

# **Nebraska Child Death Review Report**

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**For Child Deaths Occurring in 2010 and 2011**



**THE 9TH REPORT OF THE  
NEBRASKA CHILD & MATERNAL DEATH REVIEW TEAM**

**November, 2015**

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The Honorable Pete Ricketts, Governor  
Honorable Members of the Nebraska State Legislature

This ninth report on child deaths in Nebraska is submitted to you in accordance with Nebraska Revised Statute §71-3404. The report presents the Child and Maternal Death Review Team’s findings on the 453 deaths to Nebraska resident children ages 0 to 17 years, during the years 2010 and 2011.

The top five causes of death for the state’s children during 2010 and 2011 were:

- Pregnancy-related causes (135 deaths)
- Birth defects (128 deaths)
- Sudden Unexpected Infant Death (SUID; 43 deaths)
- Motor vehicle-related incidents (35 deaths)
- Cancer (30 deaths)

Since child death reviews began in 1993, child deaths have decreased by over one-third, testimony to the hard work of parents, communities, medical providers, and state and private agencies to reduce the number of risks that children encounter, and to improve the access to and quality of medical care that they receive.

However, CMDRT members either **somewhat or strongly agreed** that at least one-quarter (26.9%) of all child deaths during 2010 and 2011 were **preventable**. In addition, the decrease in deaths is uneven among racial and ethnic groups,

indicating that improved education, prevention and resources have not reached all families. It is also sadly true that deaths are only the “tip of the iceberg” and that for each death documented in this report, an unknown number of children suffer from similar but non-fatal incidents. This report includes recommendations around common-sense actions by caregivers, and targeted activities by communities, and state and private agencies, that would have a positive effect on child safety and well-being.

Please note that the views and recommendations in this report are those of the CMDRT, and do not necessarily reflect those of the Nebraska Department of Health and Human Services.

We welcome any thoughts or comments you may have on this report, and look forward to working with you to continue to enhance the safety and well-being of Nebraska’s children.

Sincerely,



Courtney N. Phillips, MPA  
Chief Executive Officer  
Department of Health and Human Services

Cover photo credit: SarahharaS1

<http://sarahharas1.deviantart.com/art/Forget-me-not-370276340>

The Child Death and Maternal Review Team would like to thank the County Attorneys and their staff, hospital Medical Records Departments, Tribal Authorities, state agencies, DHHS staff, medical providers and other individuals who graciously provided the information that made this report possible.

The following individuals also provided invaluable assistance in interpreting the information:

Dr. Don Belau, Doane College

Ms. Christena Baker, MSW, LICSW

Dr. John Schmidt, Creighton University Medical Center

This report was designed to provide useful information for evaluation, planning and prevention purposes. Any questions or comments regarding the report or the Nebraska Child and Maternal Death Review Team should be directed to:

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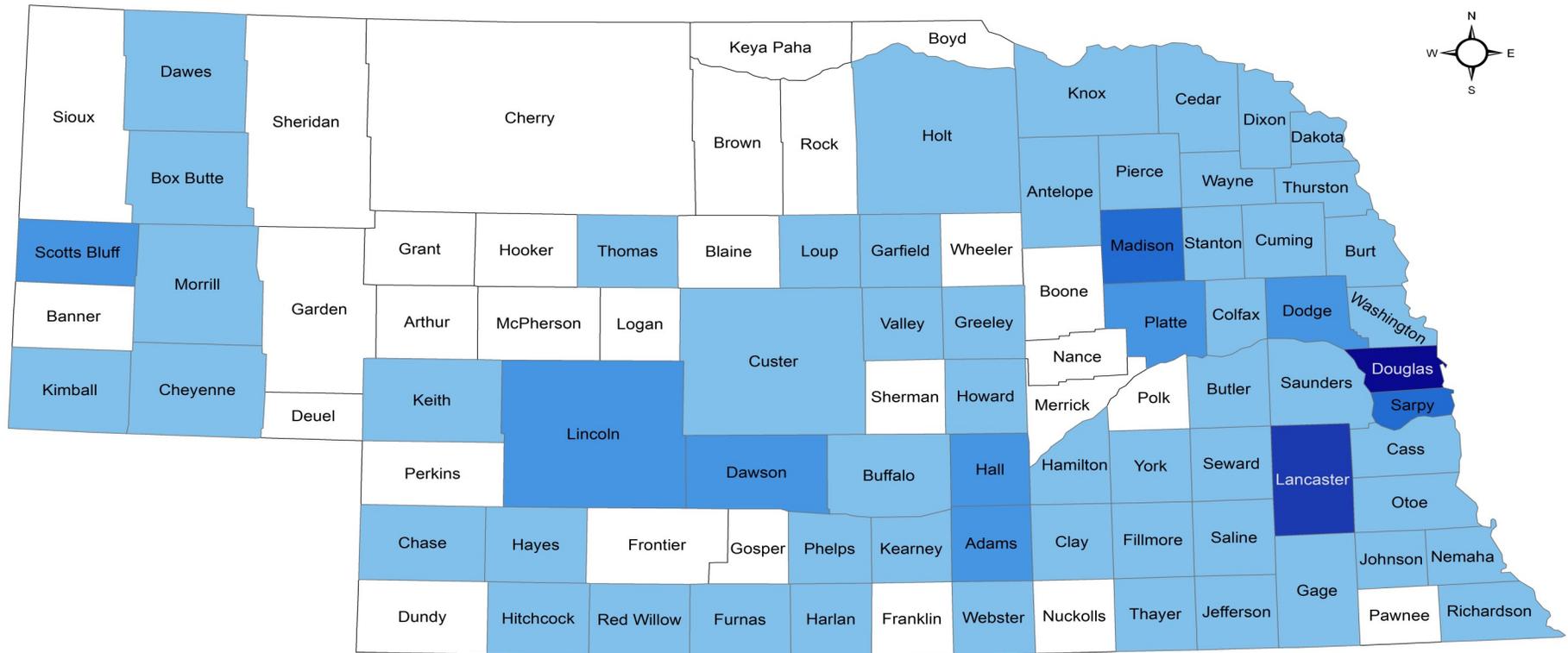
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CMDRT reports are also available at <http://dhhs.ne.gov/publichealth/Pages/CMDRTeam.aspx>.

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# Infant and Child Deaths (0-17) by County of Residence (453 deaths) Nebraska 2010-2011



**LEGEND** Infant and Child Deaths, by County



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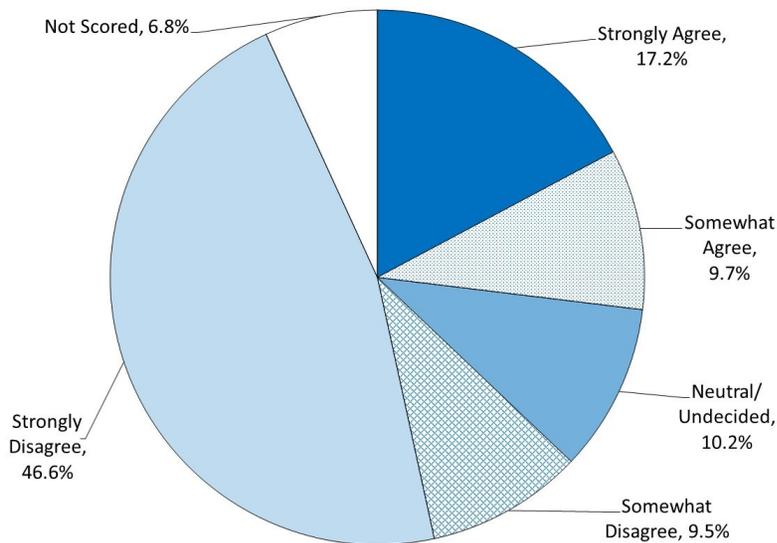
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# Review of 2010-2011 Nebraska Child Deaths

## Executive Summary

Systematic study of the causes and patterns of child death provides crucial data for the prevention of future deaths. A total of 453 Nebraska children ages 0 to 17 died during 2010 and 2011, significant decreases in both the number and rate of deaths since child death reviews began in 1993.

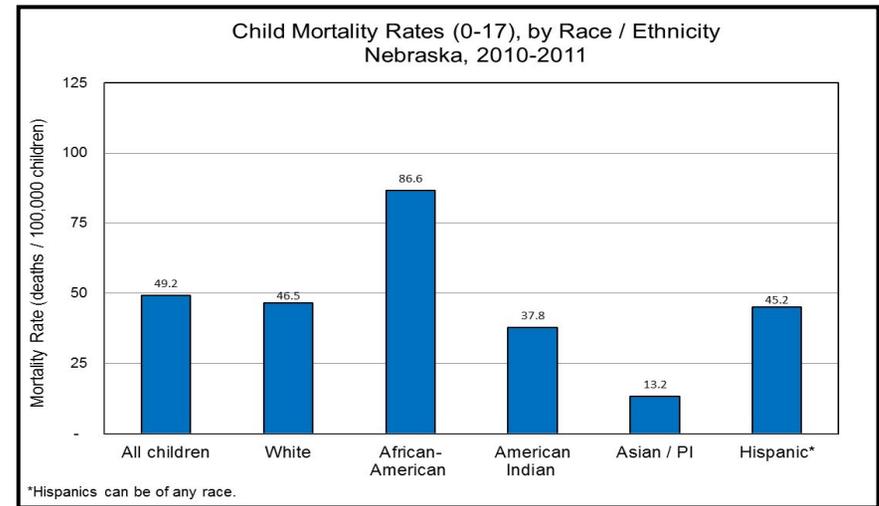
For at least one-quarter (26.9%) of the child deaths in 2010 and 2011, CMDRT members **somewhat or strongly agreed** with the statement that **the death was preventable**.



### Top Five Cause-of-Death Categories

1. Pregnancy-Related – 135 deaths
2. Birth Defects – 128 deaths
3. Sudden Unexpected Infant Death – 43 deaths
4. Motor Vehicle-Related – 35 deaths
5. Cancer – 30 deaths

**Key Finding: Racial and ethnic inequities in child deaths are persistent in Nebraska.** Although mortality rates for all groups are declining over time, African-American children consistently die at a higher rate than the state's other children.



### Key Recommendations for the Prevention of Future Deaths

#### Goal: Healthy lifestyles / Healthy pregnancies

##### Key Strategies:

- Expand tobacco cessation and substance abuse prevention /treatment services for reproductive age women
- Include preconception care as a vital and routine part of care for reproductive age women

#### Goal: Safe and supportive environments for children

##### Key Strategies:

- Expand family and community-level promotion of safe sleep practices
- Strengthen child restraint, graduated licensing and seatbelt laws
- Expand suicide prevention programs across the state

#### Goal: Improved investigation and documentation of child deaths

**Key Strategy:** Expand training requirements for law enforcement personnel and other public officials on death scene investigations

## Review of 2010-2011 Nebraska Child Deaths

*The Legislature finds and declares that it is in the best interests of the state, its citizens and especially the children of this state that the number and causes of death of children in this state be examined. There is a need for a comprehensive integrated review of all child deaths in Nebraska and a system for statewide retrospective review of existing records relating to each child death. §71-3404 Neb. Rev. Stat.*

This report presents the findings and recommendations of the Nebraska Child and Maternal Death Review Team, based on the review and tabulation of the 453 deaths of Nebraska resident children (newborns through age 17) known to have occurred during 2010 and 2011. The traditional belief that “things will happen” ignores the reality that many of these deaths could have been prevented.

### **BACKGROUND**

The Nebraska Child and Maternal Death Review Team (CMDRT) was established by the Nebraska Legislature in 1993 and charged with undertaking a comprehensive, integrated review of existing records and other information regarding each child death. At that time, the Nebraska Commission for the Protection of Children had found that about 300 children died each year in the state, but that there was no systematic process in place for consistent review of those deaths to determine contributing circumstances.

The purpose of the CMDRT includes developing an understanding of the number and causes of child deaths, and advising the Governor, Legislature, other policymakers and the

public on changes that might prevent them in the future. All child deaths are reviewed, not just “suspicious” or violent ones. The team uses information in written records and the expertise of its members to identify situations where, in retrospect, reasonable intervention might have prevented a death. Members of the original team determined that the specific goals of these reviews would be to:

- Identify patterns of preventable child deaths;
- Recommend changes in system responses to child deaths;
- Refer to law enforcement newly-suspected cases of abuse, malpractice, or homicide; and,
- Compile findings into reports designed to educate the public and state policymakers about child deaths.

In 2012, the Nebraska Legislature expanded the team’s responsibilities to include the review of maternal deaths. Results of these reviews will begin in the report for deaths occurring in 2014.

