2018 Child Fatality Annual Report

Understanding and Preventing Child Deaths in Tennessee

Data in this report reflect deaths occurring in children under 18 years of age in calendar year 2016

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ACKNOWLEDGMENTS

The Tennessee Department of Health expresses its gratitude to the agencies and individuals who have contributed to this report and the investigations that preceded it.

Thank you to the 34 Child Fatality Review Teams in the judicial districts across the state who treat each case with reverence and compassion, working with a stalwart commitment to preventing future fatalities.

Thank you to the State Child Fatality Prevention Review Team members who find ways to put the recommendations in this report to work in saving lives.

Their efforts, and ours, are reinforced immeasurably by the support and cooperation of the following Tennessee agencies: the Commission on Children and Youth, the Department of Children's Services, the Center for Forensic Medicine, the Office of the Attorney General, the Tennessee Bureau of Investigation, the Department of Mental Health and Substance Abuse Services, the Department of Intellectual and Developmental Disabilities, the Tennessee Medical Association, the Department of Education, the State General Assembly, the State Supreme Court, the Tennessee Suicide Prevention Network, Tennessee local and regional health departments, and the National Center for Fatality Review and Prevention.

It is with deepest sympathy and respect that we dedicate this report to the memory of those children and families represented within these pages.

This report may be accessed online at
https://www.tn.gov/health/article/MCH-childFatality-resources

DATA CONFIDENTIALITY

Please note: Portions of the information and data contained in this report were compiled from records that are confidential and contain information which is protected from disclosure to the public, pursuant to Tennessee Code Annotated 68-142-108.

EXECUTIVE SUMMARY

The data contained in this report represent review of deaths occurring in children under the age of 18 during the calendar year of 2016. Local teams across the state reviewed all eligible[1] 2016 deaths (n=854) during 2016 and 2017. The state child fatality review team developed the following report and recommendations based on these reviews.

Key Findings Overview:

- In 2016, 966 deaths occurred in children under age 18 years in Tennessee. While the child mortality rate was stable from 2015 to 2016, there has been a significant increase in the rate since 2013. The 2013 child mortality rate was 58.6/100,000 while the 2016 rate was 64.7/100,000. Tennessee's 2016 child mortality rate still exceeds the 2015 national rate of 50.7/100,000.
- In 2016, 597 deaths occurred in children under age 1 year. The number represents an increase of 28 infant deaths in 2016 than in 2015. The infant mortality rate was 7.4/1,000 live births, an increase (not statistically significant) of 9 percent from 6.8/1,000 in 2013. Prematurity is the leading cause of death among Tennessee infants (148 infant deaths, 29 percent of reviewed deaths).
- Racial disparity exists among child fatalities. Although the majority of deaths were comprised of white children, black children suffered a significantly higher rate of mortality than whites. In 2016, the mortality rate among black children (17 years and under) was nearly 1.8 times that of white children.
- In 2016, the number of deaths due to external causes increased while the number of deaths due to medical causes decreased. 274 reviewed child deaths were classified as due to external causes including motor vehicle crashes, weapons, asphyxia, fire/burns, poisoning or overdose and fall/crush. This represents a 13 percent increase from the 242 cases observed in 2015. In 2016, 473 reviewed child deaths (56%) were due to a medical condition; 74 percent of the 473 were infants. This is a decrease of 3 percent in medically-related child deaths compared to 2015.
- Tennessee's male children accounted for a disproportionate percentage of child fatalities compared to females (57% vs. 43%, respectively). For the past five years, male children had a higher mortality rate than females.

Summary of 2018 recommendations:

Based on the key findings of the review, the State Child Fatality Review Team made the following recommendations for 2018. A detailed explanation of each recommendation can be found on page 61.

1. Suicide: Improve monitoring and intervention from suicidal indicators in youth. In addition, increase capacity of state departments to recognize and respond to adverse childhood experiences (ACEs).

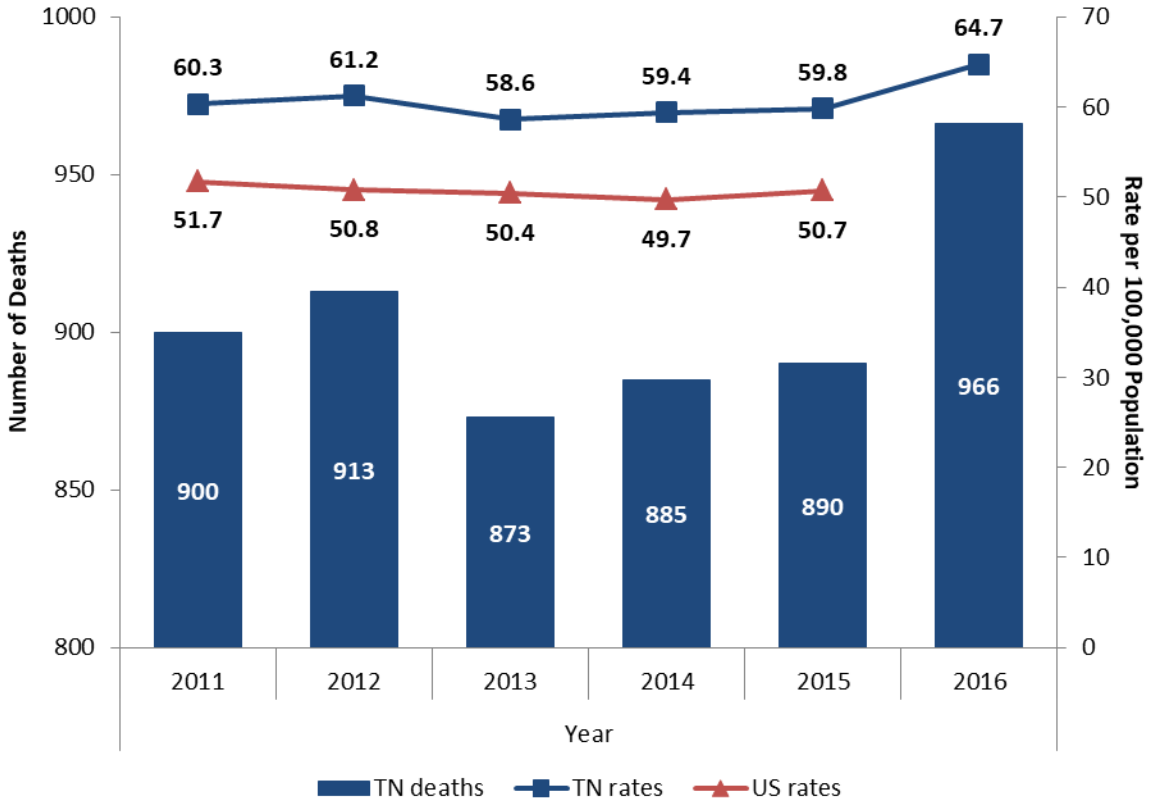
[1] Deaths of infants less than 23 weeks gestation and less than or equal to 500 grams in weight are not reviewed because these deaths occur before the currently-accepted limits of viability.

