Utah Child Fatality Review Report 1996 - 1998

Violence & Injury Prevention Program

Division of Community & Family Health Services
Utah Department of Health

April 2003

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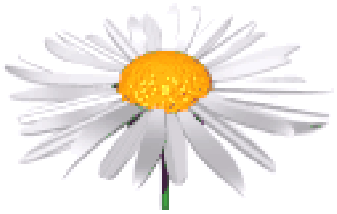
Utah Child Fatality Review Report

1996-1998



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April 15, 2003

Dear Friends of Utah's Children,

As citizens of Utah, one of our greatest goals is to ensure a safe environment in which our children may live and grow. While this report is about child deaths, we can learn from these tragic events and progress toward our common goal of keeping our children safe and healthy. Although the death of a child may seem like a random event, many of these deaths are preventable. By reviewing child deaths in detail, we can identify patterns and, in turn, develop better prevention methods.

One way to help accomplish our goal is through the Utah Child Fatality Review Committee (CFRC). Professionals from various disciplines join together to share knowledge about child health and welfare. The agencies represented on the CFRC have professionals from their respective agencies volunteer to attend reviews. Without this cooperation, the CFRC would not exist and a great resource for prevention would be lost. These advocates identify preventable deaths, use report findings, and recommend strategies to reduce preventable deaths. Because of the commitment of the CFRC members, there is more information with which to target prevention efforts.

This report presents information about child deaths from both unintentional and intentional injuries as well as natural deaths. The findings are alarming but their interpretation will save lives. As you review this report, please think about ways you might join our efforts to make Utah a safer place for our children.

Sincerely,

Nanette Dudley, M.D.
Emergency Department
Primary Children's Medical Center

Trisha Keller, M.P.H., R.N.
Manager, Violence and Injury Prevention Program
Utah Department of Health

EXECUTIVE SUMMARY

The death of a child is a tragedy that resonates throughout a community. Between 1996-1998 in Utah, there were 1,608 deaths of children and youth under the age of 20 from both natural causes and injury. Many of the injury deaths could have been prevented with reasonable effort.

This report summarizes natural cause deaths and highlights injury deaths, both unintentional and intentional. In the realm of public health, injuries are not accidents. The term "accident" implies "fate" or an "act of God," as if the event is out of one's control and that nothing can be done to prevent it. However, most injuries can be predicted and thus prevented. Injuries cannot be viewed as unpreventable events when considerable evidence supports the effectiveness of prevention efforts in reducing death and injury.

The Utah Child Fatality Review Committee (CFRC) is a multi-disciplinary group consisting of members representing public health, medicine, law enforcement, judicial services, and human services. The CFRC has been reviewing child fatalities since 1993 with the goal of identifying preventable deaths, reporting findings, and recommending strategies to reduce preventable deaths. This is the second report published by the Committee.

Death certificate data indicate that 1,608 children died in Utah between 1996-1998. Of the total deaths, 1,524 (95%) underwent preliminary review by the CFRC. Sixty-one percent of these were males. The largest prevelence of deaths (727) was among infants under one year of age, with deaths primarily due to natural causes. Natural causes of death to children accounted for 883 (58%) of the deaths reviewed. Injuries accounted for 597 (39%) deaths and present as the leading cause of death of children aged 1-19 years. Motor vehicle crashes were responsible for 45% of those injury deaths.

Since 1993, the CFRC has been working towards a common goal - to reduce child fatalities. Due to the commitment and dedication of the CFRC members, many positive changes have been made in organizations, programs, public services, and families. Some of the accomplishments of the CFRC include: creating a Suicide Task Force, partnering to complete a six-phase Youth Suicide Study, working towards more comprehensive child restraint and seat belt legislation, and developing news releases, public service announcements and media events to address the most common injuries among Utah's children.

Based on the evaluation of the CFRC review process, this CFRC Report will differ from future reports as adjustments to the data collection and review processes will be implemented to better serve all who use this information.

Overview of the Child Fatality Review Committee (CFRC)

INTRODUCTION

Children die everyday in Utah. Approximately 500 die each year with causes of death ranging from premature births and other natural causes to severe injury. Although prematurity and natural causes are often preventable and will be summarized, the main focus of this report is injury, both intentional and unintentional.

The data presented in this report are drawn from child fatalities that occurred in Utah from 1996-1998. Injuries comprised approximately 40% of all deaths and accounted for 72% of all deaths of children aged 1-19 years. Most of these injuries were preventable.

Events leading up to the death of a child are often complicated and difficult to document accurately. This can lead to the cause of death being incorrectly classified on a child's death certificate. Considerable efforts are made to understand the purpose and preventability of each death through proper investigation, documentation, and classification of all events and circumstances surrounding the death. Without the proper review, important information may be lost.

Professionals from multiple disciplines recognized these problems and recommended the formation of the CRFC. A multi-disciplinary team was established to: 1) access available resources to ensure that all child deaths receive a thorough investigation; 2) identify preventable deaths; and, 3) identify interventions to prevent future deaths. The Committee was formed in 1993 under the auspices of the Utah Department of Health (UDOH) with members representing public health, medicine, law enforcement, the courts and human services. The Utah Department of Health's Violence and Injury Prevention Program coordinates CFRC meetings and provides staff support to the committee. Periodically, other individuals or agencies are invited to attend reviews if they are involved in a case. These include representatives from support services, day care and child advocacy centers.

Goals of the Child Fatality Review Committee

- Identify and describe the prevalence of risk factors among deceased children.
- Identify and describe the trends and patterns of child deaths in Utah.
- Identify and describe the service delivery of the involved systems (medical, human services, and law enforcement) to high-risk children.
- Make policy recommendations that will improve the service systems to better meet the needs of all families coming into contact with the systems.
- Identify and describe prevention strategies to reduce the number of child deaths.
- Identify and describe strategies that will improve the quality of care received by children and families.
- Maximize available financial and human resources through interagency collaboration.
- Identify and describe the accuracy and completeness of death certificate data.
- Ensure that complete and thorough investigations are performed on child deaths and improve communication among the various health, human services and law enforcement agencies.

PARTICIPATING AGENCIES

The following agencies had representatives who participated on the Child Fatality Review Committee during 1996-1998:

Utah Department of Health
- Bureau of Vital Records and Statistics
- Emergency Medical Services
- Office of the Medical Examiner
- Reproductive Health Program
- Violence and Injury Prevention Program

Department of Human Services
- Division of Child and Family Services
- Division of Mental Health
- Office of Administrative Support

Administrative Office of the Courts

Juvenile Courts

Primary Children's Medical Center

Salt Lake City Police Department and other law enforcement agencies

Salt Lake County District Attorney's Office

Utah Attorney General's Office, Child Protection Unit

Utah State Office of Education

Valley Mental Health

REVIEW PROCESS

The CFRC collects data on all child deaths that occur in Utah. The reviews conducted focus on children who are Utah residents. For this report, a child is defined as an individual aged 19 years or younger for all causes of death and is extended to aged 21 years or younger for suicide. Data are first obtained from death certificates, and from public agencies on selected deaths, then entered into a central database. This death review process provides a more detailed understanding of how and why child deaths occur in Utah.