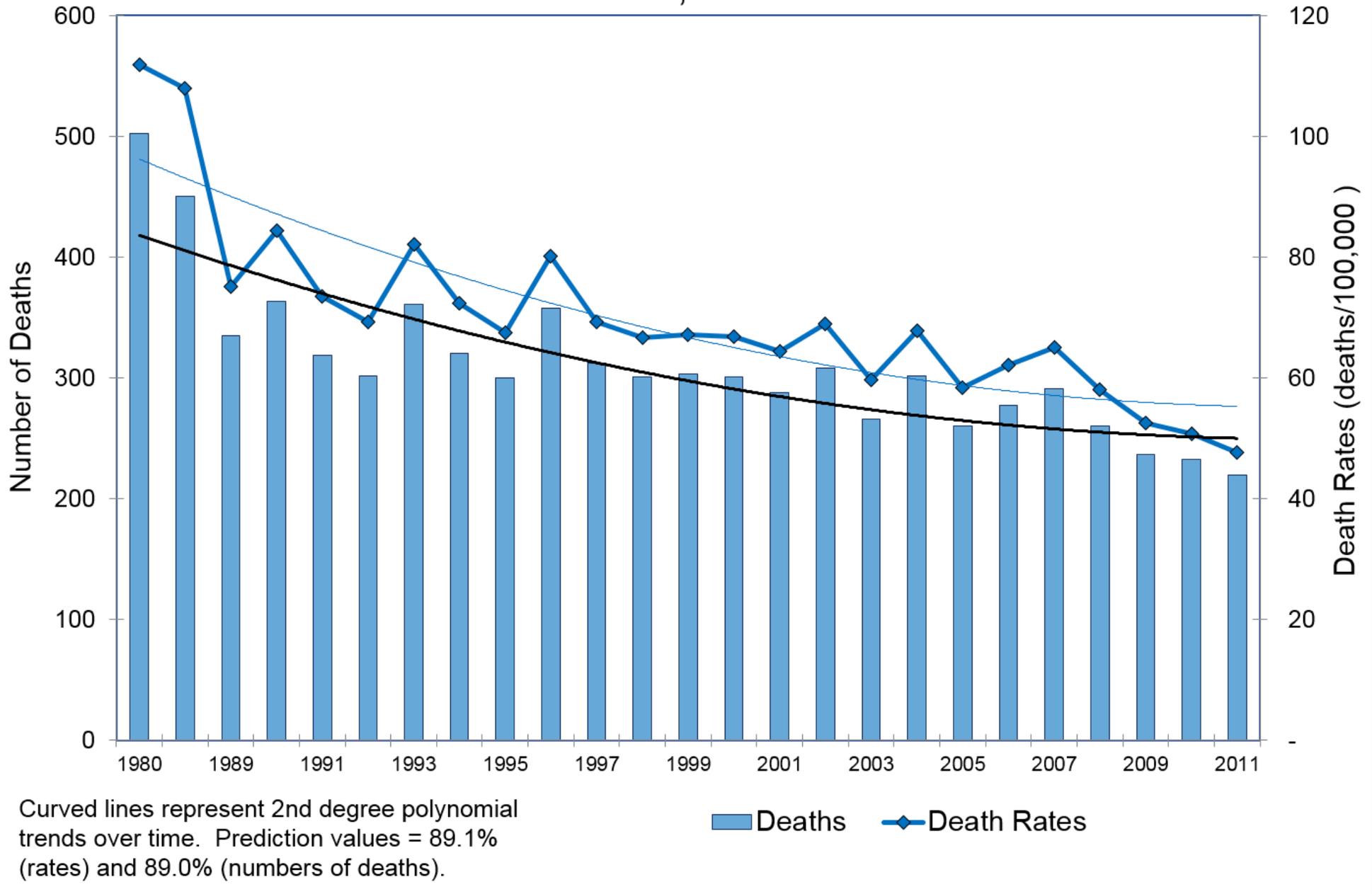
### **FINDINGS**

A total of 453 Nebraska children ages 0 to 17 died during 2010 and 2011, continuing a decline observed since 2007 (Figure 1). Although there is considerable year-to-year variability, the overall historical trend has been towards fewer deaths.

The average number of deaths for 2010 and 2011 combined (227) represents a 37% decrease in the annual number of deaths since child death reviews began in 1993 (361 deaths).

Figure 1.

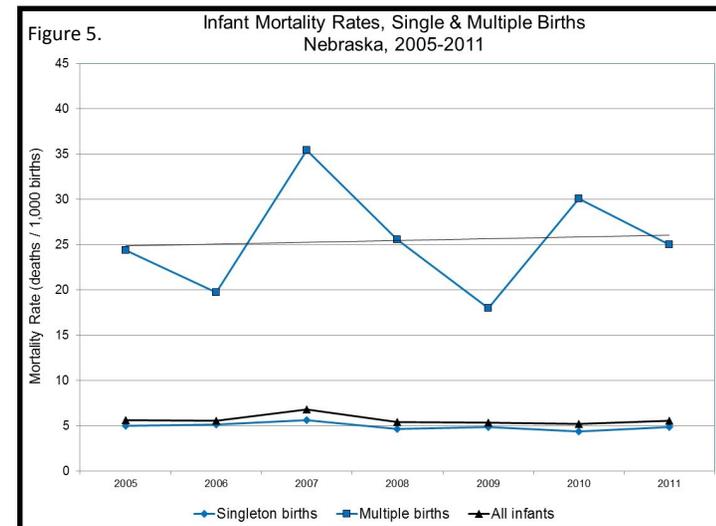
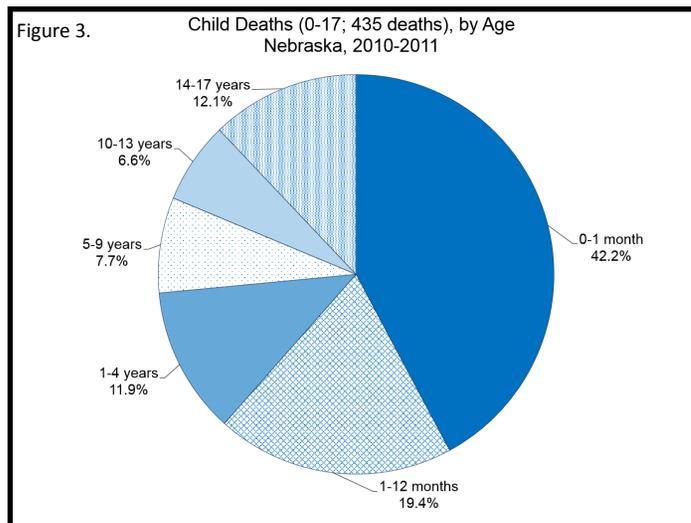
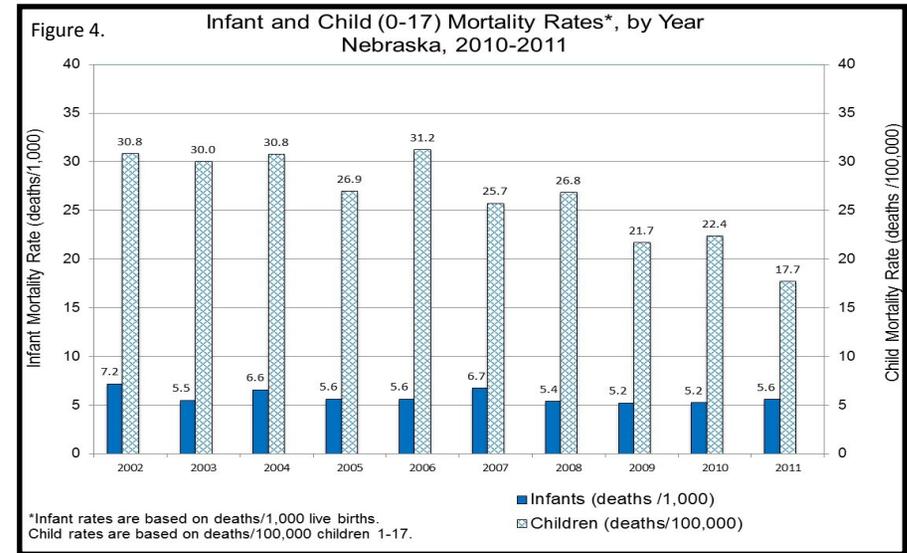
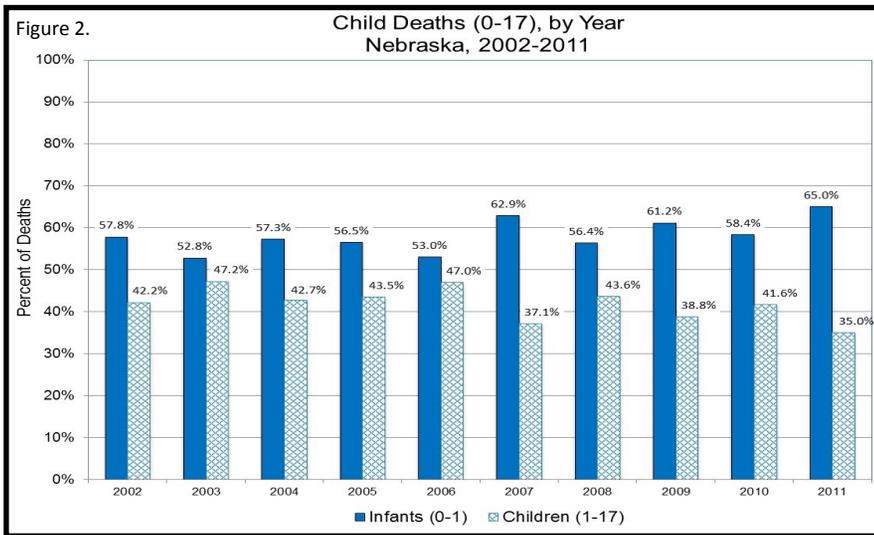
## Child Deaths (0-17) and Death Rates Nebraska, 1980-2011



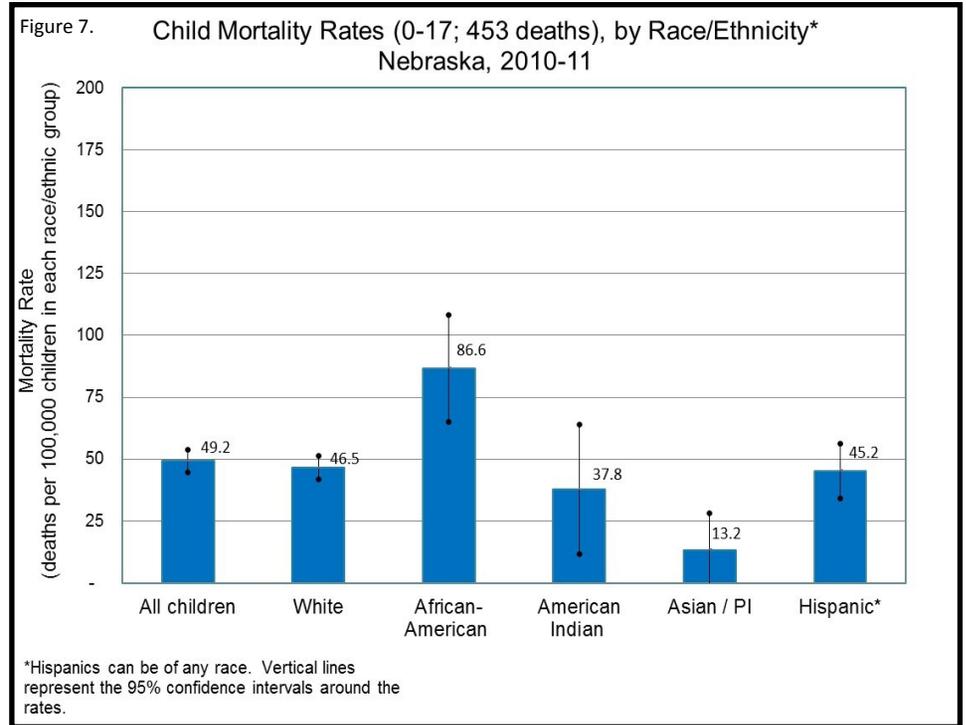
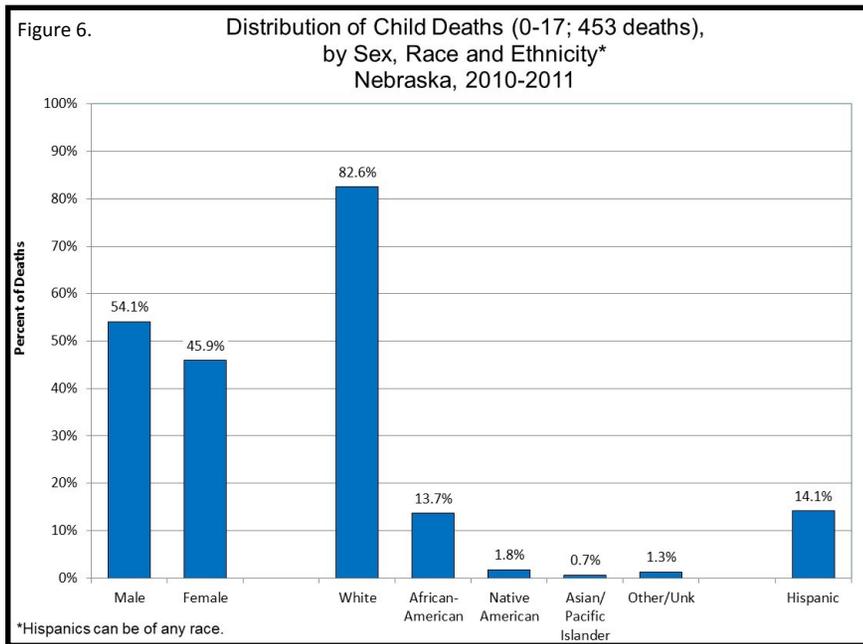
## Demographics

Infants (less than 12 months old) accounted for 60% of all child deaths (Figure 2); approximately two-thirds of infants died within their first month (Figure 3). Among children at least 1 year old, the largest proportion of deaths was for ages 14 to 17 (Figure 3).