2. Motor Vehicle Crash: Increase the number of schools implementing evidence-based motor vehicle crash (MVC) prevention programs, such as Checkpoints, from 24 to 40, with emphasis in counties with the highest MVC child death rates. In addition, promote the availability and correct usage of child safety seats.
3. Safe Sleep: Enhance efforts to increase the safety of infant sleep environments through evaluation of current efforts and expanding efforts to increase the number of BEST hospitals from 7 to 12. In addition, provide safe sleep education and portable cribs to families.
4. Racial Disparities: Identify and implement a minimum of 3 strategies to target racial and ethnic disparities. In addition, expand strategies already in place.
5. Medical: Increase access to Voluntary Reversible Long Acting Contraceptives and 17 alpha-hydroxyprogesterone (17P). In addition, reconvene the birth defects registry advisory committee to better inform decisions for prevention of birth defects.

General

The overall 2016 child mortality rate for Tennessee was 64.7 child deaths per 100,000 children, a rate that did not change significantly compared to the 2015 rate of 59.8 per 100,000 population. However, there has been a statistically significant increase of 10% compared to the rate of 58.6 per 100,000 in 2013. Tennessee's 2016 child mortality rate continues to exceed the 2015 national rate of 50.7 per 100,000 population, the latest year for which the national rate is available. The number and rate of child deaths in Tennessee and the U.S. for the past six years are shown in Figure 1.

Figure 1. Number and Rate of Child Deaths for Ages 0-17
Tennessee, 2011-2016

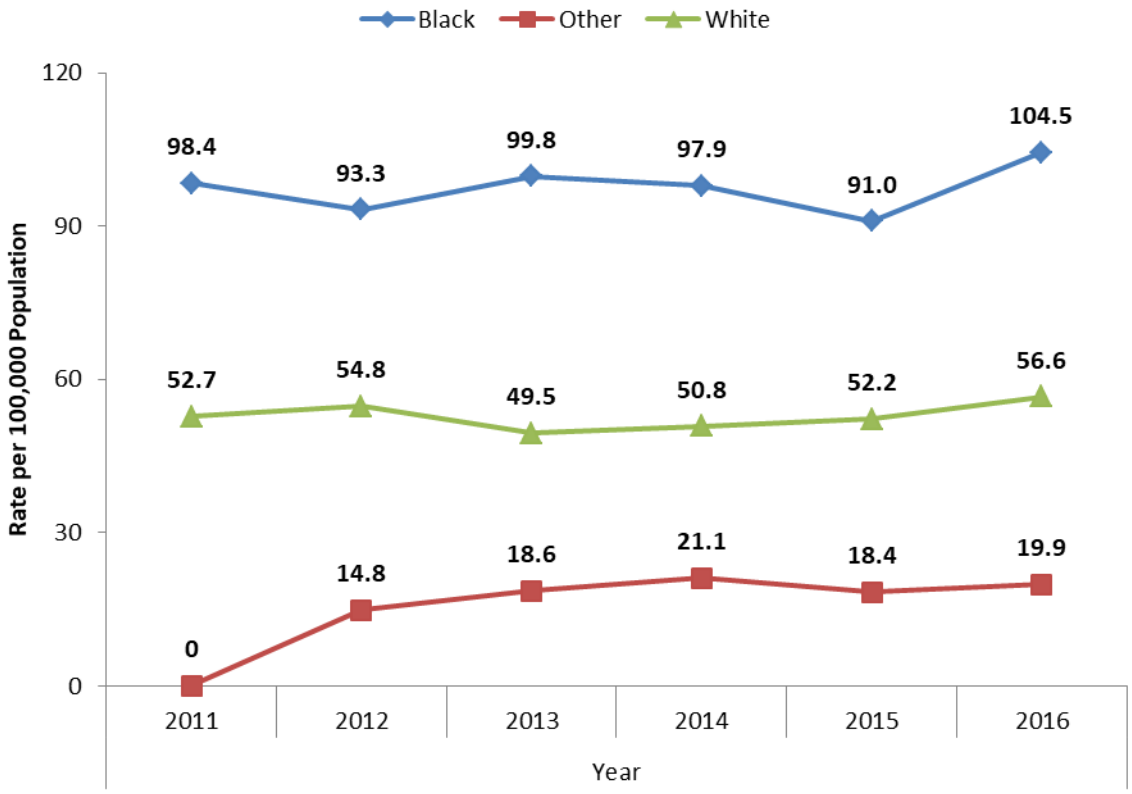


Data source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics; CDC WONDER.