All information and data regarding each child death are treated confidentially. Confidentiality is protected under Government Records Access Management Act 63-2-801. Committee members and professional visitors sign a confidentiality agreement which prohibits them from sharing case information outside the meeting. The review meetings are not open to the public.

As part of the data collection process, the CFRC works closely with the UDOH Bureau of Vital Records to ensure proper and accurate recording and classification of data elements. At times, an attending physician may complete the death certificate of a child inadequately which may lead to an injury death incorrectly classified as a natural death. The proper classification of a child's death is essential to prevent future deaths and to develop and implement effective prevention interventions. Cases are reviewed by the CFRC to ensure that thorough investigations are completed on all cases including, but not limited to, those cases with circumstances of child abuse or neglect.

The review process begins in one of two ways: 1) with the report of a death from the UDOH Office of the Medical Examiner (OME) or 2) through the receipt of a death certificate from the UDOH Bureau of Vital Records to the CFRC Coordinator in the VIPP.

All sudden and unexpected deaths are under the jurisdiction of the OME. The Medical Examiner certifies the manner of death on the death certificate using one of five major classifications of death: 1) natural, 2) accident, 3) suicide, 4) homicide or 5) undetermined. Deaths not included under the jurisdiction of the OME are certified on the death certificate by the attending physician at the time of death.

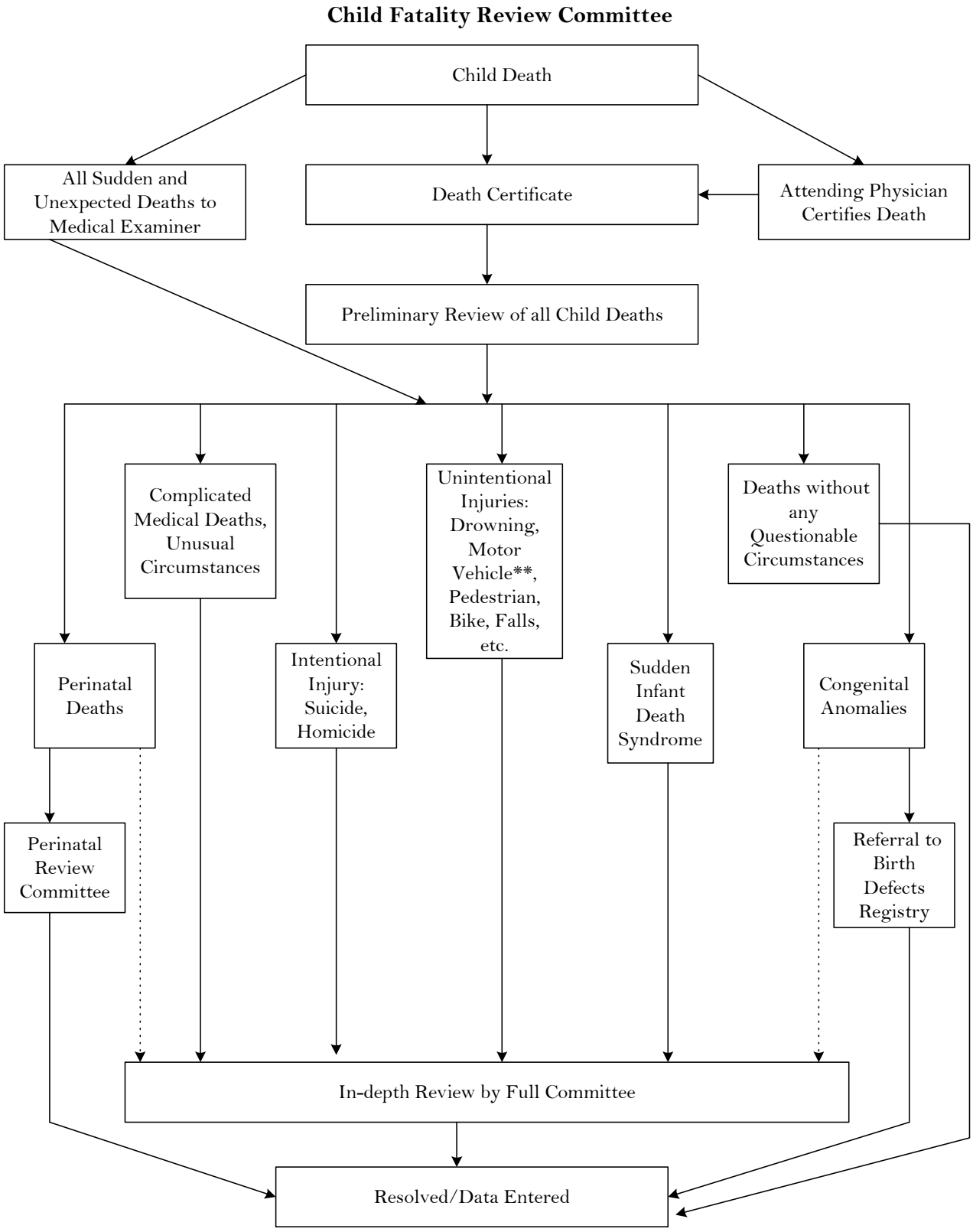
Once deaths are reported to the CFRC Coordinator, two types of reviews may be conducted: Preliminary Reviews and more in-depth Full Committee Reviews.

Preliminary Review Process

A review of all death certificates of children aged 0-19 years is conducted monthly by the Child Fatality Preliminary Review Panel. The Preliminary Review Panel consists of a physician, a nurse, a Department of Human Service representative, and the CFRC Coordinator. During the preliminary review, the panel reviews each death and determines if:

1) the death needs to be referred to the UDOH Perinatal Mortality Review Committee or the UDOH Birth Defects Registry for more extensive data collection in those areas of expertise;
2) the death needs an in-depth review by the full CFRC to address complicated issues surrounding the death, unusual circumstances or prevention issues; or
3) the death does not need further review and can proceed to data entry.

Review Process Flow Chart



*Dotted line represents that in unusual circumstances, some of these deaths may be reviewed by the Full Committee.
**Not all motor vehicle deaths receive an in-depth review by the Full Committee.

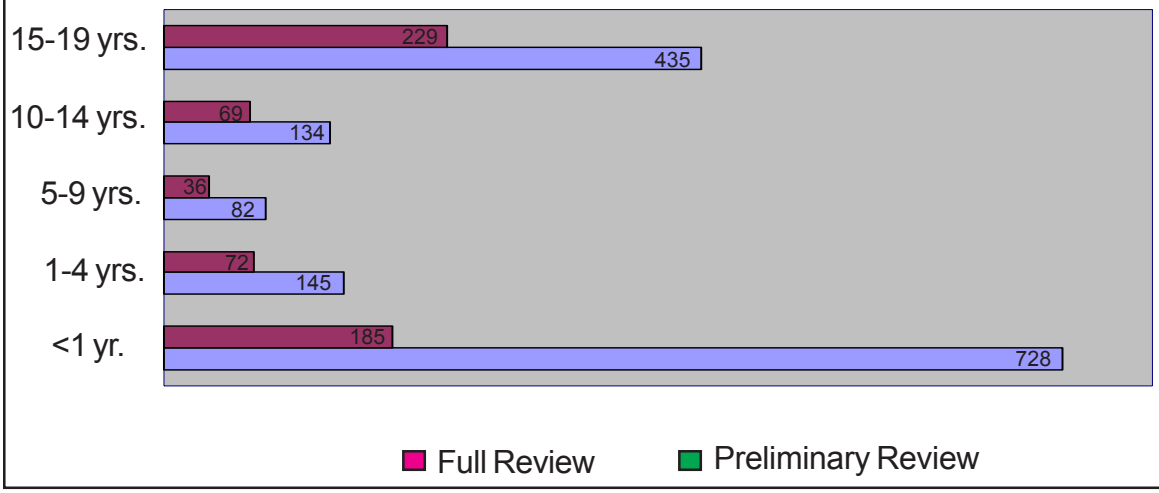
Full Committee Review Process

If the Preliminary Review Panel finds that it's necessary to conduct an in-depth review, the death is scheduled to be reviewed at the next Full CFRC meeting.