Overall, mortality rates for both infants and children are declining over time (Figure 4). Mortality is considerably higher for multiple gestation infants than for singletons (Figure 5).



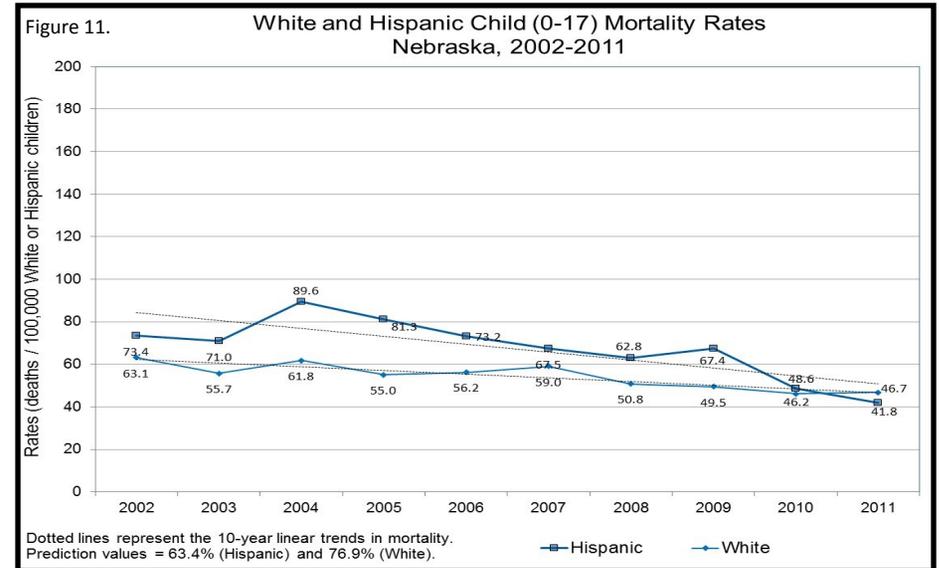
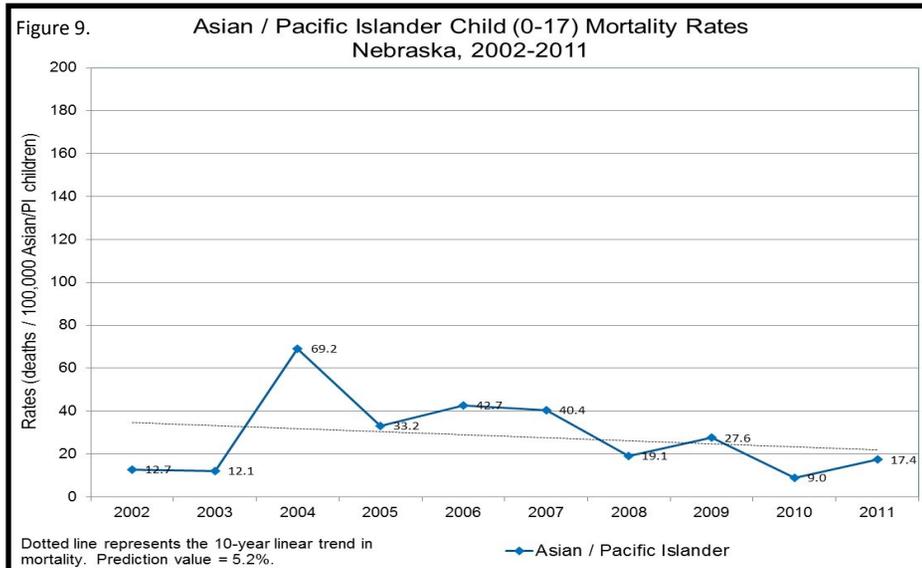
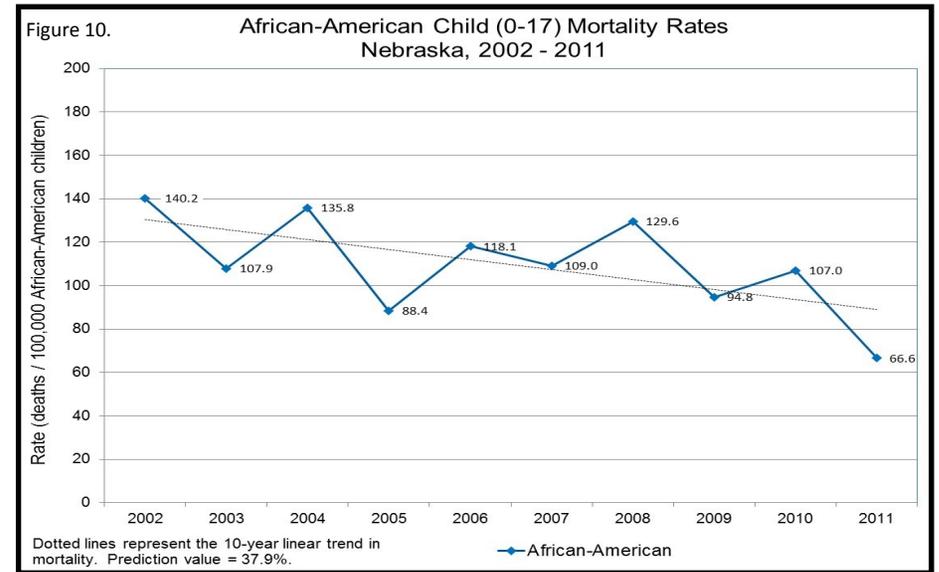
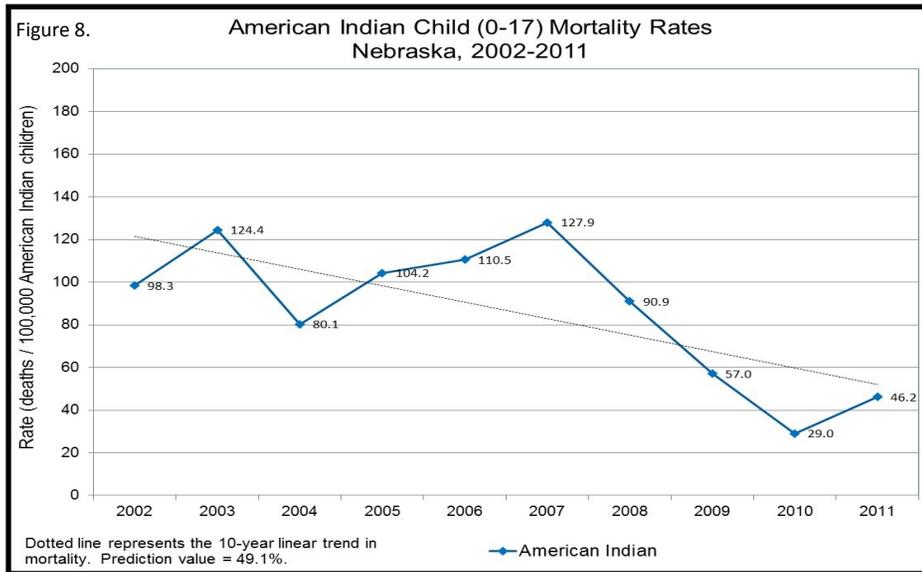
Slightly over one-half (56.5%) of all child deaths were male (Figure 6). White children made up the vast majority (82.6%) of deaths. While the percentage of deaths that are of Hispanic children has generally been increasing over time, this percentage decreased from 18.1% in the 2009 report to the current 14.1%. (Figure 6).



As in previous reports, when comparing rates of death per 100,000 children, African-American children died at a significantly higher rate than other children (Figure 7). The mortality rate for American Indian children was lower than the state rate for the first time since the CMDRT began tracking deaths, although these rates are based on small numbers and have consistently large confidence intervals.

The 10-year trends in child mortality rates show some level of decline for all racial/ethnic groups. These declines are statistically significant for Native American, White and Hispanic children, despite a slight increase in the 2011 rate for Native American children (Figures 8-11). Although there was

a notable 38% drop in mortality for African-Americans between 2010 and 2011, the 10-year trend was too uneven to show a statistically significant decline (Figure 10). Rates for Asian / Pacific Islander children have been based on very few deaths since 2005, and can be considered as near zero.



## Causes of Death

### Overview

Approximately one-third (29.8%) of all child deaths during 2010 and 2011 were attributed to perinatal conditions, a category which combines maternal complications during pregnancy, complications of labor and/or delivery, preterm birth, and other conditions specific to pregnancy and the neonatal period (Table 1, Figure 12). Some of the children in this category survived into their teen years, yet the underlying problem was determined to have originated during pregnancy or soon after birth. Because some preterm births result from maternal complications such as infections, for which prevention strategies are available, deaths were attributed to preterm birth *only* if no specific cause or indication for preterm delivery could be identified.

Birth defects were the second most common underlying cause of death category (28.3%). Most of the defects were diagnosed at birth or during infancy, but several were not detected until the child was older.

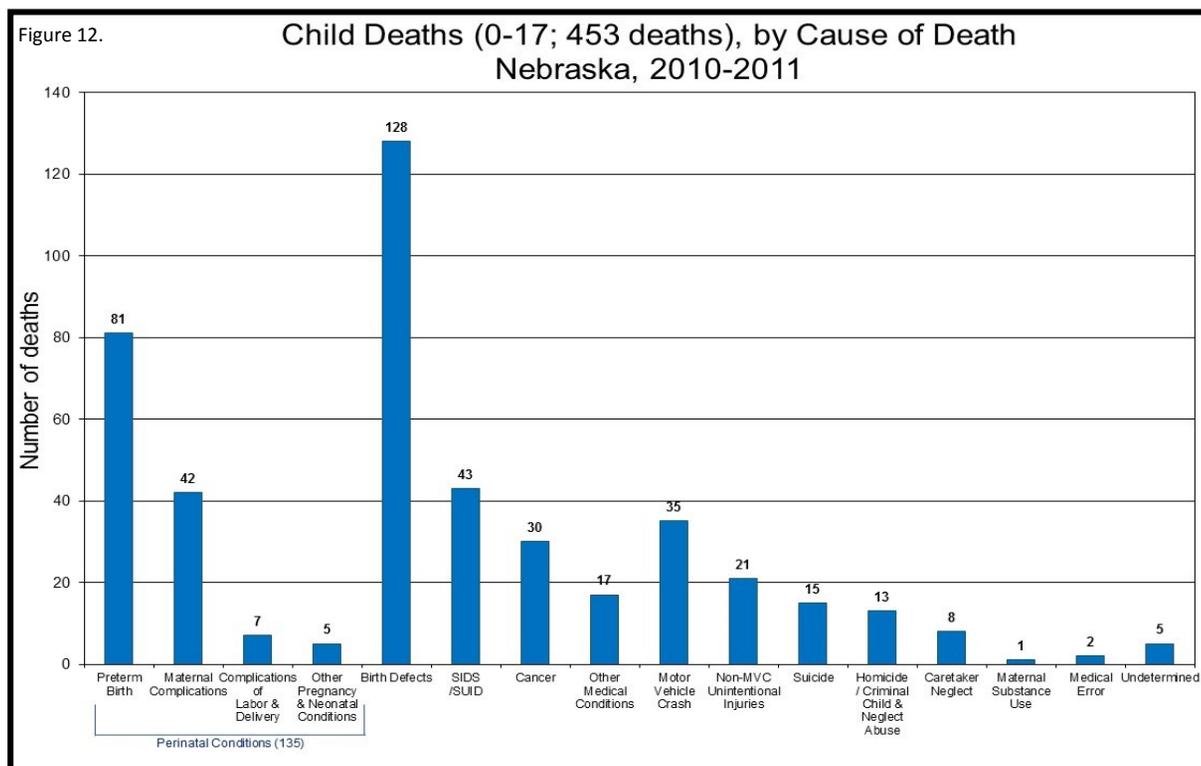
Sudden unexpected infant deaths (SUID) were the third most common category (9.5%) in this period. These deaths encompassed a variety of circumstances, the common factor involving the infant being in a sleep environment.

Motor vehicle-related incidents made up the fourth largest group of deaths for 2010-2011 (7.8%), compared to third largest in 2009.