- The first year of life continues to be the most perilous for Tennessee's children, accounting for 59 percent of all deaths below the age of 18 years. Children ages 15-17 years and 1-4 years suffered the next highest percentage of deaths at 13 percent and 11 percent, respectively.

- Tennessee's male children accounted for a disproportionate percentage of child fatalities compared to females (57% vs. 43%, respectively). For the past five years, male children had a higher mortality rate than females.
- Racial disparity exists among child fatalities. Although the majority of deaths were comprised of white children, black children suffered a significantly higher rate of mortality than whites (Figure 2 and Table 1). In 2016, the mortality rate among black children was nearly 1.8 times that of white children. **While there was a 15 percent increase (not statistically significant) in the mortality rate of black children from 2015 to 2016, there was an 8 percent increase (not statistically significant) in that of white children.**

Figure 2. Child Mortality Rate for Ages 0-17 by Race
Tennessee, 2011-2016



Data source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics.; CDC WONDER.

*Other Race: includes American Indian or Alaskan Native, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian, Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander, Other Race, Bridged White, Bridged Black, Bridged American Indian or Alaskan Native, Bridged Asian or Pacific Islander.

Table 1. Number and Rate of Child Deaths Ages 0-17 by Race in Tennessee, 2011-2016

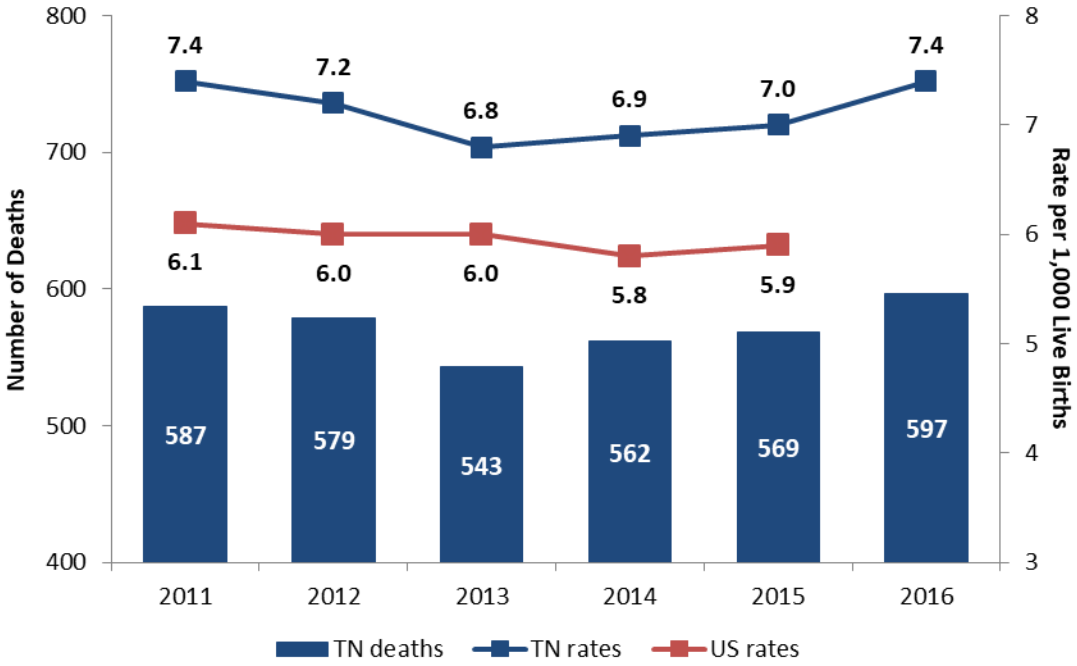
Year	Blacks			Whites		
	Number of Deaths	Child Population	Rate per 100,000 Population	Number of Deaths	Child Population	Rate per 100,000 Population
2011	301	306,034	98.4	581	1,102,142	52.7
2012	285	305,376	93.3	602	1,098,938	54.8
2013	302	302,655	99.8	542	1,095,152	49.5
2014	295	301,419	97.9	555	1,092,578	50.8
2015	274	301,100	91.0	569	1,090,727	52.2
2016	313	299,487	104.5	619	1,093,476	56.6

Data source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics.

Infant Mortality

The overall 2016 infant mortality rate was 7.4 infant deaths per 1,000 live births, an increase (not statistically significant) over the rate of 7.0 per 1,000 in 2015. Historically, the infant mortality rate decreased 8 percent from 2011 (7.4/1,000 live births) to 2013 (6.8/1,000 live births), then gradually increased to 7.4 per 1,000 live births in 2016. Similar to the overall child fatality rate, Tennessee's infant mortality rate continues to exceed the national rate, which was 5.9 per 1,000 in 2015,[2] the latest year for which the national rate is available. The number and rate of infant deaths in Tennessee and the U.S. for the last six years are shown in Figure 3.

