided by public agencies to children and their families that are designed to prevent child abuse, neglect or death;
5) *identify any gaps or deficiencies* that may exist in the delivery of services by public agencies to children and their families that are designed to prevent child abuse, neglect or death;
6) *make recommendations* for implementing any changes to laws, rules and policies that will support the safe and healthy development of children and prevent child abuse, neglect and death; and
7) *develop a community approach* to the problem of child abuse and neglect and to the prevention of childhood deaths.

Attachment Two
COLORADO CHILD FATALITY PREVENTION SYSTEM STATE REVIEW TEAM MEMBERS – JANUARY 2010

Name/Title	Role	Agency	Membership by	Term
Rebecca Spiess Mesa County Undersheriff	County Sheriff	Mesa County Sheriff's Office	Governor Appointed Voting Member	09/01/2008-09/01/2011
Delbert Ewoldt Sedgwick County Sheriff	County Sheriff from a Rural Area	Sedgwick County Sheriff's Office	Governor Appointed Voting Member	09/01/2008-09/01/2011
Amy Martin Chief Medical Examiner	County Coroner	Denver Office of the Medical Examiner	Governor Appointed Voting Member	09/01/2008-09/01/2011
Kelly Lear-Kaul Deputy Coroner	County Coroner	Arapahoe County Coroner's Office	Governor Appointed Voting Member	09/01/2008-09/01/2011
Brad Lenderink Law Enforcement Officer	Peace officer who specializes in crimes against children	Denver Police Department	Governor Appointed Voting Member	09/01/2008-09/01/2011
Mathew Testa Law Enforcement Officer	Peace officer who specializes in crimes against children	Lakewood Police Department	Governor Appointed Voting Member	09/01/2008-09/01/2011
Kerri Lombardi Chief Deputy District Attorney	District Attorney	Denver District Attorney's Office	Governor Appointed Voting Member	09/01/2008-09/01/2011
Atrelle Jones Deputy District Attorney	District Attorney from a rural area	10th Judicial District Attorney's Office	Governor Appointed Voting Member	09/01/2008-09/01/2011
Larry Matthews Pediatric Consultant	Physician who specializes in traumatic injury or children's health		Governor Appointed Voting Member	09/01/2008-09/01/2011
Maria Mandt Pediatric Emergency Medicine Physcian	Physician who specializes in traumatic injury or children's health	The Children's Hospital	Governor Appointed Voting Member	09/01/2008-09/01/2011
Deniz Kolozs Pediatrician	Physician who specializes in traumatic injury or children's health	Colorado Pernanente Medical Group	Governor Appointed Voting Member	09/01/2008-09/01/2011
Antonia Chiesa Physician	Physician who specializes in traumatic injury or children's health	The Children's Hospital-KEMPE Child Protection Team	Governor Appointed Voting Member	09/01/2008-09/01/2011
Mary Pat DeWald Forensic Nurse Consultant	Nurse who specializes in traumatic injury or children's health	C-Sane Consulting LLC.	Governor Appointed Voting Member	09/01/2008-09/01/2011
Theresa Rapstine Director, Injury Prevention & Outreach	Nurse who specializes in traumatic injury or children's health	The Children's Hospital	Governor Appointed Voting Member	09/01/2008-09/01/2011
Tracey Taylor Life Safety Education Manager	Local Fire Department	South Metro Fire Rescue	Governor Appointed Voting Member	09/01/2008-09/01/2011
Rebecca Wiggins Senior Assistant County Attorney	County attorney who practices in the area of dependency and neglect	Adams County Attorney's Office	Governor Appointed Voting Member	09/01/2008-09/01/2011