For the first time since 2004, cancer deaths (6.6% of all deaths) exceeded those from non-perinatal (“other”) medical conditions (3.8%).

Among other causes of death categories, deaths from unintentional injuries and undetermined causes were slightly lower than in 2009. Deaths from suicide, caretaker neglect, and medical error were slightly higher. Deaths were attributed to maternal substance use for the first time since 2007, however, the low number of these cases is thought to be related to under-reporting more than changes in occurrence.

Individual cause of death categories are discussed in greater detail in the following sections.



## Preventability

All child deaths were individually assessed as to the degree to which they were preventable. For each case, members assessed whether or not they:

<b>Strongly Disagreed</b>	<b>Somewhat Disagreed</b>	<b>Were Neutral / Undecided</b>	<b>Somewhat Agreed</b>	<b>Strongly Agreed</b>
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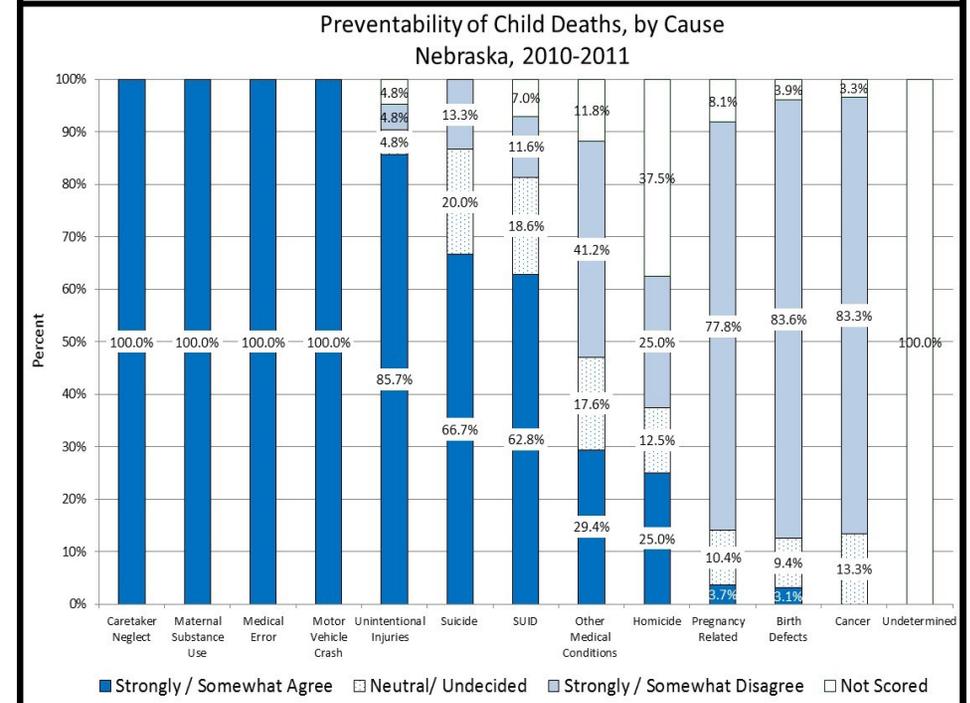
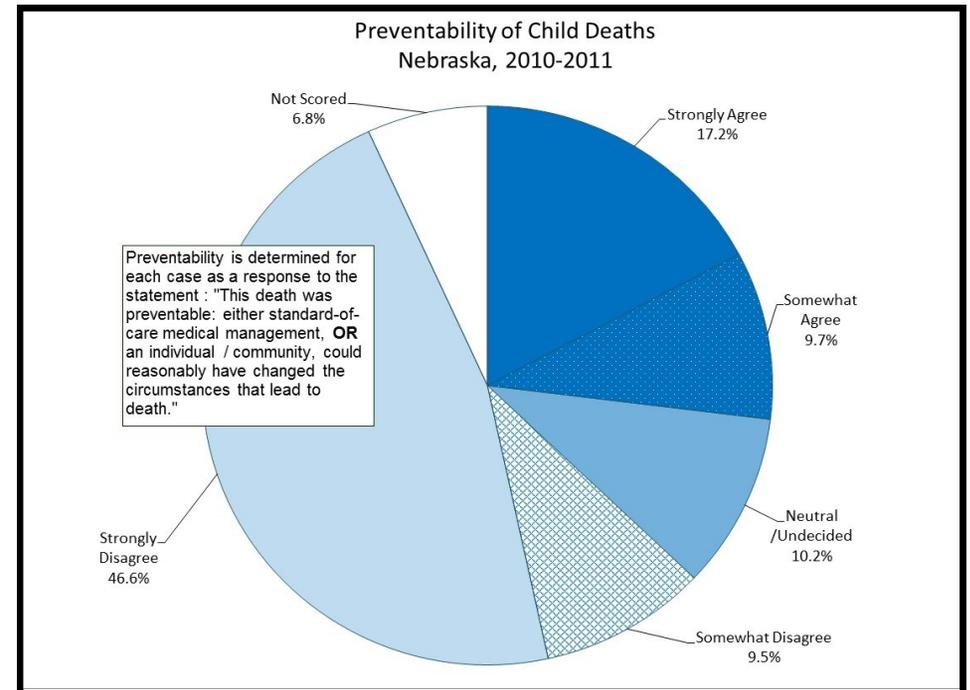
with the statement:

This death was preventable - standard-of-care medical management would have changed the circumstances that led to death. (Medical cases)

OR

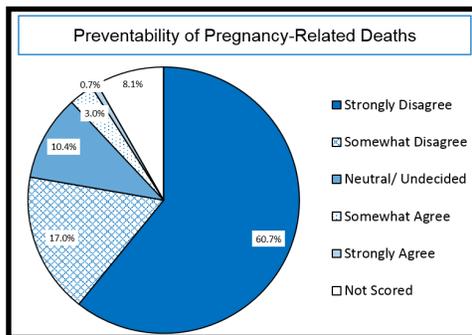
This death was preventable - an individual or community could reasonably have done something that would have changed the circumstances that led to death. (Non-medical cases)

Preventable deaths (“strongly agree” or “somewhat agree”) made up one-quarter (26.9%) of all cases, and ranged from 100% for Motor Vehicle Crashes (35 deaths) to 4% for Birth Defects (128 deaths; Figure 13). No clearly preventable factors were identified for cancer deaths. Over the two year period, 5 cases (1.1%) were unable to be assigned a true cause of death, and thus did not have sufficient information to determine preventability (“not scored”).



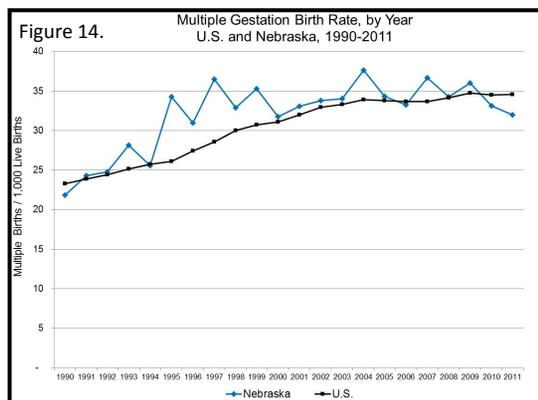
## Pregnancy-Related Deaths – Key findings

Perinatal or pregnancy-related issues continue to be the leading cause of death category for Nebraska children. Members **somewhat or strongly agreed** that very few of these deaths (3.7%) had **preventable** aspects.



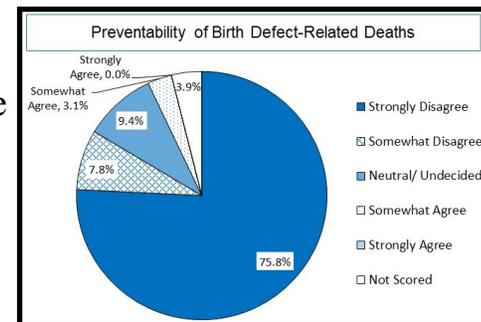
Nearly all children (93.3%) with pregnancy-related deaths were born prematurely (Table 2). However, over one-third (35.7%) of these children had a documented cause or indication for their preterm birth, most commonly maternal pre-eclampsia or insufficient cervix (Table 2).

Multiple gestation infants (twins, triplets, etc.) account for only 3.3% of all births, but nearly forty percent (39.5%) of the premature infants with no known indication or cause. The rate of multiple gestation births had been relatively stable in recent years but appears to be decreasing (Figure 14). Consistent and comprehensive prenatal care along with maternal awareness of the risks and signs of preterm delivery, and of the risks of multiple gestation pregnancies, are the best strategies to help prevent complications that can result in pregnancy-related child deaths (<http://www.cdc.gov/reproductivehealth/maternalinfanthealth/PretermBirth.htm>).



## Birth Defects – Key findings

Birth defects continue to be the second largest cause of death category for children in Nebraska. However, members **somewhat or strongly agreed** that there were **preventable** aspects for very few (3.1%) cases.



The most common fatal birth defects in 2010 and 2011 were related to chromosomal abnormalities (24.2% of all defects), most notably Trisomy 18 (Edwards Syndrome; 18 cases) (Table 3). An assortment of heart defects, typically labelled “congenital heart disease” on death certificates, also accounted for 18 deaths.

Four deaths (3.2%) were caused by neural tube defects (NTD). Unlike most birth defects, the occurrence of NTDs is reduced by up to 70% by the mother’s regular intake of folic acid before becoming pregnant (“preconception”). These cases accounted for the majority of all birth defect-related deaths considered to be potentially preventable.

Certain other congenital anomalies and chromosomal abnormalities, such as Down Syndrome (Trisomy 21), are known to be more prevalent in children born to younger and older women. Strategies to prevent birth defects largely center around improving women’s preconception and pregnancy health (<http://www.nbdpn.org/index.php>).

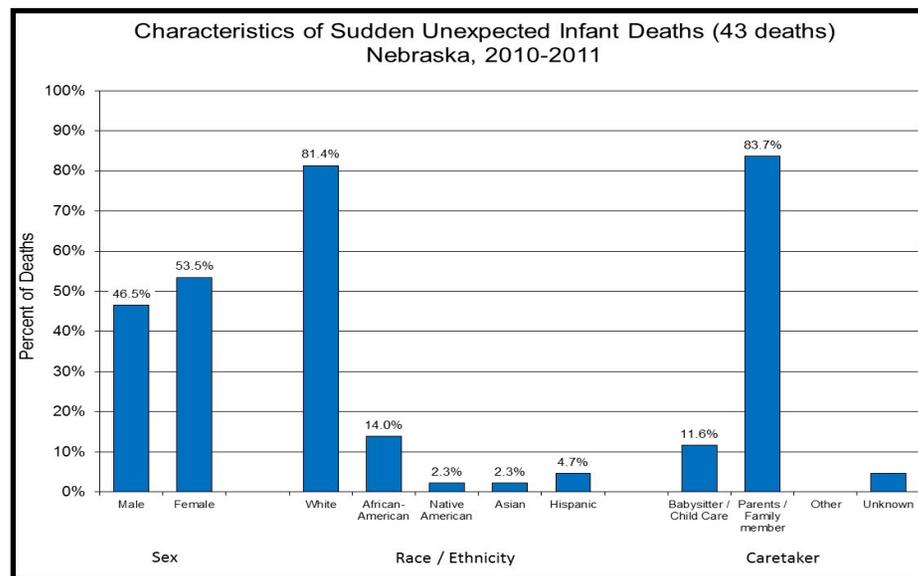
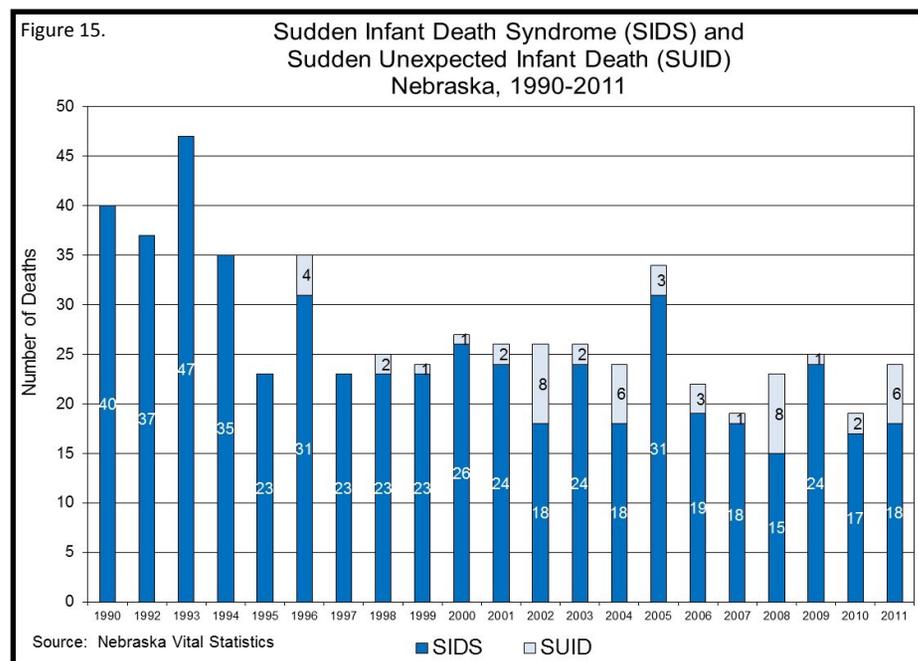
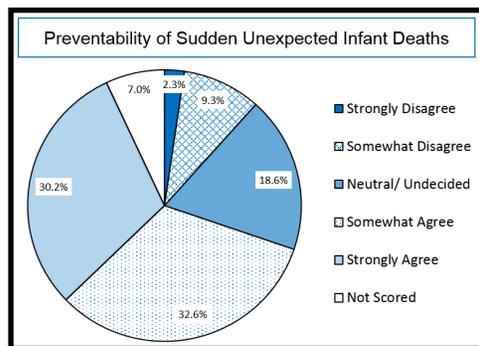
## Sudden Infant Death Syndrome (SIDS) / Sudden Unexpected Infant Death (SUID) – Key findings

All sleep-associated, unexpected infant deaths that occurred in 2010 and 2011 are included in this category, according to the following definitions:

- **SUID** – sudden, unexpected infant deaths from unknown causes that occurred in a sleep environment;
- **SIDS** – the subset of SUID cases where a thorough medical and legal investigation was conducted and the death occurred in a safe sleep environment.