CFRC members are notified of cases that will be reviewed by the Full Committee. The members bring information to the CFRC meetings which helps the committee understand the circumstances surrounding the death, thus helping to resolve any questions pertaining to the particular case.

During the review process, discussion topics include: circumstances surrounding the death, the completeness of the death certificate, preventability of the death and recommendations on improving service delivery systems for the prevention of future deaths. A follow-up is scheduled for cases needing additional information and final resolution. The case is resolved after the additional information has been obtained and the CFRC is satisfied that all questions and concerns have been addressed to the extent possible. For example, a case where additional information may be requested is when "Shaken Baby Syndrome" is listed as the cause of death. A more in-depth approach is necessary in this case because important case information may be missing. This information could include: the identity of the suspected perpetrator, the circumstances surrounding the incident, whether criminal charges were filed and, if charges were filed, the disposition of those charges. The CFRC tracks the cases when it's clear the death was caused by abuse but the perpetrator was not identified.

FIGURE 1: Age Distribution of Preliminary Reviewed and Full Committee Reviewed Deaths, 1996-1998



In Figure 1, age distribution varied for both Full Committee and Preliminary Reviews. The majority of cases examined by both reviews were cases of children under age one and over 15 years of age. The large discrepancy between the two types of review in the under age one category is due, in part, to the majority of children who have a clear and definitive cause of death, usually due to natural causes. In all other age categories, approximately half of the cases receiving a Preliminary Review were reviewed by the Full CFRC.

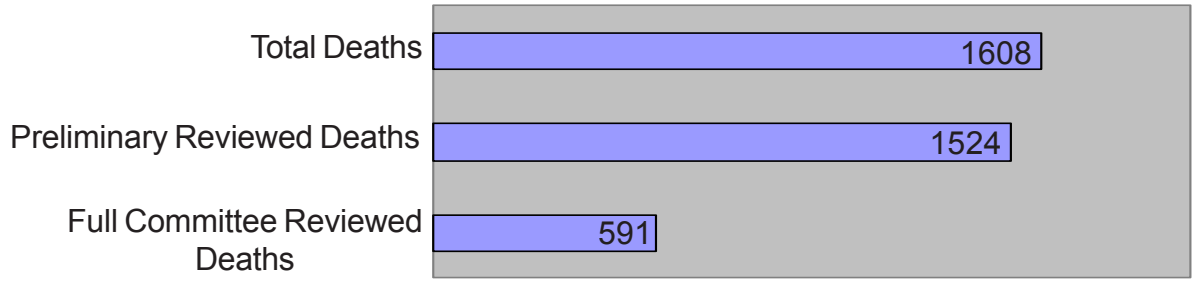
REVIEW STATUS

From 1996-1998, 1,608 children died in Utah. Of those deaths, 95% (n=1,524) were subject to review by the Preliminary Review Panel. The majority of deaths (61%, n=933) did not meet criteria for an in-depth review by the Full Committee and underwent Preliminary Review only. The remaining 39% (n=591 deaths) met the criteria and received a Full Committee Review. Criteria for both types of review are defined under Preliminary Review Process and Full Committee Review Process on pages 5-7.

Two major categories of children's deaths will be discussed throughout this report: 1) injury causes and 2) natural causes. Injury causes include those deaths that are due to intentional injury (suicide or homicide) and unintentional injury (motor vehicle crashes, drowning, poisoning, suffocation, and other injury mechanisms). Natural causes, for the purpose of this report, are those deaths that result from disease, perinatal conditions, Sudden Infant Death Syndrome (SIDS), or other medical conditions.

The CFRC reviews deaths that occur to children aged 0-19 years for all causes of death and aged 0-21 years for suicide. The process provides a better understanding of the types of injuries that occur in each age group. Reviewing such a broad spectrum of cases allows for appropriate preventative measures to be initiated and evaluated by each of the agencies involved.

FIGURE 2: Number of Child Deaths by Review Status, 1996-1998



A Full Committee Review allows committee members to review the complications of each death. In turn, these details may indicate the area in which further prevention measures should be focused. For example, during the discussion of a number of drowning deaths, toddlers were being left unattended in the bathtub during their bath while a caregiver answered the telephone. Installation of phones in bathrooms was suggested by the CFRC as a measure for residential bath areas.

Preliminary Review Findings

Summary of Preliminary Review Cases

- All Deaths
- Injury Deaths
- Natural Deaths

SUMMARY OF PRELIMINARY REVIEW CASES

All Deaths

A total of 1,524 child deaths underwent Preliminary Review by the CFRC. Of the 1,524 deaths, 61% (n=936) were male and 39% (588) were female (Figure 3). Although Figure 3 seems to illustrate a disproportionate number of deaths among males versus females, the distribution of male to female deaths does not vary significantly when compared to the rates of children is the total population during the same time. From 1996-1998, of the children (1-19 years of age) in Utah were male 51% (n=1,189,824) and 49% (n=1,146,897) were female (Figure 4).

FIGURE 3: Sex Distribution of Deaths Receiving Preliminary Review as Compared to Population of Children in Utah. 1996-1998