Figure 3. Number and Rate of Infant Deaths
Tennessee, 2011-2016



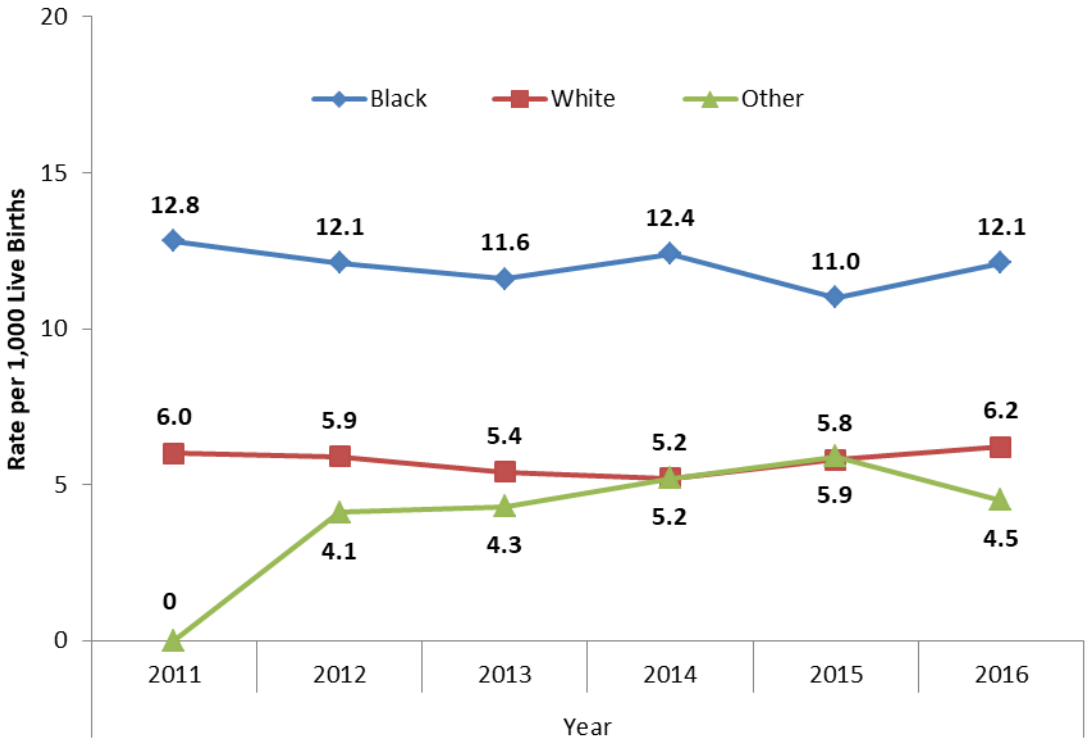
Data source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics; CDC WONDER.

- 139 infants died from suffocation, strangulation, or other factors in the sleep environment. This represents a slight decrease (not statistically significant) from the 142 sleep-related infant deaths in 2015.
- Racial disparity exists among infants who suffer fatalities. Black infants had a higher mortality rate than whites or infants of other races (Figure 4 and Table 2)[3], with black infants having nearly twice the mortality rate as white infants in 2016. The infant mortality rate for whites decreased between 2011 and 2014. However,

[2] CDC WONDER.
[3] Other race includes all other non-White or non-black races.

a statistically significant (19 percent) increase was observed in the white infant mortality rate between 2014 and 2016. The infant mortality rate for black infants increased 10 percent between 2015 and 2016 but was not statistically significant.

Figure 4. Infant Mortality Rate by Race
Tennessee, 2011-2016



Data source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics.

*Other Race: includes American Indian or Alaskan Native, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian, Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander, Other Race, Bridged White, Bridged Black, Bridged American Indian or Alaskan Native, Bridged Asian or Pacific Islander.

Table 2. Number and Rate[4] of Infant Deaths by Race in Tennessee, 2011-2016

Year	Blacks			Whites			Other		
	Number of Deaths	Live Births	Rate per 1,000 Live Births	Number of Deaths	Live Births	Rate per 1,000 Live Births	Number of Deaths	Live Births	Rate per 1,000 Live Births
2011	211	16482	12.8	361	60252	6.0	0	2002	0
2012	200	16560	12.1	360	60792	5.9	9	2214	4.1
2013	196	16863	11.6	327	60954	5.4	9	2072	4.3
2014	212	17061	12.4	326	62096	5.2	12	2323	5.2
2015	184	16714	11.0	360	61648	5.8	14	2361	5.9
2016	198	16359	12.1	377	61046	6.2	11	2429	4.5

Data source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics.

[4] Rates for less than 20 deaths are unstable and must be used with caution.

Manner of Death

Manner of death refers to the circumstances under which a death occurred. In Tennessee, deaths must be classified as one of the following manners of death: Natural, Accident, Suicide, Homicide, or Could not be determined. Additional details are available in the "Data Overview" section of this report.

- In 2016, the manner of 446 deaths was determined to be natural (from medical causes) and 175 deaths were determined to be accidental. By comparison, there were 463 natural deaths in 2015 and 147 accidental deaths.
- Forty-two deaths of children in 2016 (5% of all reviewed deaths) were the result of homicide, an increase (not statistically significant) from 40 homicide deaths in 2015.
- Forty-one young people died by suicide in 2016 (5% of all reviewed deaths); an increase (not statistically significant) from 33 suicides in 2015.

Cause of Death

Cause of death refers to the disease process or injury which set into motion the chain of events which eventually resulted in death. The cause may be due to a medical condition or an external cause (injury).