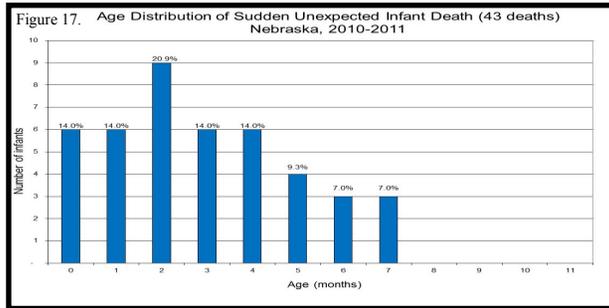
While the number of Sudden Infant Death Syndrome (SIDS) deaths recorded in Nebraska Vital Records has been decreasing over the past decade, the larger group of infants that died while sleeping (SUID) shows a fairly flat trend (Figure 15). Reviews showed strong inconsistencies in whether deaths occurring in similar circumstances were diagnosed as SIDS, “accidental suffocation or strangulation in bed,” or from “unknown cause.” Understanding these cases thus requires looking at the larger category rather than relying on the official cause of death. A total of 43 SUID cases were identified, and members **some-what or strongly agreed** that nearly two-thirds (62.8%) were preventable.

In contrast to previous years, over half (53.5%) of SUID cases were female (Table 6; Figure 16). As in past reviews, African-American infants were disproportionately represented among SUID cases, making up 14.0% of sleep-associated deaths but only 6.8% of the total birth population. Five (11.6%) sudden



infant deaths occurred while the infant was in the care of a babysitter or child care provider (Table 7; Figure 16).

Infants appeared to be at highest risk at age 2 months, with no cases occurring after seven months (Table 8; Figure 17).



Nebraska CMDRT tracks nine specific environmental risk factors that are known to be associated sudden infant death:

A common aspect of these risk factors is their effect on the infant’s ability to breathe clearly. All but two infants had one or more risks documented in their medical or legal records; three-quarters (76.7%) had two or more documented risks (Table 8).

- prenatal drug exposure
- prenatal or postnatal tobacco smoke exposure
- infant sleeping on an age-inappropriate surface
- infant sharing a sleep surface with an adult or other child(ren)
- infant was put to sleep on side or stomach
- deceased infant was found on side or stomach
- current or recent respiratory infection
- excessive bedding or other objects in sleep environment
- issues related to defective furniture

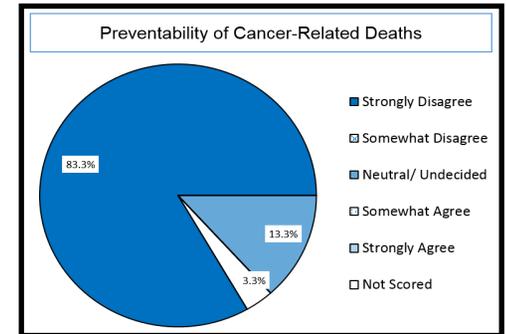
At least 38 (88.4%) of the infants were not sleeping in safe environments; following safe sleep practices would likely significantly reduce sleep-related infant deaths (<http://dhhs.ne.gov/publichealth/Documents/SIDSBrochure.pdf>).

Since 2006, Nebraska law (§71-2101; 2006) has required that the SIDS diagnosis only be used when an autopsy, examination

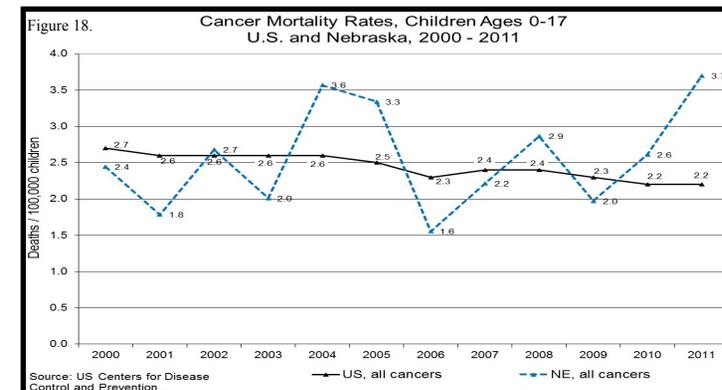
of the death scene, and review of the infant’s medical history fail to determine a cause of death. During 2010-2011, all but two of the 35 deaths reported as SIDS had an autopsy. However, only five had a death scene investigation in their records. Notably, both infants without any documented risks had minimal or no law enforcement investigation. The true number of infants whose death was linked to unsafe sleeping conditions is thus likely to be higher.

### Cancer / Malignant Neoplasms – Key findings

The death rate from childhood cancer rose in both 2010 and 2011, exceeding the previous peak observed in 2004 (Figure 18). In both cases, the increase in deaths largely involved brain tumors (Table 9).



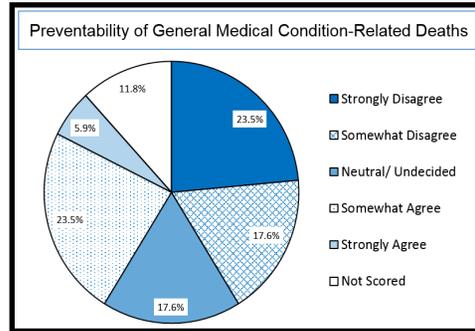
The varying ages at death of the children make it difficult to determine commonalities among the cases. All were documented as having received treatment at specialized cancer facilities; one case had no other information available. Only four



cases had documented non-clinical issues which may have affected their medical care.

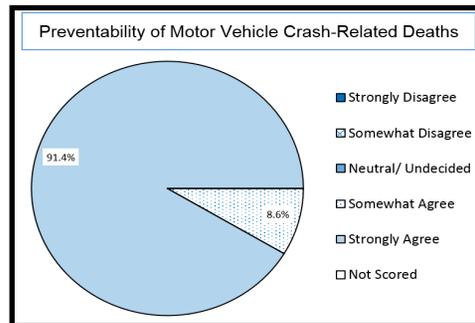
## General Medical Conditions – Key findings

General Medical Conditions include infectious and chronic diseases, as well as other medical conditions. Members either **somewhat or strongly agreed** that **preventable** aspects existed for one-quarter (29.4%) of these cases. Heart disease made up the largest single category (25.0%; Table 10). Two deaths from asthma occurred in children despite their having been under medical care for their condition. No single cause of death occurred more than twice.



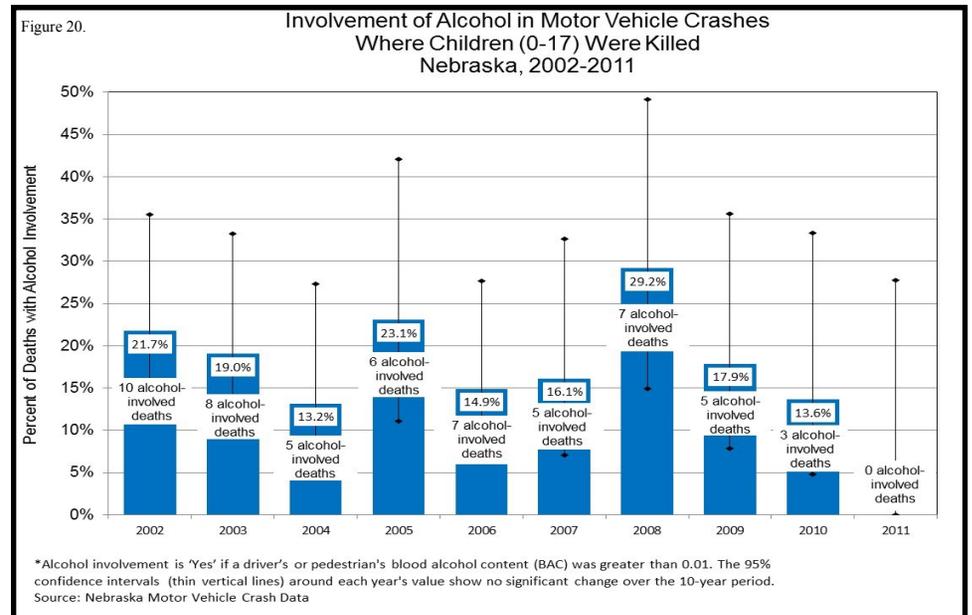
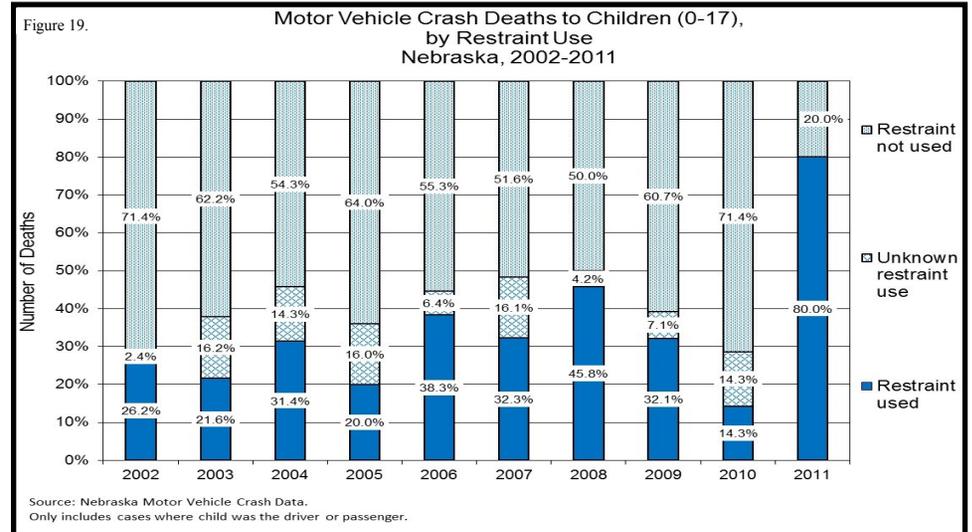
## Motor Vehicle-Related Deaths – Key findings

The number of motor vehicle-related deaths during 2010 and 2011 was their lowest number since the CMDRT began keeping detailed records in 2002 (Table 1). Members either **somewhat or strongly agreed** that all of these deaths were **preventable**. Two-thirds (67.7% of deaths were to teenagers ages 15 to 17 (data not shown). Three children were killed while riding an all-terrain vehicle (ATV; Table 11).



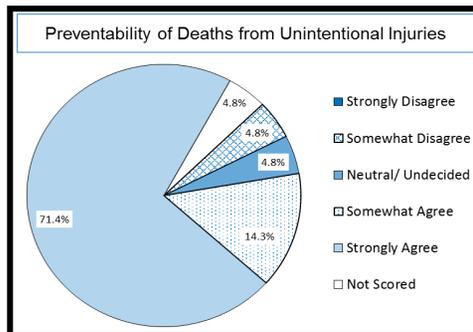
The proportion of cases in which the child was properly restrained (seatbelt or car seat), as documented by the Nebraska Department of Roads, reached both a low in 2010 (14.3%) and a high in 2011 (80.0%; Figure 19). Over the two-year period,

however, of the 31 children killed in a car crash, over half (54.8%) were unrestrained or improperly restrained. At least three (8.6%) of the fatal crashes involved alcohol use by a driver, a substantial drop from the high of seven alcohol-involved deaths in 2008 (Figure 20).