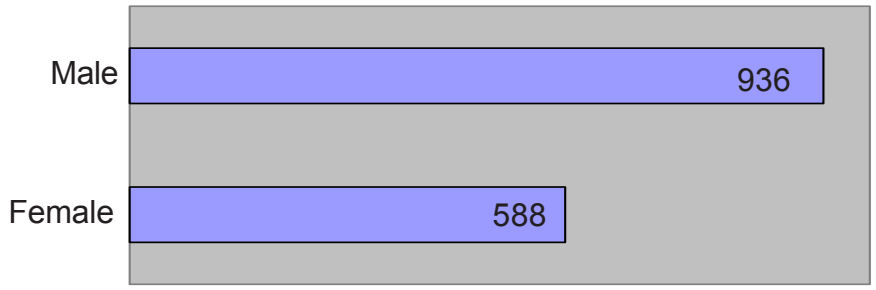


FIGURE 4: Sex Distribution of Population of Children in Utah, 1996-1998

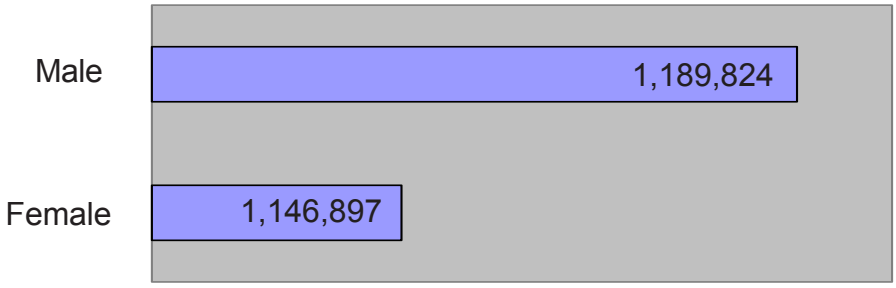


TABLE 1: Causality of Deaths Receiving Preliminary Review, 1996-1998

Cause of Death	Number of Deaths	Percent of Deaths
Natural Causes	883	58
Unintentional Injuries	418	27
Intentional Injuries	179	12
Undetermined	41	3
Uncategorized	3	1
TOTAL	1524	100

Injury Deaths

Injuries, including unintentional (27%) and intentional (12%), accounted for 597 (39%) deaths among children aged 0-19 years (Table 1). The majority of these injury-related deaths were unintentional (Figure 5). Of the age groups, adolescents (15-19 years old) had the highest percentage (40%) of intentional injuries (Figure 5). An inability to determine the nature of injuries was seen most often among children under one year of age. After extensive review efforts of the Full CFRC, there were a number of cases for each age group where the cause of death could not be determined (Table 1).

FIGURE 5: Comparison of Preliminary Reviewed Injury Death Percentages by Type and Age Group, 1996-1998

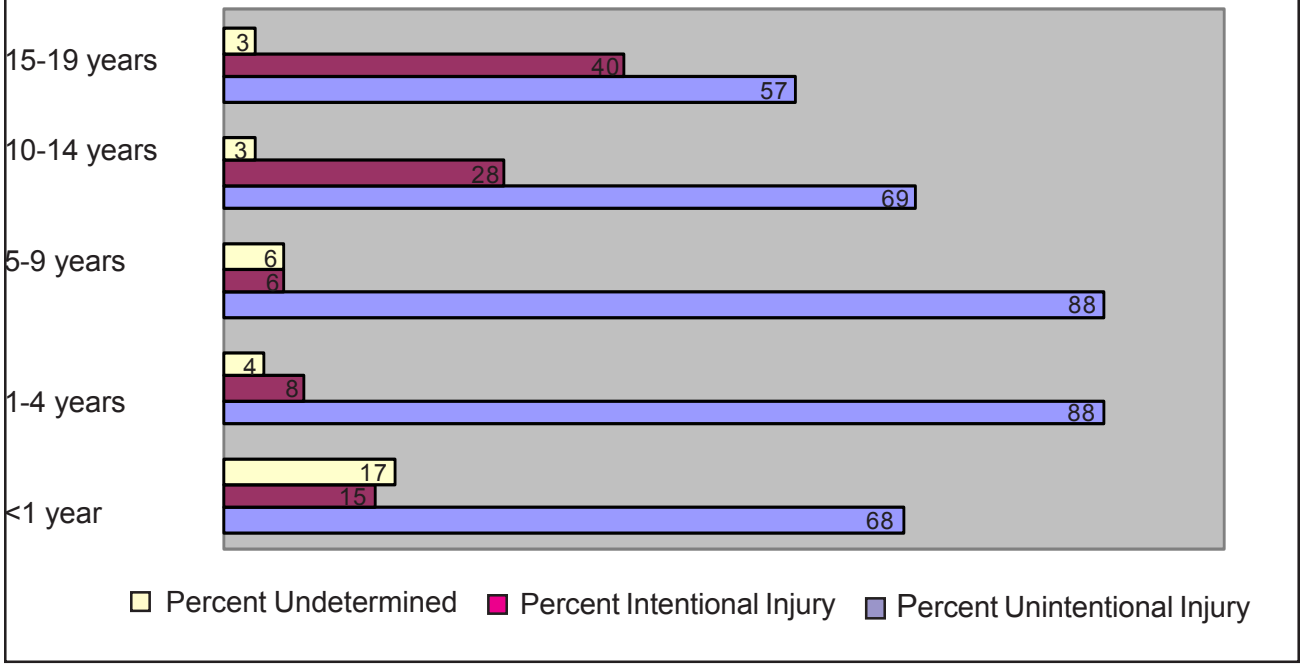


TABLE 2: Comparison of Preliminary Reviewed Injury Deaths and Natural Deaths by Age, 1996-1998

Age	Number of Injury Deaths	Percent of Injury Deaths	Number of Natural Deaths	Percent of Natural Deaths
<1 year	34	6	659	75
1-4 years	77	13	62	7
5-9 years	48	8	34	4
10-14 years	86	14	48	5
15-19 years	352	59	80	9
TOTAL	597	100	883	100

*The remaining 44 deaths that occured during 1996-1998 consisted of 41 undetermined and 3 uncategorized causes.

The percentage of deaths from natural causes decreased significantly after 1 yrear of age, while deaths due to injury increased. With age, youth are less susceptible to the natural causes that plague infants and toddlers, yet more prone to physical injuries that may result from increased physical activity and risk-taking behaviors. Fifty-nine percent of total injury deaths occurred in adolescents aged 15-19 years (Table 2).

TABLE 3: Total Injury Deaths Receiving Preliminary Review by Type, 1996-1998

Injury Type	Number of Deaths	Percentage of Injury Deaths
Motor Vehicle	272	45
Suicide	127	21
Homicide	52	9
Drowning	27	5
Other Unintentional	27	5
Suffocation	24	4
Other Injury	24	4
Falls	15	3
Burns	12	2
Other Transpotation	12	2
Poisoning	5	<1
TOTAL	597	*100

* Percents are rounded.

Table 3 summarizes the nature of injuries which resulted in the deaths of Utah children aged 0-19 years for all causes of injury death and children/youth aged 0-21 for suicide. Among all injury deaths, motor vehicle crashes were responsible for 46% (n=272) of the deaths, followed by suicide 21% (n=127) and homicide 9% (n=52). The magnitude of motor vehicle injuries is unequalled by any other injury type. Suicide was the second leading type of injury death, with almost half the number of deaths as in motor vehicle. Fifty-two deaths (9%) were due to homicide and other unintentional injuries accounted for 51 (9%) of deaths. The remaining injury deaths were the result of suffocation, falls, burns, poisoning, or other transport injuries.

Natural Deaths

From 1996-1998, there were 883 child deaths due to natural causes (Table 5). Natural deaths include: Sudden Infant Death Syndrome (SIDS), disease, congenital anomalies and perinatal conditions. In the majority of cases, the cause of death was readily determined and, therefore, did not require further review. Twenty-one percent (n=185) of these cases were referred for in-depth review by the Full Committee. Of the total deaths due to natural causes, 56% (n=494) were males and 44% (n=389) female (Table 6) compared to the 51% of the general population being male and 49% being female.