- In 2016, 473 reviewed child deaths (56%) were due to a medical condition; 74 percent of the 473 were infants. This is a decrease of 3 percent in medically-related child deaths compared to 2015 (N=487).
- Prematurity and congenital anomaly were the leading causes of death from a medical condition.
- In 2016, 274 reviewed child deaths were due to external causes, including motor vehicle crashes, weapons, asphyxia, fire/burns, poisoning or overdose, and fall/crush. This represents a 13 percent increase from the 242 cases observed in 2015.
    - Seventy-one children (8% of all reviewed deaths) died in motor vehicle crashes in 2016, an increase from the 61 vehicular deaths in 2015.
    - Sixty-five children (8% of all reviewed deaths) died from weapons-related injuries, a 10 percent increase from the 59 children who died in 2015. 34 (52%) of the weapons-related fatalities were homicides, 25 (38%) were suicides, 6 (10%) were accident, undetermined and pending.
    - Sixty children (7% of all reviewed deaths) died of asphyxia; 38 of these children died in a sleep-related environment. This represents a decrease in overall asphyxia cases of 18 percent from 2015 (73 asphyxia deaths, 56 of which occurred in a sleep-related environment).
    - Twenty-nine (3% of all reviewed deaths) children died from a fire, burn or electrocution, a significant increase of nine deaths from 2015.
    - Twenty-two children (3% of all reviewed deaths) died by drowning, an 83 percent increase (not statistically significant) from the 12 cases in 2015.

- Seven children (0.8% of all reviewed deaths) died from poisoning in 2016, a 42 percent decrease (not statistically significant) from the 12 cases in 2015. Three of seven poisoning fatalities involved prescription drugs.

Table 3 summarizes the most recent year-to-year trends for child fatalities in Tennessee.

Table3. Summary of Year-to-Year Trends for Child Fatalities in Tennessee, 2015-2016

Categories	Number of Deaths	
	2015	2016
Categories Showing Improvement		
Asphyxia	73	60
Cardiovascular	26	17
Congenital anomaly	125	108
Categories Showing Small/No Changes		
Animal bite or attack	0	0
Asthma	4	5
Cancer	37	36
Diabetes	2	1
Exposure	0	2
Fall or crush	4	5
Infant Mortality(<1 year of age)	569	597
Influenza	2	1
Low birth weight	1	1
Malnutrition/dehydration	2	1
Neurological/seizure disorder	12	14
Pneumonia	15	11
Poisoning,overdose or acute intoxication	12	7
SIDS	2	5
Sleep-Related	142	139
Weapon,including body part	60	65
Categories Showing Worsening Outcomes		
Drowning	12	22
Fire, burn, or electrocution	9	29
Motor vehicle or other transport	61	71
Prematurity	134	149

Data source: Tennessee Department of Health, Child Fatality Review Database System.

In Table 3 above, trends in death rates are clustered in three categories: those showing improvements from 2015 to 2016 (more than 10% decrease and number of change >5); those showing relatively no change from 2015 to 2016 (less than 10% change or

number of ≤ 5) and those showing worsening outcomes from 2015 to 2016 (more than 10% increase and number of change > 5).

The review of child fatalities in 2016 revealed decreases in some deaths such as asphyxia, cardiovascular and congenital anomaly. Other preventable deaths, such as drowning, fire-related cases and motor vehicle crashes have increased from 2015 to 2016. **The rise of these preventable deaths underscores the need for a continued focus on the careful review of every child death, thoughtful identification of opportunities for prevention, and implementation of strategies to prevent future child deaths.**

STATE CHILD FATALITY TEAM MEMBERS (2018 CHILD FATALITY REPORT)

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INTRODUCTION

The Child Fatality Review Process in Tennessee

Child deaths are often regarded as indicators of the health of a community. While mortality data provide an overall picture of child deaths by number and cause, it is from a careful study of each and every child's death that we can learn how best to respond to a fatality and how best to prevent future deaths.

Annually, approximately 40,000 children ages 0-17 years die in the United States.[5] Through child death review, local multidisciplinary teams meet in communities across the country to review case information for deaths in the hopes of better understanding why children die and what action can be taken to prevent future deaths. The National Center for Child Fatality Review and Prevention provides national-level leadership for state and local child fatality review teams. As of July 2012, every state and the District of Columbia had a system for reviewing child deaths.[6]

The Child Fatality Review and Prevention Act of 1995 established the Tennessee Department of Health's Child Fatality Review (CFR). The mission of the CFR is to review deaths in order to promote understanding of the causes of childhood deaths and make and carry out recommendations that will prevent future childhood deaths.

Overview of Child Fatality Review Teams

A local CFR team exists in each of Tennessee's judicial districts. These 34 teams cover all 95 counties, review all deaths of children 17 years of age or younger and make recommendations to the State CFR Team for reduction and prevention of child deaths statewide. Their careful review process results in a thorough description of the factors related to child deaths. Membership of the local teams is outlined in T.C.A. 68-142-106, and includes the Regional Health Officer, Supervisor of Children's Services, Medical Examiner, Prosecuting Attorney, a member of the local education agency, a mental health professional, a pediatrician or family practice physician, an emergency medical service provider or firefighter, and a juvenile court representative. While these members are required to attend by law, other representatives of agencies that work with children and their families also frequently participate.

The composition of the State CFR Team is outlined in T.C.A. 68-142-103, and includes high level officials such as the Health Commissioner, the Attorney General, and political leaders such as State Senators and Representatives. This team reviews the aggregate

[5] Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2015 on CDC WONDER Online Database, released 2017. Accessed at http://wonder.cdc.gov/ucd-icd10.html.