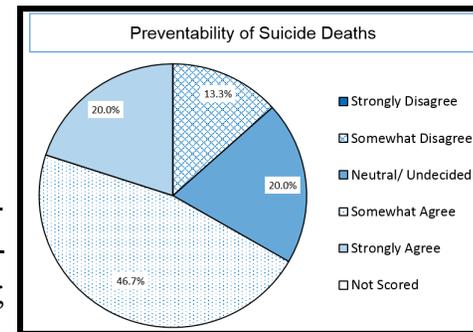
## Unintentional Injuries – Key findings

During 2010 and 2011, 21 children died from fatal unintentional injuries. Members **somewhat or strongly agreed** that the majority (85.7%) of these were **preventable**, with all cases having at least some preventable factors. The largest single cause of death was drowning (Table 15; Figure 21). However, four deaths (19.0%) were related to risky behaviors by teenagers, specifically recreational use of prescription drugs, deliberate inhalation of gasoline fumes, and intentional suffocation (“Choking Game”). This category also includes the neonatal death of an infant delivered prematurely as a result of his mother’s fall on ice. While remaining unintentional injury deaths were largely isolated events, members felt most were preventable with proper supervision by caretakers.



## Suicide – Key findings

Nebraska’s teen suicide rate (3-year averages) showed a slight increase from 2010 and 2011, although the actual numbers of deaths (8 and 7, respectively) were similar to 2009 (6; Figure 22; Table 13). However, the national suicide rate has been gradually increasing since 2007, and sustaining prevention activities is clearly important. Members **somewhat or strongly agreed** that at least two-thirds (66.7%) of Nebraska’s suicides during 2010 and 2011 were **preventable**.



Teen suicide victims continue to be predominantly male (Figure 23). The rise in suicides noted from 2004 to 2006 led to considerable resources being devoted to prevention. Over 1,400 Nebraska youth have been screened for suicide risk since

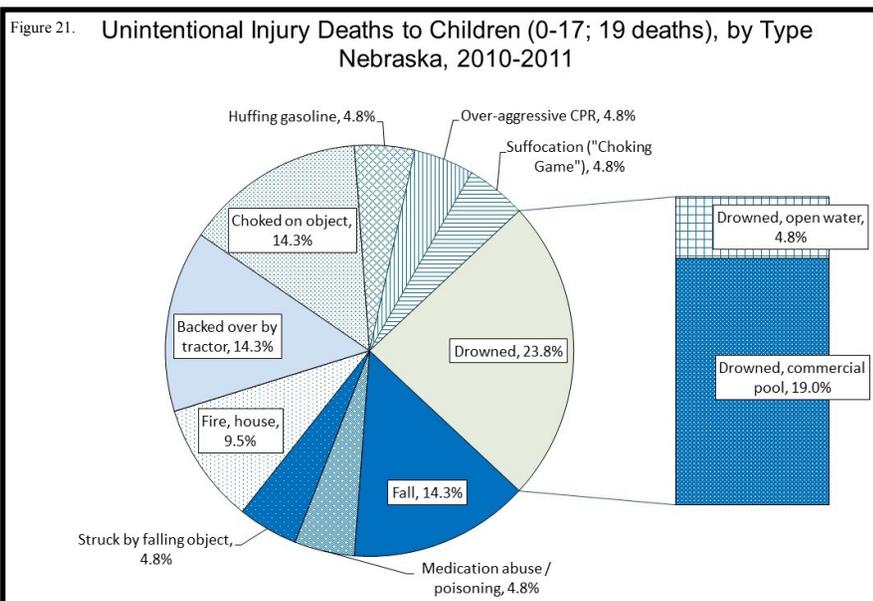


Figure 21. Unintentional Injury Deaths to Children (0-17; 19 deaths), by Type Nebraska, 2010-2011

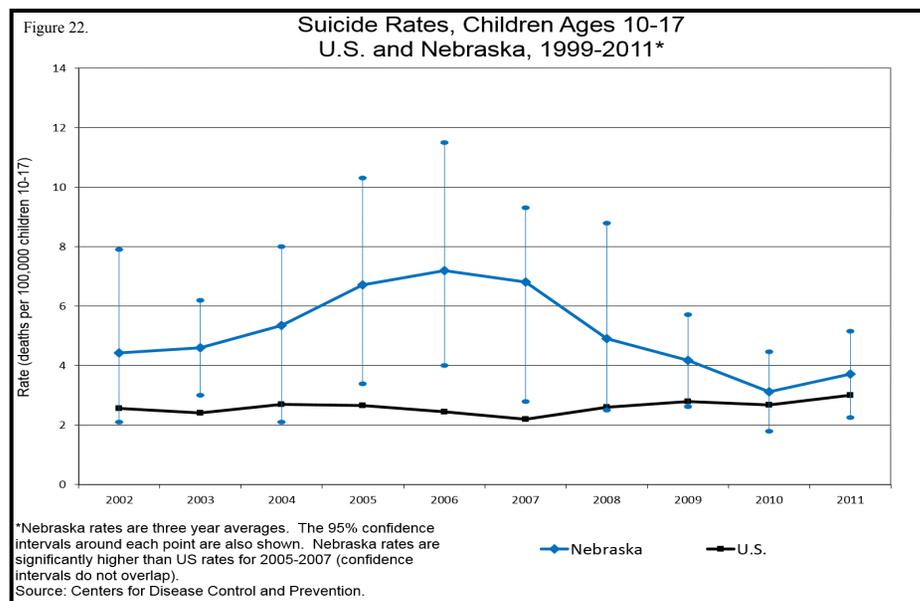
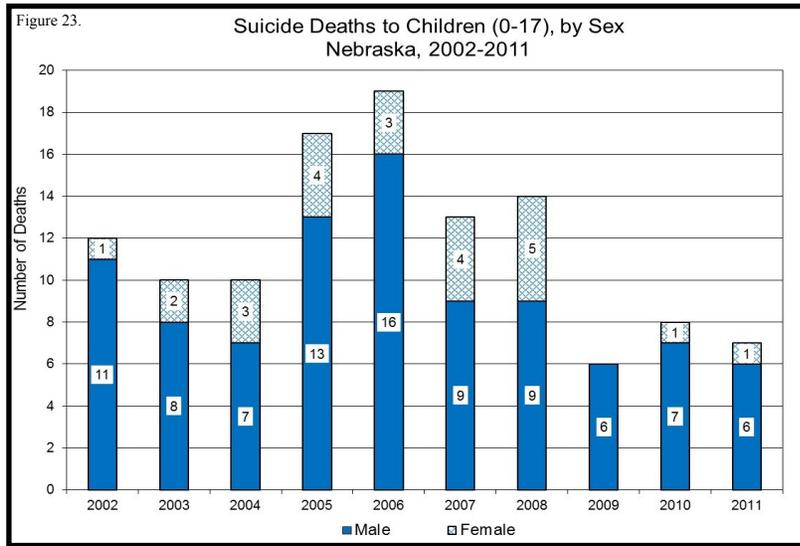
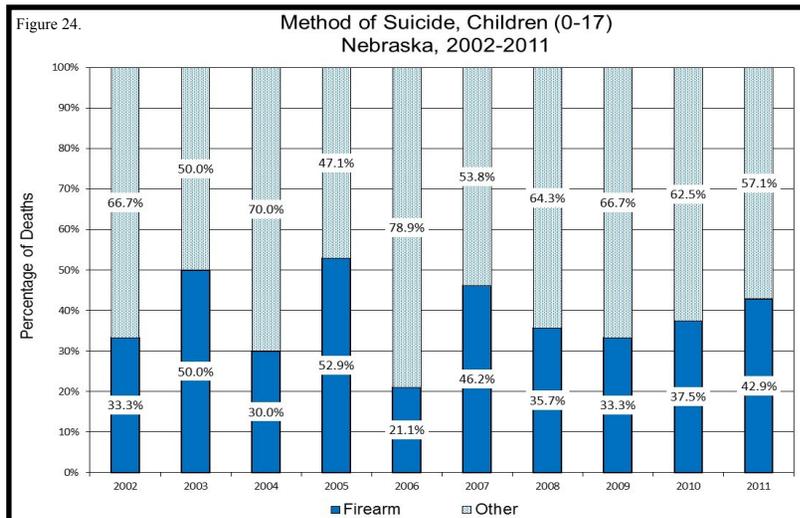


Figure 22. Suicide Rates, Children Ages 10-17 U.S. and Nebraska, 1999-2011\*

\*Nebraska rates are three year averages. The 95% confidence intervals around each point are also shown. Nebraska rates are significantly higher than US rates for 2005-2007 (confidence intervals do not overlap). Source: Centers for Disease Control and Prevention.

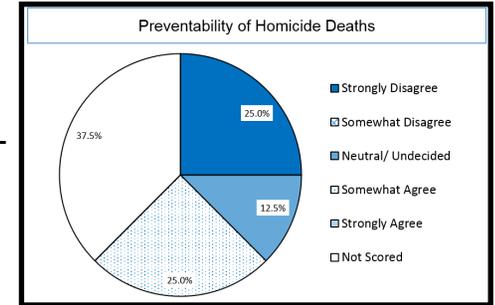


the Nebraska Youth Suicide Prevention project began in 2009. Restricting home access to lethal means of suicide is an effective way to increase the chances that a suicidal person will receive the assistance they need, by buying time and making the most deadly means of suicide harder to access. The percentage of teen suicides in Nebraska conducted by firearms increased slightly in both 2010 and 2011 (Figure 24, Table 13).

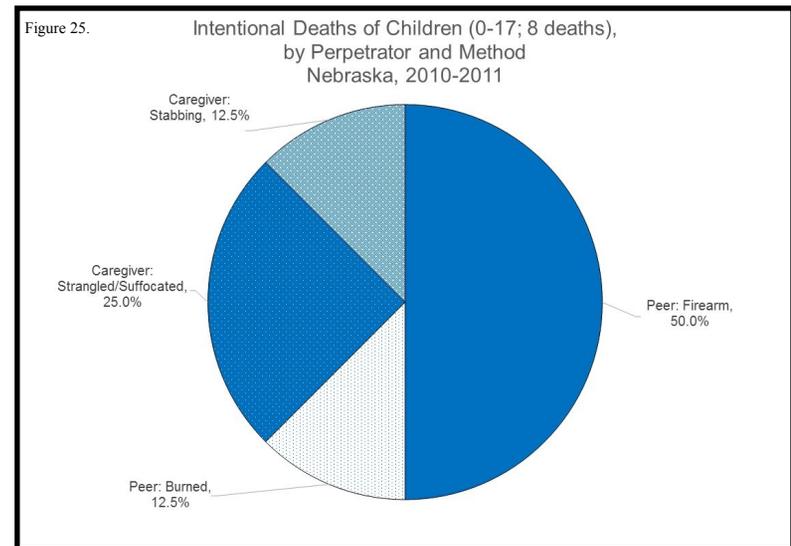


### Homicide\* – Key findings

Eight children died of intentionally inflicted injuries in Nebraska during 2010 and 2011 (Table 14). Beginning with this report, children who were intentionally killed, whether by a family member /caregiver or some other person, are considered under the generic term “Homicide.” Members **somewhat or strongly agreed** that about one-third (37.5%) of all homicides were **preventable**. Three of the eight cases remain unsolved, and their preventability was not assessed.



Five of the eight homicides (62.5%) were caused by peers; three (37.5%) were by caregivers (Figure 25; Table 14).



\*Circumstances of deaths included in this section are different than in previous reports. Children who died through the actions of a family member or caregiver who was not clearly documented as intending the death are discussed under “Caretaker Child Abuse & Neglect.”

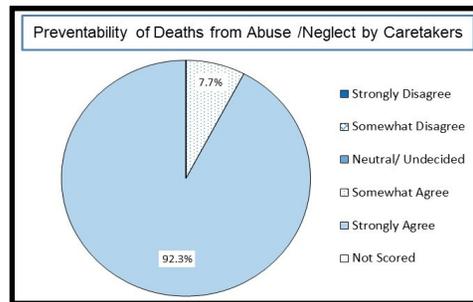
## Child Maltreatment\* – Key findings

There are many forms of child maltreatment, including neglect, physical abuse, sexual abuse, exploitation, and emotional abuse ([Childhelp.org](http://Childhelp.org), <https://www.childhelp.org/child-abuse/>). Physical abuse is defined as any intentional physical injury to a child. Deaths are attributed to neglect when a caretaker knowingly does something that places the child’s life in danger or does not remove the child from a dangerous situation, but does not clearly intend to injure the child. The National Center for Child Death Review recognizes five types of supervisory neglect:

- Failure to protect from hazard
- Failure to provide necessities (food, shelter, other)
- Failure to seek medical care / follow treatment
- Emotional neglect
- Abandonment

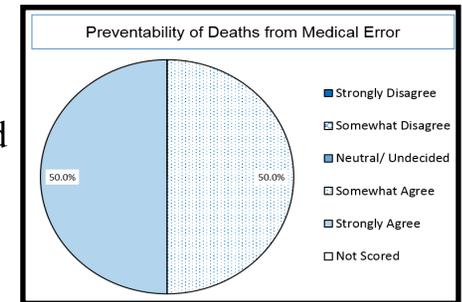
Deaths where the perpetrator apparently intended the death are reported in the previous category of Homicide. CMDRT child protection specialists individually reviewed all remaining injury deaths for a possible fit with the criteria for physical abuse or neglect; thirteen cases were identified for the 2010-2011 period. Members **somewhat or strongly agreed** that all of these cases were **preventable**. Of these, five (38.5%) were infants who drowned in a bath tub, while four children (30.8%) suffered from blunt force trauma (Table 15).