TABLE 4: Natural Deaths Recommended for Full Committee Review, 1996-1998

Cases Reviewed	Number of Deaths	Percent of Deaths
Yes	185	21
No	698	79
TOTAL	883	100

Identifying areas of particular concern serves to direct the focus of community programs. Baby Your Baby, Back to Sleep Campaign (SIDS), the Birth Defects Registry, and a Perinatal Mortality Review Committee are examples of efforts launched to promote healthy children in Utah and to reduce these types of deaths.

TABLE 5: Natural Deaths Receiving Preliminary Review by Sex, 1996-1998

Sex	Number of Deaths	Percent of Deaths
Male	494	56
Female	389	44
TOTAL	883	100

Since 75% of deaths in children under one year of age were children who died of natural causes, the early months of childhood clearly emerged as a topic of focus for the CFRC (Table 7).

TABLE 6: Natural Deaths Receiving Preliminary Review by Age Group, 1996-1998

Age	Number of Deaths	Percent of Deaths
<1 year	659	75
1-4 years	62	7
5-9 years	34	4
10-14 years	48	5
15-19 years	80	9
TOTAL	883	100

Children under 1 Year of Age

Table 7 shows that perinatal conditions (35%, n=304) and congenital anomalies (32%, n=272) are the leading causes of natural deaths for children aged 0-19 years. More specifically, the heart defect congenital anomaly (12%, n=102) is the single natural cause that accounts for most deaths, followed by the perinatal conditions of prematurity and low birth weight (9%, n=80) and maternal causes (8%, n=72). Tied with maternal causes is the disease cause of malignant neoplasm (8%, n=73). Cancer among children remains a concern. SIDS (7%, n=64) closely follows malignant neoplasm.

TABLE 7: All Natural Deaths Receiving Preliminary Review, 1996-1998

Disease	Number of Deaths	Percent of Deaths
Malignant Neoplasm	73	8
Circulatory Disease	45	5
Nervous System Disease	41	5
Respiratory Disease	31	4
Metabolic Disease	30	3
Infectious or Parasitic Disease	25	3
Sub-total	245	28
Sudden Infant Death Syndrome (SIDS)	Number of Deaths	Percent of Deaths
SIDS	64	7
Sub-total	64	7
Congenital Anomalies	Number of Deaths	Percent of Deaths
Heart Defects	102	12
Neural Tube Defect (NTD)	41	5
Trisomy Defects	32	4
Respiratory System Defects	27	3
Musculoskeletal Defects	16	2
Urinary System Defects	13	1
Circulatory Defects	7	1
Other & Unspecified Congenital Defects	23	3
Other Chromosomal Defects	8	1
Other Congenital Anomalies	3	1
Sub-total	272	31
Perinatal Conditions	Number of Deaths	Percent of Deaths
Prematurity/Low Birth Weight	80	9
Maternal Causes	72	8
Perinatal Infection	28	3
Hypoxia/Asphyxia	13	2
Ill Defined Perinatal Conditions	11	1
Respiratory Distress Syndrome (RDS)	10	1
Digestive Disorders	10	1
Hemorrhage	6	1
Birth Trauma	5	1
Other Respiratory	32	3
Other Perinatal	7	1
Sub-total	302	31
All Other Natural Causes	Number of Deaths	Percent of Deaths
All Other Natural Causes	28	3
Sub-total	28	3
TOTAL	883	100

* Percents are rounded.

Deaths that occur in the first year of life are largely due to perinatal conditions (37%, n=244) and congenital anomalies (33%, n=217). The causes of death can be disproportionate, as seen in Figure 6. Disease resulted in 10% (n=66) of fatalities, followed closely by SIDS (9%, n=59). Injury deaths result in a significant portion (5%, n=33) of the deaths of this age group and should be addresssed in future prevention efforts.

FIGURE 6: Cause of Death for Children under 1 Year of Age Receiving Preliminary Review, 1996-1998

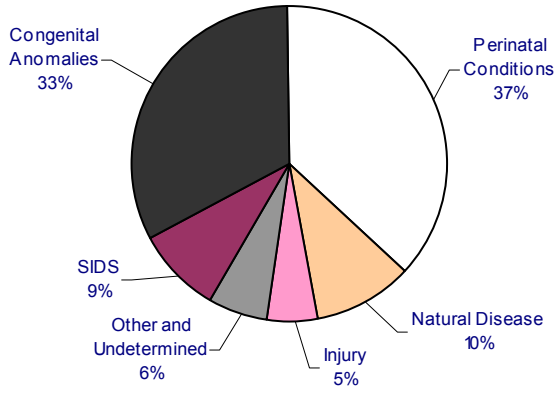


Figure 7 shows that circulatory and respiratory are the leading disease causes for children under 1 year, with a fairly even distribution of the other diseases.

FIGURE 7: Cause of Death for Children under 1 Year of Age Receiving Preliminary Review- with a Breakout of Disease, 1996-1998

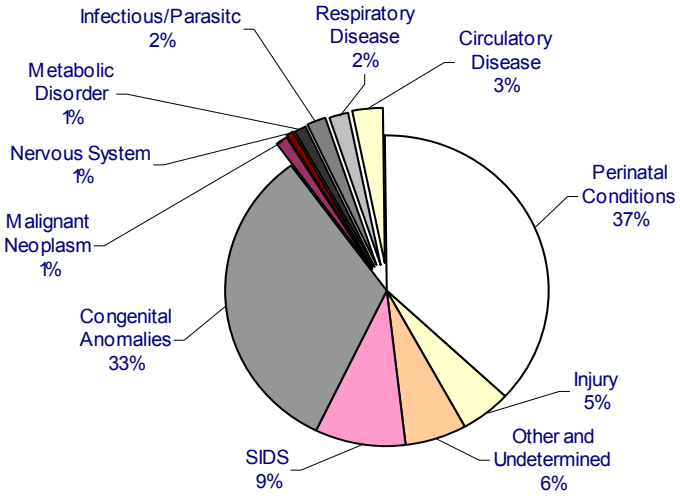


Figure 8 reveals that prematurity (11%) and maternal causes (10%) are the leading preinatal conditions causing deaths in the under one age group.