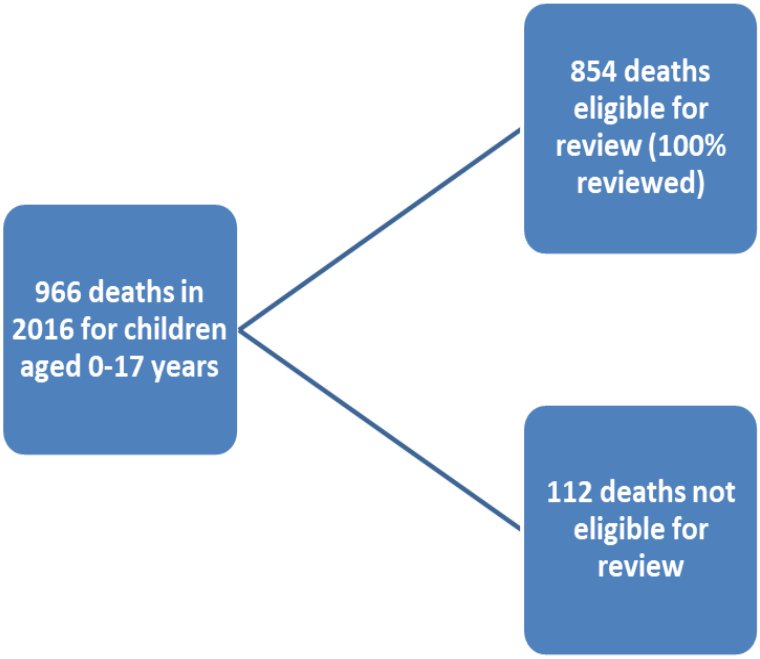
[6] National Center for the Review and Prevention of Child Deaths. Keeping Kids Alive: A Report on the Status of Child Death Review in the United States, 2011. Available at: http://www.childdeathreview.org/reports/CDRinUS_2011.pdf.

data from the local teams, analyzes statistics of the incidence and causes of child deaths, and makes recommendations to the Governor and General Assembly for their consideration in implementing laws, policies, and practices and making improvements in protocols and procedures that may prevent future child deaths in Tennessee.

Review of Child Fatality Review Data

The CFR data included in this report represent thoughtful inquiry and discussion by a multi-disciplinary group of community leaders who consider all the circumstances surrounding the death of each child. They bring to the review table information from a variety of agencies, documents, and areas of expertise. Their careful review process results in a thorough description of the factors related to child deaths.

Of the 966 deaths in 2016, 854 met the review criteria. One hundred twelve cases did not meet the criteria for gestational age or weight (as defined below). Reviews were completed on all (100%) eligible cases and are represented in this annual report. In previous years, not all child deaths were reviewed before the annual report was released. Such case reviews were considered ongoing and awaited results of contributing information, such as legal investigations or autopsy results. The completion of all 2016 death reviews is a reflection of the significant efforts put in by the local CFR teams and other partnering State agencies.



Deaths of infants less than 23 weeks gestation and less than or equal to 500 grams in weight are not reviewed because these deaths occur before the currently-accepted limits of viability. Deaths must fail to meet both the gestation and weight criteria to be excluded from review. Because of these criteria, it is usually impossible to find an exact number-for-number match between CFR data and data from other sources such as vital statistics. The unique role of CFR is to provide a depth of understanding of these deaths to augment other, more one-dimensional, data sources.

Tennessee Department of Health (TDH) staff oversee the statewide CFR as mandated in T.C.A. 68-142-101 et. seq. The CFR process incorporates best practices identified by the National Center for the Review and Prevention of Child Death, including central

administration of statewide child fatality reviews, standardized data collection across review teams, and coordination of recommendations to prevent deaths.

Comparison data from the Centers for Disease Control and Prevention (CDC) and population data by county from the Tennessee Department of Health Division of Policy, Planning, and Assessment are used in many of the analyses included in this report.

Limitations of Child Fatality Review Data

Results of the analysis of CFR data may vary from previous reports due to the nature of data collection and storage. If the CFR team obtains additional information on a child's death after the completion of the annual report, changes may be made to any of the reviewed data, which is then overwritten in the database system. Because local CFR teams may have added additional information to cases described in previous CFR reports after the completion of the reports, the results of prior year data in this year's report may differ from numbers presented in prior years' reports.

Local CFR teams analyze each case using the best information available to them. As there may be additional facts not available to the team that may have resulted in a different classification or conclusion, the numbers contained in this report may not correspond with those contained within reports from other agencies or departments.

DATA OVERVIEW

Summary of Child Mortality Data

The overall rate of child fatalities for 2016 was 64.7 per 100,000 children under 18 years of age.

In 2016, there were 966 child deaths in Tennessee, of which 854 were reviewed by local CFR teams. Review of these child deaths demonstrated that the first year of life was the most perilous for Tennessee's children, with deaths of children younger than 1 year of age accounting for 59 percent of all reviewed deaths (Depicted in Figures 5-7). Males died more frequently than females (57 percent of child fatalities). Racial disparity exists among child fatalities, as well. While the majority of the deaths are among white children, black children suffer a higher rate of mortality than whites or other races.[7]