\*Circumstances of deaths included in this section are different than in previous reports. Children who were intentionally killed, whether by a family member, caregiver or some other person, are discussed above under “Homicide.”



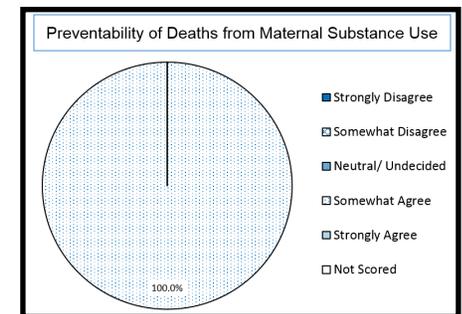
## Medical Error – Key findings

Two cases among the 2010 and 2011 child deaths were attributed to error by a medical provider. Members **somewhat or strongly agreed** that both of these cases were **preventable**.



## Substance Use During Pregnancy – Key findings

Only one infant death during 2010 and 2011 had sufficient documentation that members felt comfortable attributing it to maternal substance use during pregnancy, **somewhat agreeing** that it was **preventable**. However, several additional cases had strong indications of being related to substance use, but lacked sufficient documentation.



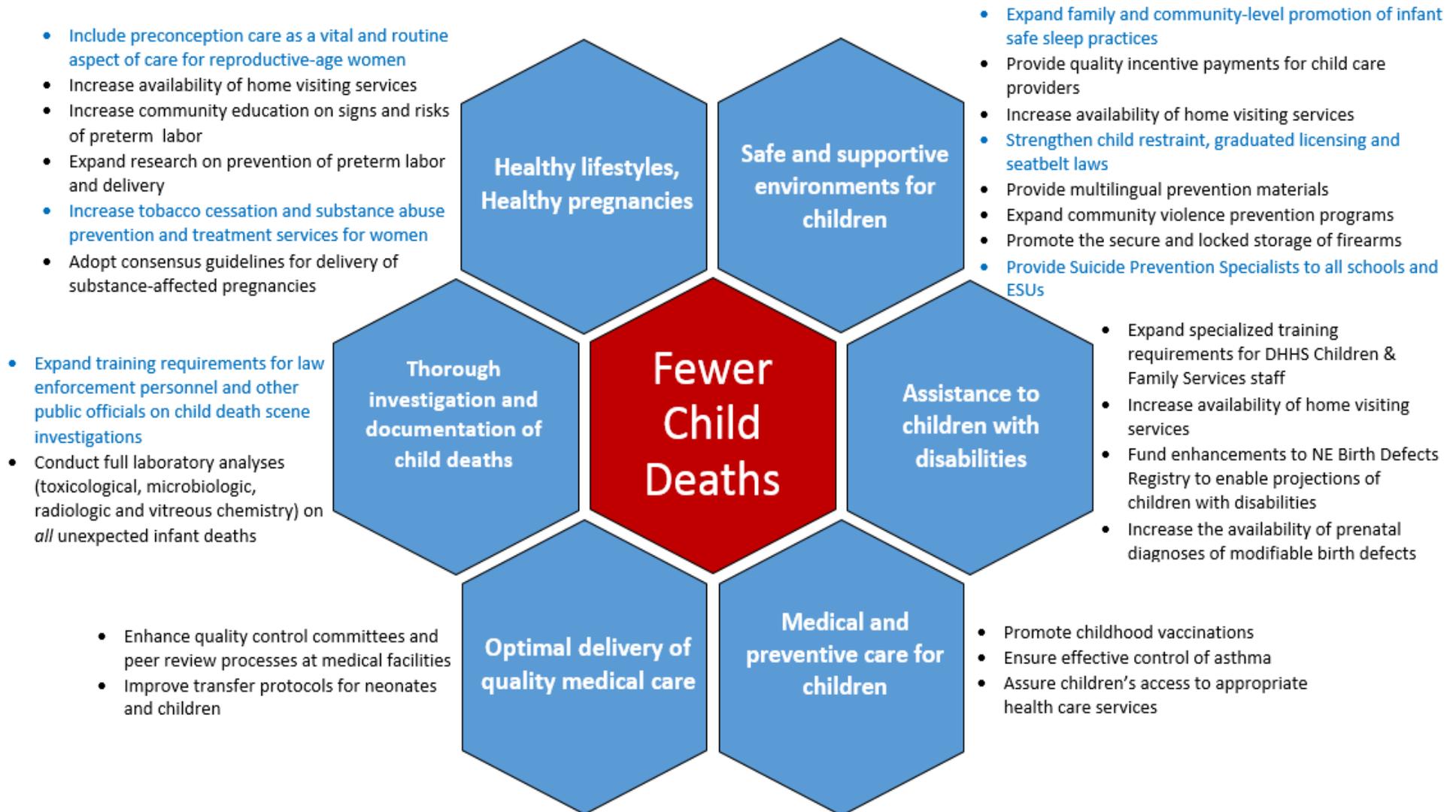
## Undetermined – Key findings

Five children died during 2010 and 2011 under circumstances that were either highly complex, poorly investigated by local law enforcement, or both. It was not possible to assess preventability for these cases.

## No information available

There were no deaths during 2010 and 2011 for which the team was unable to obtain at least minimal cause of death information.

# Recommendations for the Prevention of Future Deaths



Blue text indicates priority recommendations.

APPENDIX – Detailed Data Tables

Table 1. Underlying Cause of Death	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2010 - 2011 TOTAL
	(N)										
Preterm Birth	44	24	45	31	32	45	42	38	45	36	81
Maternal Complications	35	34	37	37	30	18	30	24	18	24	42
Complications of Labor & Delivery	7	1	2	1	0	2	1	3	2	5	7
Other Pregnancy & Neonatal-Related Conditions	0	0	3	0	3	3	2	1	3	2	5
Total, Pregnancy-Related	86	59	87	69	65	68	75	66	68	67	135
Pregnancy Related	86	59	87	69	65	68	75	66	68	67	135
Birth Defects / Inherited & Chromosomal Disorders	68	61	74	42	60	60	56	56	60	68	128
SIDS / SUID	19	23	18	33	20	0	13	23	19	24	43
Cancer / Neoplasms	12	9	19	18	7	10	13	9	12	18	30
Infectious, Chronic & Other Medical Conditions	27	17	17	19	18	16	15	18	9	8	17
Motor Vehicle Crash	44	48	40	33	44	35	24	32	23	12	35
Non-MVC Unintentional Injuries	17	15	22	13	21	21	32	14	18	3	21
Suicide	12	10	10	17	19	8	14	6	8	7	15
Child Maltreatment*	13	15	13	10	19	7	11	9	7	6	13
Homicide*	4	3	0	3	2	5	4	0	5	3	8
Maternal Substance Use	0	2	0	2	0	1	0	0	1	0	1
Medical Error	1	0	0	0	1	1	1	0	1	1	2
Undetermined	0	0	1	1	2	1	2	4	2	3	5
No Information Available	0	0	0	0	0	0	0	0	0	0	0
Total (N)	308	267	302	260	278	233	260	237	233	220	453
Percent (%)	68.0%	58.9%	66.7%	57.4%	61.4%	51.4%	57.4%	52.3%	51.4%	48.6%	
Preterm Birth	51.2%	40.7%	51.7%	44.9%	49.2%	66.2%	56.0%	57.6%	66.2%	53.7%	60.0%
Maternal Complications	40.7%	57.6%	42.5%	53.6%	46.2%	26.5%	40.0%	36.4%	26.5%	35.8%	31.1%
Complications of Labor & Delivery	8.1%	1.7%	2.3%	1.4%	0.0%	2.9%	1.3%	4.5%	2.9%	7.5%	5.2%
Other Pregnancy & Neonatal-Related Conditions	0.0%	0.0%	3.4%	0.0%	4.6%	4.4%	2.7%	1.5%	4.4%	3.0%	3.7%
Total, Pregnancy-Related	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Pregnancy Related	27.9%	22.1%	28.8%	26.5%	23.4%	29.2%	28.8%	27.8%	29.2%	30.5%	29.8%
Birth Defects / Inherited & Chromosomal Disorders	22.1%	22.8%	24.5%	16.2%	21.6%	25.8%	21.5%	23.6%	25.8%	30.9%	28.3%
SIDS / SUID	6.2%	8.6%	6.0%	12.7%	7.2%	0.0%	5.0%	9.7%	8.2%	10.9%	9.5%
Cancer / Neoplasms	3.9%	3.4%	6.3%	6.9%	2.5%	4.3%	5.0%	3.8%	5.2%	8.2%	6.6%
Infectious, Chronic & Other Medical Conditions	8.8%	6.4%	5.6%	7.3%	6.5%	6.9%	5.8%	7.6%	3.9%	3.6%	3.8%
Motor Vehicle Crash	14.3%	18.0%	13.2%	12.7%	15.8%	15.0%	9.2%	13.5%	9.9%	5.5%	7.7%
Non-MVC Unintentional Injuries	5.5%	5.6%	7.3%	5.0%	7.6%	9.0%	12.3%	5.9%	7.7%	1.4%	4.6%
Suicide	3.9%	3.7%	3.3%	6.5%	6.8%	3.4%	5.4%	2.5%	3.4%	3.2%	3.3%
Child Maltreatment*	4.2%	5.6%	4.3%	3.8%	6.8%	3.0%	4.2%	3.8%	3.0%	2.7%	2.9%
Homicide*	1.3%	1.1%	0.0%	1.2%	0.7%	2.1%	1.5%	0.0%	2.1%	1.4%	1.8%
Maternal Substance Use	0.0%	0.7%	0.0%	0.8%	0.0%	0.4%	0.0%	0.0%	0.4%	0.0%	0.2%
Medical Error	0.3%	0.0%	0.0%	0.0%	0.4%	0.4%	0.4%	0.0%	0.4%	0.5%	0.4%
Undetermined	0.0%	0.0%	0.3%	0.4%	0.7%	0.4%	0.8%	1.7%	0.9%	1.4%	1.1%
No Information Available	1.6%	1.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total (N)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

\*Definitions and criteria changed with the 2010-2011 report.

Table 2. Perinatal Causes of Death		2010-2011								Total	
		Preterm (< 37 wks)		Not Preterm (37+ wks)		Not an infant		Subtotal			
		(N)	(%)	(N)	(%)	(N)	(%)				
Maternal Complications		39	92.9%	2	4.8%	1	2.4%	42	100%	42	31.1%
	Eclampsia	1	100.0%	0	0.0%	0	0.0%	1	2.4%		
	Pre-eclampsia	7	100.0%	0	0.0%	0	0.0%	7	16.7%		
	Infection, CMV	1	100.0%	0	0.0%	0	0.0%	1	2.4%		
	Infection, other*	0	0.0%	1	50.0%	1	50.0%	2	4.8%		
	Insufficient cervix	15	100.0%	0	0.0%	0	0.0%	15	35.7%		
	Placenta previa	1	100.0%	0	0.0%	0	0.0%	1	2.4%		
	Placental abruption	9	100.0%	0	0.0%	0	0.0%	9	21.4%		
	Uterine rupture	1	50.0%	1	50.0%	0	0.0%	2	4.8%		
	Oligohydramnios	1	100.0%	0	0.0%	0	0.0%	1	2.4%		
	Other**	3	100.0%	0	0.0%	0	0.0%	3	7.1%		
Complications of Labor and Delivery***		2	28.6%	3	42.9%	2	28.6%	7	100%	7	5.2%
Other Pregnancy and Perinatal Complications****		4	80.0%	1	20.0%	0	0.0%	5	100%	5	3.7%
Prematurity (no cause identified)		81	100.0%			0	0.0%	81	100%	81	60.0%
	Singletons	49	100.0%			0	0.0%	49	60.5%		
	Multiples	32	100.0%			0	0.0%	32	39.5%		
<b>Total (N)</b>		<b>126</b>	<b>93.3%</b>	<b>6</b>	<b>4.4%</b>	<b>3</b>	<b>2.2%</b>			<b>135</b>	<b>100.0%</b>

\*Herpes simplex, Lymphocytic Choriomeningitis Virus  
\*\*Mirror syndrome; molar pregnancy; sickle cell trait.  
\*\*\*Hypoxic-ischaemic encephalopathy of undocumented origin.  
\*\*\*\*Intrauterine growth restriction (IUGR); neonatal hydrops; neonatal meningitis; neonatal Staphylococcus aureus; velamentous cord insertion.