FIGURE 8: Cause of Death for Children under 1 Year of Age Receiving Preliminary Review- with a Breakout of Perinatal Conditions, 1996-1998

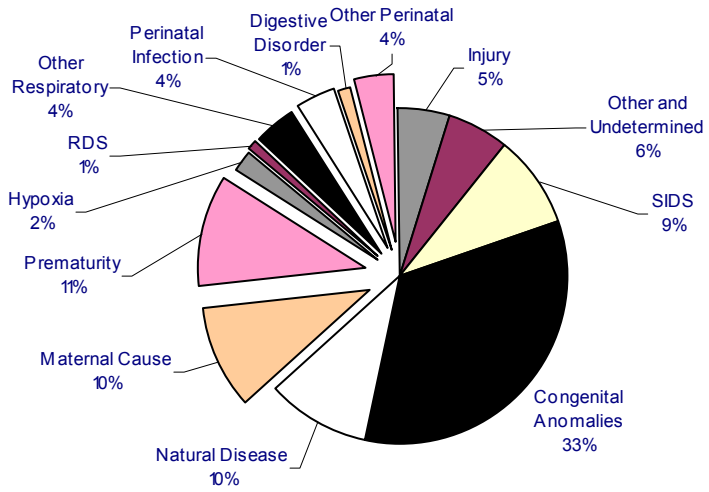
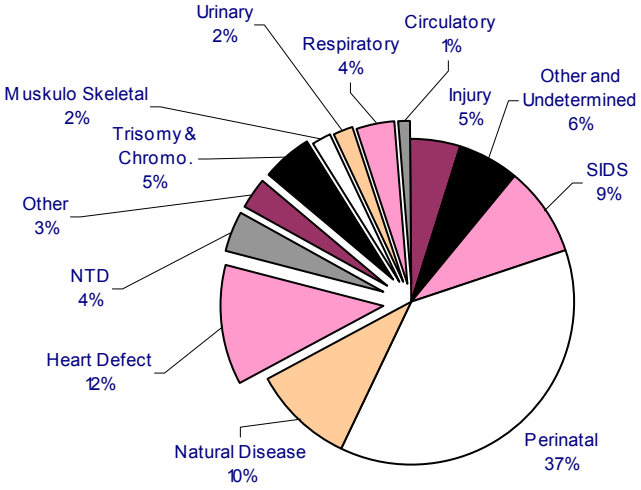


Figure 9 shows that heart defect (12%) is the leading congenital anomaly in the under one age group that causes death, followed by trisomy and chromosomal at 5% and neural tube defect at 4%.

FIGURE 9: Cause of Death for Children under 1 Year of Age Receiving Preliminary Review- with a Breakout of Congenital Anomalies, 1996-1998



Full Committee Review Findings

Summary of Cases Reviewed by the Full Committee

- Demographics and Cause of Death
- Injury Deaths
- Motor Vehicle Injury Deaths
- Suffocation Deaths
- Sudden Infant Death Syndrome (SIDS) Deaths
- Drowning Deaths
- Suicide Deaths
- Homicide Deaths

SUMMARY OF CASES REVIEWED BY THE FULL COMMITTEE

This section provides information on child deaths that were referred by either the Preliminary Review Panel or the OME for an in-depth review by the Full Committee (see definition of Full Committee Review on page 7). The Full CFRC performed reviews on 591 of the 1,524 deaths receiving Preliminary Review (Table 9).

The team reviewed 100% of all SIDS cases (n=64) and homicide deaths (n=52). Of the 127 suicide deaths, 98% (n=125) received an in-depth review by the Full Committee. Of the 394 unintentional injury deaths, 41% (n=163) received an in-depth review by the Full Committee.

Not including SIDS, there were 819 natural deaths from 1996-1998. These include deaths due to disease, congenital anomalies and perinatal conditions. Since the majority of these cases were clear-cut and did not require an in-depth review by the Full Committee, only 15% (n=121) of these deaths received a Full Committee Review.

Demographics and Cause of Death

The cases reviewed by the Full Committee showed the following results:

- There were more deaths reviewed involving males (69%, n=406) than females (31%, n=185).
- Males had twice as many motor vehicle-related deaths (66%, n=31) compared to females (34%, n=16). Motor vehicle-related deaths were highest among children 15-19 years of age as compared to other age groups. This age group accounted for 53% (n=143) of all motor vehicle deaths.
- Most homicides and suicides (39%, n=229) occurred in adolescents 15-19 years of age and were automatically reviewed.
- There were 127 suicides completed by individuals under the age of 20, 63%, (n=80) were aged 15-19 years. The most common method for completing suicide was firearms.

TABLE 8: Deaths Receiving Preliminary Review as Compared to Full Committee Review, 1996-1998

Cause of Death	Number Received Preliminary Review	Number Received Full Committee Review	Percent of Preliminary Review Deaths Receiving Full Committee Review
Unintentional Injuries	394	163	41
Homicide	52	52	100
Suicide	127	125	98
Other Injuries	24	23	96
Natural (excluding SIDS)	819	121	15
SIDS	64	64	100
Undetermined Causes	41	41	100
Missing (uncategorized)	3	2	67
TOTAL	1524	591	39

Tables 10, 11, and 12 summarize the demographic characteristics of the child deaths that received a Full Committee Review. In Table 10, male fatalities (69%, n=406) exceeded female fatalities (31%, n=185).

TABLE 9: Full Committee Reviewed Deaths by Sex, 1996-1998

Sex	Number of Deaths	Percent of Deaths
Male	406	69
Female	185	31
TOTAL	591	100

In Table 11, data are consistent with Utah's demographics, 93% (n=550) of the total child fatalities occurred among White Hispanic and Non-Hispanic when separated by race. The proportion of American Indian and Other Race deaths was equivalent (3%, n=18, 15 respectively). African American and Unknown Race each accounted for 1% (n=4) of the deaths reviewed by the Full Committee.

TABLE 10: Full Committee Reviewed Deaths by Race, 1996-1998

Race	Number of Deaths	Percent of Deaths
White Hispanic and Non-Hispanic	550	93
Black/African American	4	1
American Indian	18	3
Other	15	3
Unknown	4	1
TOTAL	591	100

In summary, 39% of Preliminary Review deaths received a Full Committee Review (Table 9). Narly all of the SIDS, undetermined cases, homicides and suicides received a Full Committee review and accounted for almost half of the deaths receiving Full Committee Review.

TABLE 11: Full Committee Reviewed Deaths by Age Group, 1996-1998

Age	Number of Deaths	Percent of Deaths
<1 year	185	31
1-4 years	72	12
5-9 years	36	6
10-14 years	69	12
15-19 years	229	39
TOTAL	591	100

Stratification by age (Table 12) reveals that the greatest percentage of child deaths reviewed by the Full Committee occurred among individuals aged 15-19 years (39%, n=229), closely followed by the less than one year age group (31%, n=185).

Sudden Infant Death Syndrome (SIDS) Deaths

SIDS is the death of an infant, aged less than one year, which remains unexplained after autopsy, examination of the death scene, and review of medical records. Sixty-four deaths were attributed to SIDS and represent 9% of all deaths in that age group (Table 17). All SIDS deaths were reviewed by the Full Committee.

TABLE 12: SIDS Deaths by Sex, 1996-1998

Sex	Number of Deaths	Percent of Deaths
Male	37	58
Female	27	42
TOTAL	64	100

The following are findings based on those 64 deaths:

- Ninety-four percent (n=60) of infants were White Hispanic and Non-Hispanic.
- Sixty-six percent (n=42) of infants were aged three months or less.
- Fourteen percent (n=9) were of low birth weight.
- More than half, 52% (n=33), were found lying on their stomachs at the time of death.
- Close to half, 45% (n=29), were found in a sleeping environment that was not designed for an infant, such as an adult bed, couch, or waterbed.
- One in five (23%) infants had mothers who smoked during pregnancy.