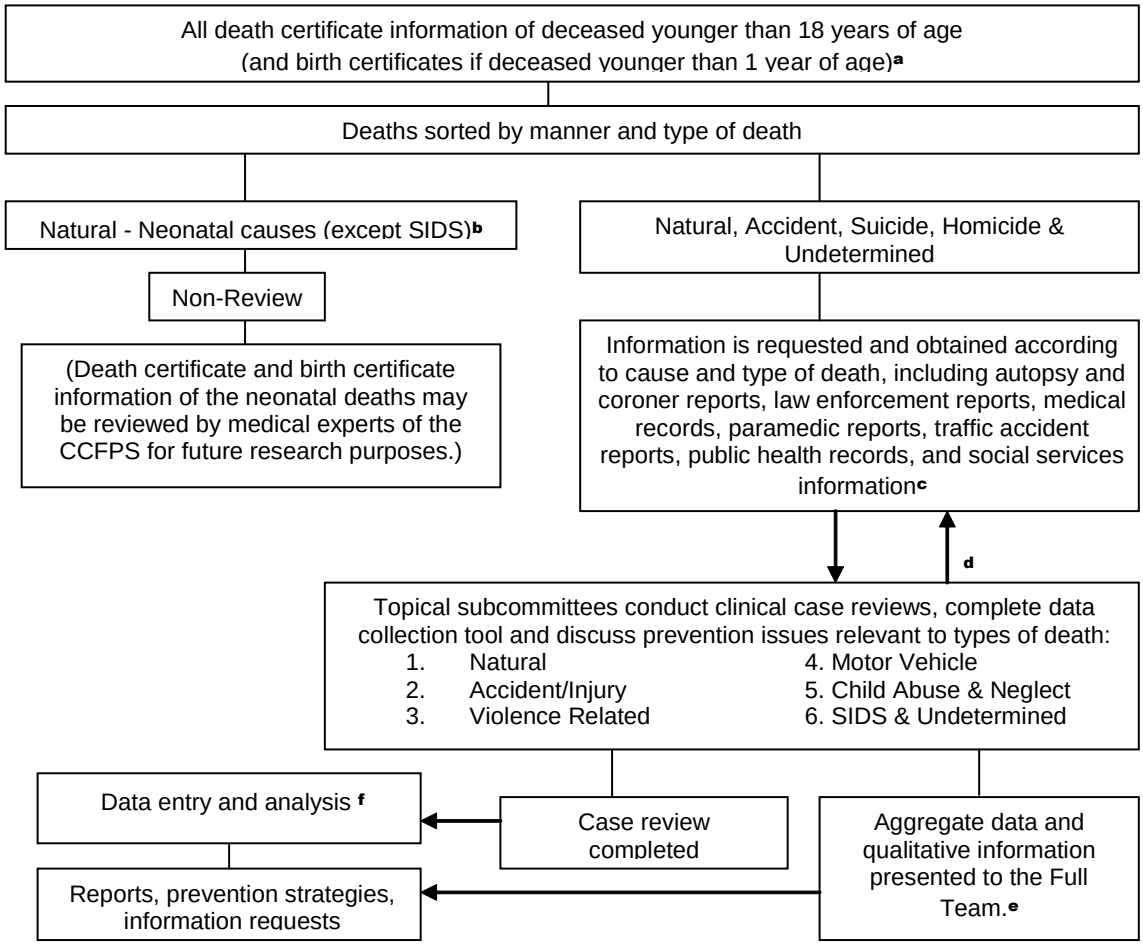
Name/Title	Role	Agency	Membership by	Term
David Long Weld County Commissioner	County Commissioner	Weld County	Governor Appointed Voting Member	09/01/2008-09/01/2011
Ruby Richards Child Protection Intake Administrator	Department of Human Services – Child Welfare Division	CDHS – Child Welfare Division	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Shirley Mondragon CPS and CAPTA/CJA Grant Administrator	Department of Human Services – Child Welfare Division	CDHS – Child Welfare Division	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Lawrence Marsh Associate Director, Child and Family Services	Department of Human Services – Mental Health Services Division	CDHS – Division of Mental Health	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Vacant	Department of Human Services – Alcohol & Drug Abuse Division	CDHS – ADAD	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Vacant	Department of Human Services – Division of Youth Corrections		State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Betty Donovan Director of County Human Services	Director of a County Department of Human Services	Gilpin County Department of Human Services	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Ron Hyman State Registrar	Department of Public Health & Envronment	CDPHE – Health Statistics & Vital Records	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Shannon Breitzman Program Director	Department of Public Health & Envronment	CDPHE – Injury, Suicide and Violence Prevention Unit	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Rochelle Manchego Child Fatality Program Coordinator	Department of Public Health & Envronment	CDPHE – Injury, Suicide and Violence Prevention Unit	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Holly Hedegaard EMS & Trauma Data Program Manager	Department of Public Health & Envronment	CDPHE – Health Facilities and Emergency Medical Services	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Scott Bates Manager of the Colorado Children's Trust Fund	Department of Public Health & Envronment	CDPHE – Colorado Children's Trust Fund & Family Resources Centers	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Lindsey Myers Injury Prevention Program Manager	Department of Public Health & Envronment	CDPHE – Injury, Suicide and Violence Prevention Unit	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Vacant	Department of Public Health & Envronment		State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Kathy Orr FICMR Coordinator	County Health Department	El Paso County Health Department	State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Vacant	Department of Education		State Agency Appointed Ex-Officio Member	1/1/06-1/1/09
Vacant	Department of Public Safety		State Agency Appointed Ex-Officio Member	1/1/06-1/1/09