Table 3. Birth Defects / Inherited & Chromosomal Disorders	2010-2011				Total	
	Preterm (<37 wks)	Not Preterm (37+ wks)	Unknown gestational age	Not an infant	(N)	(%)
<b>Chromosomal anomalies</b>	<b>13</b>	<b>14</b>	<b>1</b>	<b>3</b>	<b>31</b>	<b>24.2%</b>
Trisomy 13 (Patau syndrome)	2	1	1	0	4	3.1%
Trisomy 18 (Edwards syndrome)	7	10	0	1	18	14.1%
Trisomy 21 (Down syndrome)	1	0	0	1	2	1.6%
Other	3	3	0	1	7	5.5%
<b>Central Nervous System</b>	<b>1</b>	<b>7</b>	<b>0</b>	<b>12</b>	<b>28</b>	<b>15.6%</b>
Cerebral Palsy	0	0	0	1	1	0.8%
Holoprosencephaly	0	1	0	2	3	2.3%
Hydrancephaly / porencephaly	0	2	0	2	4	3.1%
Hydrocephaly	1	1	0	3	5	3.9%
Lissencephaly	0	1	0	2	3	2.3%
Neural tube defect, anencephaly	0	2	0	0	2	1.6%
Neural tube defect, spina bifida	0	0	0	2	2	1.6%
Spinal muscular atrophy	0	2	0	0	2	1.6%
Brain anomalies, other	1	0	0	2	3	2.3%
CNS anomalies, other	1	0	0	2	3	2.3%
<b>Circulatory System</b>	<b>7</b>	<b>12</b>	<b>0</b>	<b>3</b>	<b>22</b>	<b>17.2%</b>
Heart disease, hypoplastic left	2	2	0	0	4	3.1%
Heart disease, other	5	10	0	3	18	14.1%
<b>Respiratory System</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1.6%</b>
Pulmonary hypoplasia	2	0	0	0	2	1.6%
<b>Gastrointestinal System</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>7</b>	<b>5.5%</b>
Diaphragmatic hernia	3	1	0	0	4	3.1%
Other	0	0	0	3	3	2.3%
<b>Genitourinary System</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>3.9%</b>
Kidney defect / anomaly	3	1	0	0	4	3.1%
Posterior urethral valve	1	0	0	0	1	0.8%
<b>Musculoskeletal System</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>14</b>	<b>10.9%</b>
Muscular dystrophy	0	0	0	3	3	2.3%
Omphalocele	2	0	0	0	2	1.6%
Osteogenesis imperfecta	2	1	0	0	3	2.3%
Skeletal dysplasia	3	0	0	0	3	2.3%
Other	1	0	0	2	3	2.3%
<b>Metabolic disorder</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0.8%</b>
<b>Syndromes and Multiple Anomalies</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>7</b>	<b>15</b>	<b>11.7%</b>
<b>Other</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2.3%</b>
Conjoined twins	2	0	0	0	2	1.6%
Unclassified anomaly	0	1	0	0	1	0.8%
<b>Total (N)</b>	<b>48</b>	<b>41</b>	<b>1</b>	<b>38</b>	<b>128</b>	<b>100.0%</b>

<b>Table 4. Sudden Unexpected Infant Death – Diagnoses</b>	<b>Vital Records</b>	<b>CMDRT</b>
SIDS	35	0
SUID	0	43
Suffocation / Unspecified threat to breathing	8	0
<b>Total (N)</b>	<b>43</b>	<b>43</b>

<b>Table 7. Sudden Unexpected Infant Death – Caretaker</b>	<b>Total</b>	<b>(%)</b>
Babysitter / Child Care	5	11.6%
Parents / Family member	36	83.7%
Other	0	0.0%
Unknown	2	4.7%
<b>Total (N)</b>	<b>43</b>	<b>100.0%</b>

<b>Table 5. Sudden Unexpected Infant Death – Race / Ethnicity</b>	<b>Total</b>	<b>(%)</b>
White	35	81.4%
African-American	6	14.0%
Native American	1	2.3%
Asian/ Pacific Islander	1	2.3%
<b>Total (N)</b>	<b>43</b>	<b>100.0%</b>
Hispanic Ethnicity	2	4.7%

<b>Table 8. Sudden Unexpected Infant Death – Risk Factors</b>	<b>Number</b>	<b>(%)</b>
Found on side or stomach	22	51.2%
Age-inappropriate sleep surface	21	48.8%
Bedding-related issues	20	46.5%
Bed-sharing	15	34.9%
Current / recent respiratory infection	14	32.6%
Put to sleep on side or stomach	9	20.9%
Furniture-related issues	0	0.0%
No known risk factors	2	4.7%

<b>Table 6. Sudden Unexpected Infant Death – Sex</b>	<b>Total</b>	<b>(%)</b>
Male	20	46.5%
Female	23	53.5%
<b>Total (N)</b>	<b>43</b>	<b>100.0%</b>

Table 9. Cancer / Neoplasms	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2010-2011 Total	
	Age (yrs)	Age (yrs)	Age (yrs)	Age (yrs)	Age (yrs)	Age (yrs)	Age (yrs)	Age (yrs)	Age (yrs)	Age (yrs)	(N)	%
Adrenal gland	9y	5y									0	1.7%
Bone, all sites			13								0	0.8%
<b>Brain (total)</b>	6 (total)	3 (total)	10 (total)	4 (total)	2 (total)	3 (total)	3 (total)	2 (total)	6 (total)	6 (total)	12	37.5%
Astrocytoma / glioma	3, 5, 16	7	10, 13, 13	4, 11, 15,	9, 14	11	6, 7	1	2,5,6,8,17	5,6,11,12	9	19.2
Brain stem, unspecified			3, 6					1			0	2.5%
Choroid plexus				8							0	0.8%
Ependymoma			6						2		1	1.7%
Glioblastoma							8				0	0.8%
Medulloblastoma		8	13	4, 8						5,5	2	5.0%
Rhabdoid			1			3 wks, 9					0	2.5%
Unspecified	4, 9, 10	2	2, 10, 12,								0	5.0%
Ewing's sarcoma				2	NB,14	8				14	1	4.2%
Hepatic carcinoma		5		7, 7, 15							0	3.3%
Leukemia, acute or chronic			2, 4, 17	13		3, 10, 13	3, 3, 4, 8,	2, 7, 16	11,15	4,4,4,6,10	7	20.0%
Lung, squamous cell carcinoma						14					0	0.8%
Lymphoma, Hodgkin's		17									0	0.8%
Lymphoma, non-Hodgkin's	11							5		8	2	2.5%
Medulloblastoma								4			0	0.8%
Neuroblastoma	5			3, 8, 17	5	2	7, 10	15	3		1	8.3%
Osteosarcoma		4	17		17		15				0	3.3%
Palate tumor		16									0	0.8%
Pelvic sarcoma	14										0	0.8%
Pineoblastoma									6		1	
Rhabdomyosarcoma				4	15	7		3		10,16	2	5.0%
Rhabdoid tumor, extra-renal									2m	3	2	
Wilms' tumor	3, 6	16	4	7, 12			8		6	6	2	6.7%
Unspecified type											0	0.0%
<b>Total (N)</b>	12	9	16	15	7	10	13	9	12	17	30	97.5%

Table 10. Infectious, Chronic and Other Medical Conditions	2010-2011	
	(N)	%
<b>Respiratory Diseases</b>	<b>2</b>	<b>12.5%</b>
Asthma, uncertain treatment	2	
<b>Circulatory System</b>	<b>4</b>	<b>25.0%</b>
Aortitis	1	
Cardiomyopathy	2	
Myocarditis	1	
<b>Infectious Conditions</b>	<b>3</b>	<b>18.8%</b>
Meningitis	2	
Meningococemia	1	
<b>Other</b>	<b>7</b>	<b>43.8%</b>
Cerebral Palsy (complications from)	1	
Complications from surgery	1	
Dehydration	1	
Seizure disorder	1	
Macrophage activation syndrome	1	
Pneumonia	1	
Unknown medical cause	1	
<b>TOTAL</b>	<b>16</b>	<b>100.0%</b>

Table 11. Motor Vehicle-Related Incidents <sup>1</sup>	2010-2011
	(N)
<b>Motor Vehicle Crash - Restraint status<sup>2</sup></b>	
Restrained	10
Not restrained <sup>3</sup>	5
Ejected	14
Unknown	2
<b>MVC Subtotal</b>	<b>31</b>
<b>Other Motor Vehicle-Related Incident</b>	
Pedestrian	1
All-Terrain Vehicle	3
<b>Other Subtotal</b>	<b>4</b>
<b>Total (N)</b>	<b>35</b>
<sup>1</sup> Only includes motor vehicles engaged in traffic. Categories refer to the location of the child. <sup>2</sup> Age-appropriate restraints: car seat or booster seat for children through age 8; seatbelt and/or shoulder harness for older ages. <sup>3</sup> Includes one newborn delivered after maternal placental abruption following a crash.	

Table 12. Unintentional Injury*	2010-2011	Total	
	(Age)	(N)	(%)
Backed over by tractor	3y	1	4.8%
Choked on object	1y	1	4.8%
Drowned, commercial pool	1y	1	4.8%
Drowned, open water (boating / swimming / wading)	10y, 15y, 15y, 16y	4	19.0%
Fall**	NB, 2y, 15y	3	14.3%
Fire, house***	8y & 10y	2	9.5%
Huffing gasoline	12y	1	4.8%
Medication abuse / poisoning	10m, 15y, 17y	3	14.3%
Over-aggressive CPR	5m	1	4.8%
Struck by falling object (tree branch, furniture, boat propeller)	1y, 7y, 10y	3	14.3%
Suffocation ("Choking Game")	11y	1	4.8%
<b>Total (N)</b>	-	21	100.0%

\*Sleep-associated deaths are now covered in the Sudden Unexplained Infant Death section.

\*\*Includes a newborn (NB) delivered after a maternal fall.

\*\*\*Deaths connected with "&" are from the same incident. Two additional fire deaths are included in the Neglect section.

Table 13. Suicide		Firearms (Age)		Hanging (Age)		Overdose (Age)		Other (Age)		Subtotal (N) %		Total (N) %	
2002	Male	16, 16, 17		11, 12, 15, 17, 17, 17		16		13		11	91.7%	12	10%
	Female	16		-		-		-		1	8.3%		
2003	Male	12, 13, 13, 16, 17		15		-		17, 17		8	80.0%	10	9%
	Female	-		-		-		14, 16		2	20.0%		
2004	Male	13, 17		13, 14, 16, 17		-		15		7	70.0%	10	9%
	Female	16		15		-		16		3	30.0%		
2005	Male	14, 14, 15, 15, 16, 16, 16, 17, 17		11,14,14,17						13	76.5%	17	15%
	Female			14, 15				14,16		4	23.5%		
2006	Male	15, 15, 16, 17		13, 13, 13, 14, 14, 15, 15, 15, 15, 16, 17, 17						16	84.2%	19	16%
	Female			16, 17		17				3	15.8%		
2007	Male	13, 15, 16, 16, 17, 17		15, 15,17						9	69.2%	13	11%
	Female			13, 14, 14, 17						4	30.8%		
2008	Male	16, 16, 16, 17		9, 16, 16, 17				16		9	64.3%	14	12%
	Female	16		14, 15, 16		17				5	35.7%		
2009	Male	13, 16		12, 15, 16, 16						6	100.0%	6	5%
	Female									0	0.0%		
2010	Male	16,16,17		11,16,17		9				7	87.5%	8	7%
	Female							17		1	12.5%		
2011	Male	15,16,17		9,15,17						6	85.7%	7	6%
	Female			13						1	14.3%		
Subtotal	Male	41	93.2%	44	77.2%	2	50.0%	5	45.5%	92	79.3%	116	100%
(N)	Female	3	6.8%	13	22.8%	2	50.0%	6	54.5%	24	20.7%		
Total (N)		44		57		4		11		116			
		38%		49%		3%		9%		100%			

Table 14. Homicide	2010-2011	Total
	Age	(N)
Burned	14y	1
Firearm	13y, 14y, 15y, 17y	4
Smothered /strangled	4y, 8y	2
Stabbed	12y	1
<b>Total (N)</b>	-	<b>8</b>

Ages are given in years (y).

Table 15. Child Maltreatment	2010-2011	Total
	(Age)	(N)
<b>Physical Abuse</b>		
Blunt force trauma	4m, 1y, 1y, 3y	4
Failure to protect from hazard		
Drowned in toilet, bathtub, pool	9m, 1y, 1y, 1y, 1y, 4y	6
House fire	2y & 4y	2
<b>Failure to provide necessities</b>	-	0
<b>Failure to seek medical care / treatment</b>	2d	1
<b>Emotional neglect</b>	-	0
<b>Abandonment</b>	-	0
<b>Total (N)</b>	-	<b>13</b>

Ages are given in years (y), months (m), weeks (wks) and days (d).  
Cases separated by "&" refer to siblings.



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New report, 11/2015