TABLE 13: SIDS Deaths by Age in Months, 1996-1998

Age in Months	Number of Deaths	Percent of Deaths
1 month	9	14
2 months	13	20
3 months	20	32
4 months	7	11
5 months	0	0
6 months	7	11
7 months	2	3
8 months	3	5
9 months	1	2
10 months	0	0
11 months	1	2
TOTAL	64	100

Recommendations

A significant reduction has been noted in the SIDS rate since 1994, this is partially due to the "Back to Sleep" campaign began. Despite the success of the campaign, which promotes placing infants on their back while sleeping, more than half of the infants who died of SIDS between 1996-1998 were found lying on their stomachs.

Efforts to educate infant caregivers are recommended by the CFRC in the following areas:

- Continue surveillance of infant deaths
- Education on safe sleeping environments
- Continue "Back to Sleep" campaign
- Establish "Tummy Time" campaign—babies should spend time on their tummies when awake and supervised to ensure proper infant development.

Injury Deaths

Injuries were responsible for 597 child deaths during 1996-1998. The CFRC conducted Full Committee Reviews for 363 injury deaths. Among all injury deaths reviewed by the committee, 49% (n=177) were intentional and 45% (n=163) were unintentional. The category of Other Injury accounted for the remaining 6% (n=23), which include undetermined intent, medical injury etc. (Table 14)

TABLE 14: Injury Deaths Receiving Full Committee Review by Category and Sex, 1996-1998

Injury Type	Number of Total Deaths	Percent of Total Deaths	Number Male	Number Female
Suicide	125	35	103	22
Homicide	52	14	32	20
Motor Vehicle	47	13	31	16
Other Unintentional	27	8	19	8
Drowning	25	7	22	3
Suffocation	23	6	12	11
Other Injury	23	6	18	5
Falls	13	4	13	0
Burns	11	3	8	3
Pedal Cycle/Other Transport	12	3	6	6
Poisoning	5	1	3	2
TOTAL	363	100	267	96

Suicide emerged as the leading cause of death reviewed for both males and females, closely followed by homicide and motor vehicle. Deaths due to drowning, other unintentional injury, and other injury types were substantial for Utah children, regardless of gender.

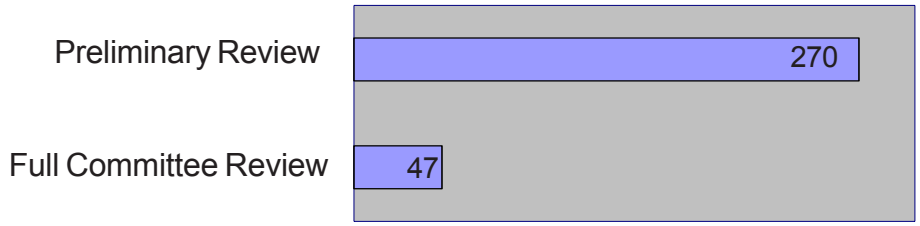
Motor Vehicle Injury Deaths

Motor vehicle fatalities often occur to individuals who are unrestrained in their vehicles. Motor vehicle-related incidents claimed the lives of 270 children from 1996-1998 (Figure 10). Since the OME does not have jurisdiction to investigate traffic deaths unless requested by law enforcement, the CFRC conducted a Full Committee Review of only 47 cases (17%).

The following information is based on the 47 reviewed motor vehicle deaths:

- Males had motor vehicle-related deaths two times higher than females (66%, n=31 vs. 34%, n=16).
- Motor vehicle-related deaths were highest among adolescents aged 15-19 years as compared to other age groups. This group alone accounted for 53% (n=25) of all motor vehicle deaths reviewed.
- Occupants accounted for more than half of these motor vehicle deaths.
- Pedestrian injuries were responsible for 28% (n=13) of motor vehicle deaths with 39% (n=5) involving children less than 5 years of age.

FIGURE 10: Child Motor Vehicle Deaths by Review Type, 1996-1998



Recommendations

Based on the extent of motor vehicle-related injuries, the CFRC recommends:

- Infants should:
  - be placed in a rear-facing child safety seat until they are at least 20 pounds and 1 year of age.
  - ride in forward-facing child safety seats.
- Children over one year of age weighing 20-40 pounds should:
  - use booster seats. Older children (4-8 years of age) should ride in belt positioning booster seats until they weigh 60-80 pounds and can use an adult-size lap and shoulder belt system.
- Promoting use of both the lap and shoulder belts.
- Encouraging the use of helmets on motorized vehicles and bicycles.
- Proper installation and use of car seats.

Suffocation Deaths

Of all injury deaths, suffocation accounted for 6% (n=24) and of those, 96% (n=23) received a Full Committee Review (see Table 15). The following statistics are based on those 23 suffocation deaths:

- Fifty-two percent (n=12) of suffocation victims were males.
- The majority of victims, 65% (n=15), were less than one year old.
- Ninety-six percent (n=22) of victims were White Hispanic and Non-Hispanic.
- No suffocation deaths were reported for children aged 10–14 years.
- Twenty-six percent (n=6) were due to accidental mechanical suffocation in a bed or crib.

While the majority (65%, n=15) of suffocation deaths occurred in children under one year of age, suffocation continues to be a problem for toddlers between ages one and four. Unfortunately, 22% (n=5) of suffocation deaths were determined unspecified, undetermined, or unknown.

TABLE 15: Full Committee Reviewed Suffocation Deaths by Age Group, 1996-1998

Age	Number of Deaths	Percent of Deaths
<1 year	15	65
1-4 years	4	17
5-9 years	1	4
10-14 years	0	0
15-19 years	3	13
TOTAL	23	100

Recommendations

For children, the degree of the risk of death due to choking, asphyxiation, or suffocation is determined by their developmental stage and exposure to objects in the environment. Since young children are especially at risk for death due to airway obstruction, CFRC recommends the following:

- Educate parents about the hazards of soft bedding and how to ensure safe sleeping arrangements for their children.
- Educate parents and caregivers about choking hazards and teach them first aid for choking.
- Educate parents how to child-proof their home.

TABLE 16: Full Committee Reviewed Suffocation Deaths by Cause, 1996-1998

Cause	Number of Deaths	Percent of Deaths
In Bed or Cradle	6	26
Accidental	5	22
Cave In (Falling Earth)	3	13
Choking	3	13
Undetermined	2	9
Other Unspecified	2	9
Accidental Poisoning	1	4
Unknown	1	4
TOTAL	23	100

Drowning Deaths

The CFRC conducted a Full Committee Review on 25 of the 27 children who drowned in Utah. Based on the 25 reviewed cases:

- Eighty-eight percent (n=24) occurred among males.
- Ninety-six percent (n=24) of drowning victims were White Hispanic and Non-Hispanic.
- The majority (89%, n=8) of the 1–4 years age group were aged two years or less.

- No drowning incident was reported for children aged less than one year.
- Most drowning deaths (44%, n=11) occurred in a swimming pool (Table 20).
- Drowning accounted for 7% (n=25) of all injury deaths.
- The place of drowning varied by age.

TABLE 17: Reviewed Child Drowning Deaths by Age, 1996-1998

Age	Number of Deaths	Percent of Deaths
<1 year	0	0
1-4 years	9	36
5-9 years	1	4
10-14 years	5	20
15-19 years	10	40
TOTAL	25	100

The majority of drowning deaths took place in swimming pools. It is important for adults to take every possible safety precaution when children are using both private and public swimming pools, even if a lifeguard is on duty.