Figure 5. Child Deaths by Age Group in Tennessee, 2016

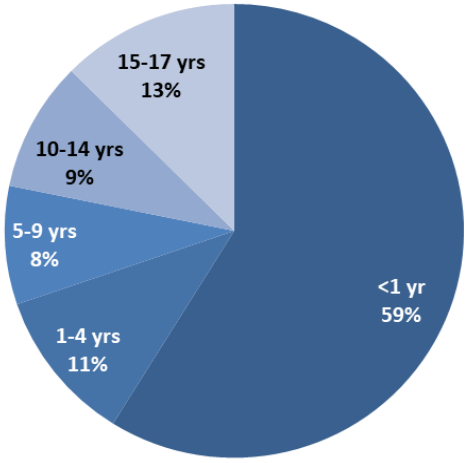


Figure 6. Child Deaths Ages 0-17 by Sex in Tennessee. 2016

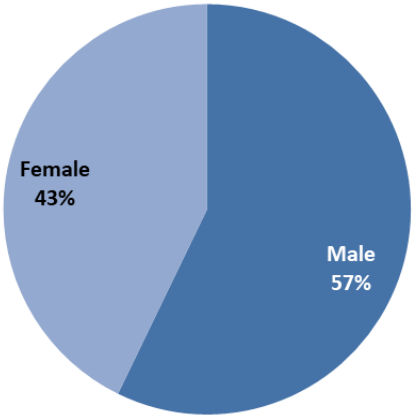
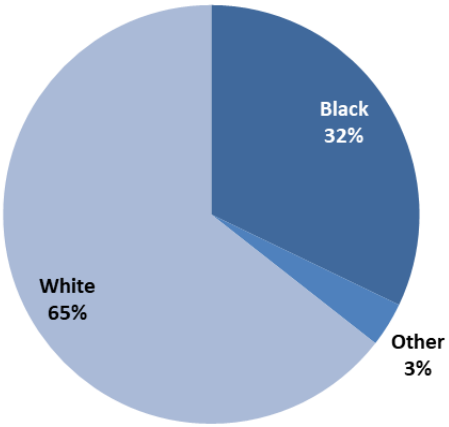


Figure 7. Child Deaths Ages 0-17 by Race in Tennessee, 2016



[7] Other race includes all other non-White or non-black races.

All deaths are classified according to cause and manner of death. There are many complexities involved in determination of cause and manner of death, beginning with the definition of each term. Cause of death refers to the disease process or injury which set into motion the series of events which eventually lead to death. For the purposes of the CFR team, causes of death are categorized as medical, external (injuries or poisonings), undetermined, or unknown. Medical causes are then further classified by specific disease entities, and external causes are further described by the nature of the injury. Manner of death refers to the circumstances under which death occurred. In Tennessee, deaths must be classified on the death certificate as one of the following manners of death: Natural (due to underlying medical conditions, unrelated to any external factors), Accident (injury or poisoning without intent to cause harm or death), Suicide, Homicide, or Could not be determined (meaning insufficient information is available to determine a manner of death, or there are two or more equally compelling manners of death). The CFR case report tool categorizes the manner of death as natural, accidental, homicide, suicide, pending, undetermined, and unknown. When the manner of death is listed as "Pending", further investigative, historical, or laboratory information is expected before a determination of manner of death can be made. In cases in which "Pending" is listed on the death certificate filed at the time of death, a Delayed Diagnosis of Death form will be submitted to Vital Records with a more definitive determination of manner of death, usually within three to six months of the death.

The CFR teams report the cause and manner of death as indicated on the death certificate. In those instances where a cause or manner of death is not indicated, CFR teams may make the determination upon conclusion of the review process. Local teams determine the cause and manner of death based on the sum of information available to them at the time of review. In some cases, an exact cause or manner of death may not be known to the team. **Undetermined** cases are those in which the investigation of circumstances surrounding a death fails to reveal a clear determination. For example, the investigation of a sudden unexpected infant death (including autopsy, death scene investigation, and medical record review) may fail to reveal whether the death was due to a medical condition or external causes. **Pending** cases are those in which further information is anticipated to be forthcoming. Cases that are marked as **Unknown** are those in which information necessary to determine the exact cause or manner of death is unattainable or unavailable to the team.

Of the 854 deaths reviewed by the CFR teams in 2016:

- 473 cases (56%) were due to **medical** causes.
- 274 cases (32%) were due to **external** (injury) causes.
- 106 cases (12%) were **unknown or could not be determined** as to medical or external cause. Of the 106 cases marked as “Undetermined” or “Unknown”, 98 involved children under one year of age. This reflects the inherent complexities in determining the manner and cause of infant deaths.

More detailed data on these deaths are contained in the pages that follow. Figures 8-10 summarize the causes and manners of death for 2016 fatalities. Additionally, Tables 4-6 provide breakdown of causes by manner and demographic distributions (age, sex and race). Note that causes of death are broad categories. Detailed information regarding specific cause of death is contained later in the report.