Name/Title	Role	Agency	Membership by	Term
Andrew Sirotnak Director	Hospital Injury Prevention or Safety Specialists	KEMPE Center at Children's Hospital	Team Selected Ex-Officio Member	9/1/06-9/1/09
Vicky Cassabaum Injury Prevention Coordinator	Hospital Injury Prevention or Safety Specialists	St. Anthony Central Hospital	Team Selected Ex-Officio Member	9/1/06-9/1/09
Peter Werlin Flight Nurse	Hospital Injury Prevention or Safety Specialists	Flight for Life	Team Selected Ex-Officio Member	9/1/06-9/1/09
J. Leah Lamb-Allen Pediatrician	Hospital Injury Prevention or Safety Specialists	Dinosaur Junction Pediatrics	Team Selected Ex-Officio Member	9/1/06-9/1/09
Maile Gray Executive Director	Auto Safety/Driver Safety organization	DRIVE SMART Colorado Springs	Team Selected Ex-Officio Member	9/1/06-9/1/09
Sheila Marquez Retired Consultant	Sudden Infant Death Specialists	Consultant to Colorado SIDS Program	Team Selected Ex-Officio Member	9/1/06-9/1/09
Diana Goldberg Executive Director	Child Advocacy Centers network	Children's Advocacy & Family Resources, Inc./SungateKids	Team Selected Ex-Officio Member	9/1/06-9/1/09
Elizabeth Collins Domestic Violence Advocacy Director	State Domestic Violence Coalition	Colorado Coalition Against Domestic Violence (CCADV)	Team Selected Ex-Officio Member	9/1/06-9/1/09
Diane Waters Executive Director	Court-Appointed Special Advocate Program Directors	Colorado Court Appointed Special Advocates (CASA)	Team Selected Ex-Officio Member	7/09-
Shari Danz Deputy Director	Office of the Child's Representative	Office of the Child's Representative	Team Selected Ex-Officio Member	9/1/06-9/1/09
Bonnie McNulty Retired Consultant	Private Out-Of-Home Placement Provider	Colorado State Foster Parents Association	Team Selected Ex-Officio Member	9/1/06-9/1/09
Susan Backus Social Worker/Community Educator	Community member with experience in childhood death	Angel Eyes (formerly CO SIDS Program)	Team Selected Ex-Officio Member	1/08-

Attachment Three
Child Fatality Prevention System
2010 Policy Recommendations
October 23, 2009