TABLE 18: Full Committee Reviewed Drownings by Type of Place, 1996-1998

Type of Place	Number of Deaths	Percent of Deaths
Swimming Pool	11	44
Recreational Activity (fishing, swimming, water skiing)	4	16
Bathtub	4	16
Accidental Fall into Water/River	4	16
Pond	1	4
Canyon/Flash Flood	1	4
TOTAL	25	100

Recommendations

- Provide appropriate supervision when children are in or near water.
- Enforce ordinances for locked fences surrounding swimming pools.
- Teach children how to swim.
- Develop media messages on water safety.

Suicide Deaths

From 1996-1998, of the 127 suicide deaths of those aged 21 years or less, 125 received a review by the Full Committee. Based on the 125 reviewed cases:

- Males accounted for 82% (n=103) of the suicides.
- Eighty-six percent (n=107) of victims were aged 15–19 years.

- The remaining 14% (n=18) of suicides were observed in the 10-14 year age group.
- The most common method of suicide was use of firearms (52%, n=66).
- Ninety-one percent (n=114) of suicide victims were White Hispanic and Non-Hispanic.
- Hanging accounted for 31% (n=38) of all suicides.
- Poisoning (n=13) and hanging (n=38) were more common among females as compared to males.

TABLE 19: Full Committee Reviewed Suicide Deaths by Race, 1996-1998

Race	Number of Deaths	Percent of Deaths
White Hispanic and Non-Hispanic	114	91
Black/African American	0	0
Native American	6	5
Asian/Pacific Islander	2	2
Other	3	2
TOTAL	125	100

Table 20: Full Committee Reviewed Suicide Deaths by Method, 1996-1998

Method	Number of Deaths	Percent of Deaths
Firearm	66	52
Hanging	38	31
Poisoning by Substances/Gases	13	10
Asphyxia	2	2
Jump	1	1
Other	5	4
TOTAL	125	100

Recommendations

- Educate parents about the dangers of firearms in the home when children are present.
- Publish data and information from the Utah Youth Suicide Study initiated in 1996 by the Utah Department of Health.
- Increase public awareness of the warning signs of suicide.

Homicide Deaths

From 1996-1998, there were 52 homicide deaths among children in Utah (Table 23). Every case was thoroughly reviewed by the Full Committee. Based on these cases:

- Sixty-two percent (n=32) of homicide victims were male.
- The majority, 61% (n=32), of homicide victims were aged 15–19 years (Table 23).
- Eighty-six percent (n=45) of victims were White Hispanic and Non-Hispanic (Table 24).
- More than half, 56% (n=29) of homicides were committed with some type of firearm (Table 25).
- Nearly all homicide deaths of children aged one year or less were due to child abuse and/or Shaken Baby Syndrome.

TABLE 21: Full Committee Reviewed Homicide Deaths by Age, 1996-1998

Age	Number of Deaths	Percent of Deaths
<1 year	5	10
1-4 years	6	12
5-9 years	3	5
10-14 years	6	12
15-19 years	32	61
TOTAL	52	100

TABLE 22: Full Committee Reviewed Homicide Deaths by Race, 1996-1998

Race	Number of Deaths	Percent of Deaths
White Hispanic and Non-Hispanic	45	86
Black/African American	3	6
Native American	4	8
Asian/Pacific Islander	0	0
Other	0	0
TOTAL	52	100

TABLE 23: Full Committee Reviewed Homicide Deaths by Method, 1996-1998

Method	Number of Deaths	Percent of Deaths
Assault by Firearm	29	56
Assault by Other Unspecified Methods	11	21
Battering (Child Abuse/ Shaken Baby Syndrome)	5	10
Assault by Cutting/ Piercing Instrument (stabbing)	3	5
Assault by Hanging/Strangulation	1	2
Assault by Poisoning	1	2
Unarmed Fight	1	2
Legal Intervention/Firearm	1	2
TOTAL	52	100

Recommendations

- Promote the use of firearm safety locks and safe firearm storage.
- Continue to educate parents about the lethality of shaking a child.
- Increase resources for youth and adult violence prevention.

Progress and Accomplishments

Summary of CFRC Progress and Accomplishments

SUMMARY OF CFRC PROGRESS AND ACCOMPLISHMENTS

The CFRC has evolved since its formation in 1992. Due in part to a growing population and concern for preventing injury-related deaths, the CFRC has increased the number of deaths that receive a review, enhanced the quality of the reviews, and strengthened the participation on the Committee. The following are brief examples of CFRC accomplishments:

Creation of the Utah Youth Suicide Study (UYSS)

The idea to create the UYSS in 1993 was an attempt by the CFRC to gain a better understanding of how to prevent suicide and identify barriers to identification and treatment. The UYSS is designed to look into factors which might contribute to the decision to commit suicide. Phase I of the UYSS focused on the collection of governmental agency contacts for the completers. Phase II consisted of parent interviews. Phase III included community contact interviews with friends, teachers, religious leaders, coaches, and other individuals of close contact with the suicide completer. The current phase is a pilot study targeting high-risk youth in the Third Juvenile Court District to provide a comprehensive family-oriented treatment intervention with comparison to a matched control group. Through legislative efforts of the State PTA, a Youth Suicide Prevention Task Force was established and continues to address recommendations for statewide suicide prevention efforts.

Primary Enforcement Seat Belt Legislation

Utah statistics show that motor vehicle fatality rate among 15-19 year olds is high and restraint use is low. Therefore, the CFRC recommended working towards a primary enforcement seat belt law, which allows law enforcement to stop drivers for lack of seat belt use. In 1996, a bill was introduced, but unfortunately failed by one vote. Even so, the CFRC continues its support for this legislation. The CFRC has worked for the passage of graduated driver's license legislation which is a system designed to phase-in young drivers to full driving privileges as they mature and develop their driving skills. Legislation to better prepare young drivers failed on numerous attempts, but a weakened modified version was passed in 1999. Attempts to strengthen the law have failed.

The SIDS Campaign

In 1994, the Utah Department of Health began the "Back to Sleep" Campaign which educates health care providers and parents to place infants on their back to sleep and to create a safe sleep environment. Since that time, there has been a significant reduction in the SIDS rate. Despite the success of this campaign, more than half of infants who died of SIDS between 1996-1998 were found dead in unsafe sleep environments. Public health personnel have continued to educate infant caregivers on proper sleep positions as well as safe crib and bedding.

Public Service Announcements

Frequently, preventable injuries and trends are identified by the CFRC. As a result, public service announcements and news conferences have been held to address such issues as deaths by drowning, pedestrian safety and bicycle helmet usage.

Improvements to the Review Process

The CFRC has incorporated significant improvements to the death review and data collection process. Instead of reviews being conducted monthly, a "Rapid Response" system was recommended and implemented. The CFRC Coordinator is now notified by the OME within 1-2 days of a child's death and a full review takes place within three weeks of the death for those deemed appropriate by the Medical Examiner. The CFRC has also been developing a new database that will include 1999 data and beyond. It has been designed to collect more detailed information on demographics, risk and preventive factors, and outcomes. Future CFRC reports will be based on the new review process and data collection system.