1	Enhance Graduated Drivers Licensing law – tighter restrictions and more education
2	Enhance Child Passenger Safety laws – booster, rear-facing car seats, fee
3	Support Children's Trust Fund – evidence based parent education classes
4	Support/continue funding to Office of Suicide Prevention
5	Mandate autopsies and scene investigations on all child deaths
6	Establish, fund, promote/ encourage low cost respite care
7	Increase awareness/education about what is a mandatory reporter, especially for medical and dental professionals and students
8	Education for new mothers about leaving children in high risk situations or with high risk caretakers
9	Support parent education for perpetrators and victims of DV
10	Safe storage of firearms
11	Increase communication between systems – clarify what confidentiality means
12	Require gun dealers to post information about connection between guns and suicide
13	Gun safety classes prior to purchasing a gun
14	Mandate suicide prevention in schools
15	Increase funding for after school programs
16	Primary seat belt legislation
17	All-terrain vehicle laws – age restrictions of drivers/riders, mandate helmet use
18	Cell phone restrictions for all ages
19	Mandating snow/ski helmets
20	Mandating toxicology screens on caregivers
21	Expand definition of child abuse to include alcohol and drugs impairment of caregivers
22	Safety inspection of pools after child death
23	Funding safe sleep environment education
24	Mandatory nursing follow-up in the home following birth of newborns
25	Mandate minimum standards for hospitals to provide education to mothers before discharge

Attachment Four
Child Fatality Case Review Process



Notes:

a. Birth and death certificate data are obtained through the Colorado Department of Public Health and Environment, Division of Health Statistics and Vital Records.

b. "Neonatal" deaths are all natural mannered child deaths occurring at fewer than 28 days of age (except those classified as SIDS) and are reviewed by experts in neonatology outside of the CFR process.

c. Records regarding the circumstances of a specific child death are requested from the Colorado Trails system, county coroners, state and local law enforcement agencies, hospitals, EMS agencies, local public health and nursing service agencies, and other statewide data sources and available for review by clinical subcommittees.

d. On occasion, the clinical subcommittee review raises more questions and further information is requested.

e. A summation of the subcommittee case reviews and discussions are presented to the Full State Child Fatality Prevention Review Team for the broader professional expertise.

f. Data collection tools are reviewed for completion and accuracy; data is then entered into the National Center for Child Death Review database. The data is maintained and analyzed by the CFPR staff for data requests, reports and publications.

Attachment Five

Characteristics of Colorado Child Death Occurrences (ages 0-17) 2004-2006 (N=2,250)

Characteristics	2004		2005		2006		Total	
	N	Percent	N	Percent	N	Percent	N	Percent
Gender								
Male	457	59.5	439	57.0	406	56.9	1302	57.9
Female	310	40.5	330	42.9	307	43.1	947	42.1
Unknown/Missing	0	0.0	1	0.1	0	0.0	1	0.0
Age-Groups								
Birth - 28 days	336	43.8	362	47.0	334	46.8	1032	45.9
29 - 364 days	132	17.2	119	15.5	101	14.2	352	15.6
1-4 years	58	7.6	86	11.2	91	12.8	235	10.4
5-9 years	47	6.1	52	6.8	36	5.1	135	6.0
10-14 years	68	8.9	63	8.2	58	8.1	189	8.4
15 - 17 years	126	16.4	88	11.4	93	13.0	307	13.6
Race/Ethnicity								
White non-Hispanic	420	54.8	409	53.1	397	55.7	1226	54.5
White Hispanic	252	32.9	260	33.8	222	31.1	734	32.6
Black (both Hispanic and non-Hispanic)	66	8.6	71	9.2	65	9.1	202	9.0
American Indian/Native Alaskan	11	1.4	13	1.7	10	1.4	34	1.5
Other	18	2.4	17	2.2	19	2.7	54	2.4
Manner								
Natural	533	69.5	580	75.3	532	74.6	1645	73.1
Accident	148	19.3	115	14.9	111	15.6	374	16.6
Homicide	31	4.0	23	3.0	28	3.9	82	3.6
Suicide	33	4.3	31	4.0	21	3.0	85	3.8
Undetermined	22	2.9	22	2.7	21	3.0	64	2.9
State of Residency								
Colorado	691	90.1	704	91.4	655	91.9	2050	91.1
Other	76	9.9	66	8.6	58	8.1	200	8.9