Figure 8. Manner of Death Summary, Children Ages 0-17 in Tennessee, 2016

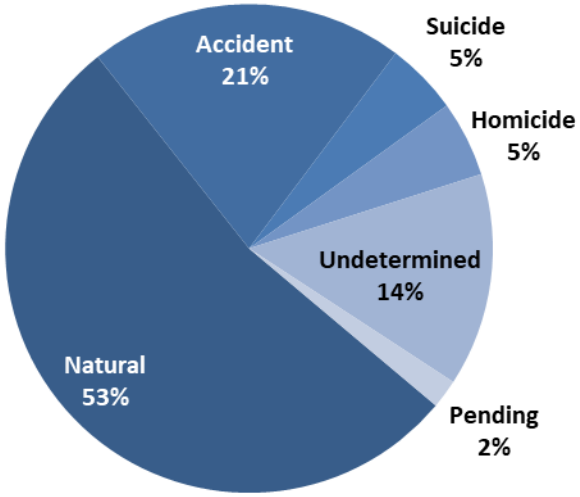


Figure 9. Cause of Death Summary, Children Ages 0-17 in Tennessee, 2016

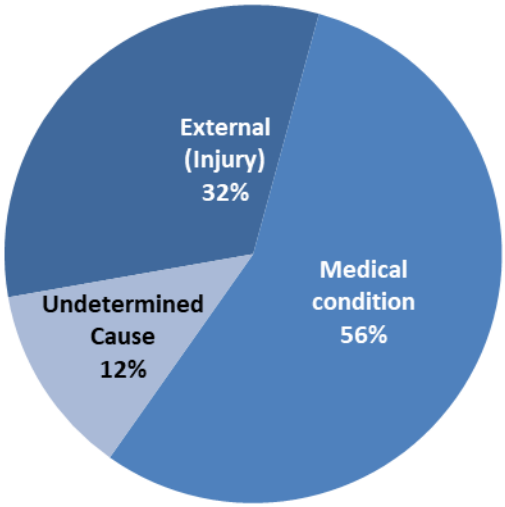
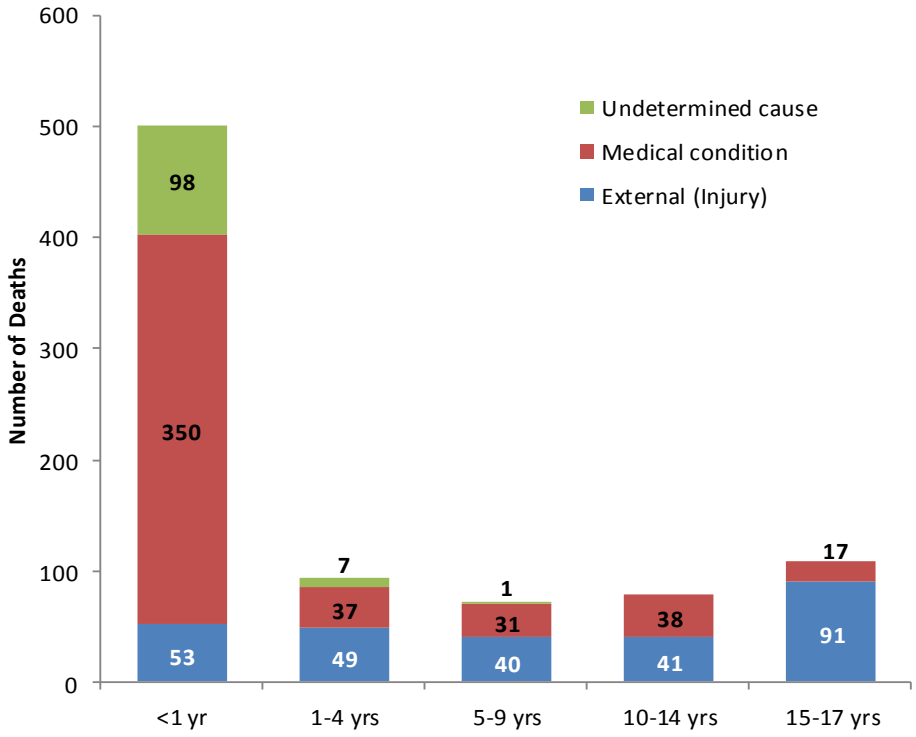


Figure 10. Medical and External Causes of Death for Children Ages 0-17 by Age Group, Tennessee, 2016



In order to better understand cause and manner of death, it is important to examine both their differences and similarities. While cause and manner of death have two very distinct definitions, they are strongly associated. In most cases, there is an obvious link between them. For example, a death due to a medical cause would be listed as having occurred in a natural manner while a death due to an external cause of injury might be listed as having occurred in an accidental manner. However, there may be cases where the manner and cause do not obviously relate. The underlying cause of death could be due to a medical condition, but the manner of death could be an accident. For example, if a pregnant woman was involved in a motor vehicle accident that resulted in preterm labor and her baby was delivered and subsequently died with complications associated with preterm birth, the cause would be "medical" but manner listed as "accidental". This relationship is illustrated in Table 4, where the causes of death are stratified by manner. Table 5 and Table 6 provide demographic information for cause and manner of deaths, respectively.

Table 4. Medical and External Causes of Death by Manner for Children Ages 0-17 in Tennessee, 2016

Cause of Death	Manner of Death					
	Natural	Accident	Suicide	Homicide	Undetermined	Pending
External (Injury)	0	171	41	40	9	10
Medical condition	444	4	0	2	8	3
Undetermined Cause	2	1	0	0	102	1
Total	**446**	**176**	**41**	**42**	**119**	**14**

Table 5. Medical and External Causes of Death, Summary for Children Ages 0-17 in Tennessee, 2016

	Cause of Death			Total
	External (Injury)	Medical Condition	Undetermined Cause	
Total	274	473	106	853*
Age Group				
<1 yr	53	350	98	502
1-4 yrs	49	37	7	93
5-9 yrs	40	31	1	72
10-14 yrs	41	38	0	79
15-17 yrs	91	17	0	108
Race				
Black	79	149	43	271
Other	10	17	1	29
White	184	299	62	545
Sex				
Male	177	249	63	489
Female	97	224	43	365

*One case is has an unknown cause of death.

Table 6. Manner of Death, Summary for Children Ages 0-17 in Tennessee, 2016

	Manner of Death						Total
	Natural	Accident	Suicide	Homicide	Undetermined	Pending	
Total	446	176	41	42	119	14	838*
Age Group							
<1 yr	327	44	0	6	105	6	488
1-4 yrs	36	36	0	7	8	5	92
5-9 yrs	28	34	1	3	4	1	71
10-14 yrs	38	22	11	7	1	0	79
15-17 yrs	17	40	29	19	1	2	108
Race							
Black	140	49	4	27	48	0	268
Other	14	6	0	2	2	1	25
White	284	120	37	13	69	13	536
Sex							
Male	232	115	27	24	72	9	479
Female	214	61	14	18	47	5	359

*16 cases excluded due to unknown or missing manner of death.

From 2015 to 2016, the overall mortality rate increased 8 percent (not statistically significant). While the death rate due to medical conditions in 2016 decreased 10 percent (not statistically significant) compared to 2014, there was a 43 percent increase (statistically significant) in the rate of deaths due to external causes from 2014 to 2016. Figures 11 and 12 depict these yearly trends and additional information is provided in the next section, “Specific Causes of Death”.

Figure 11. Rate of Child Mortality Ages 0-17 by Cause of Death in Tennessee, 2012-2016

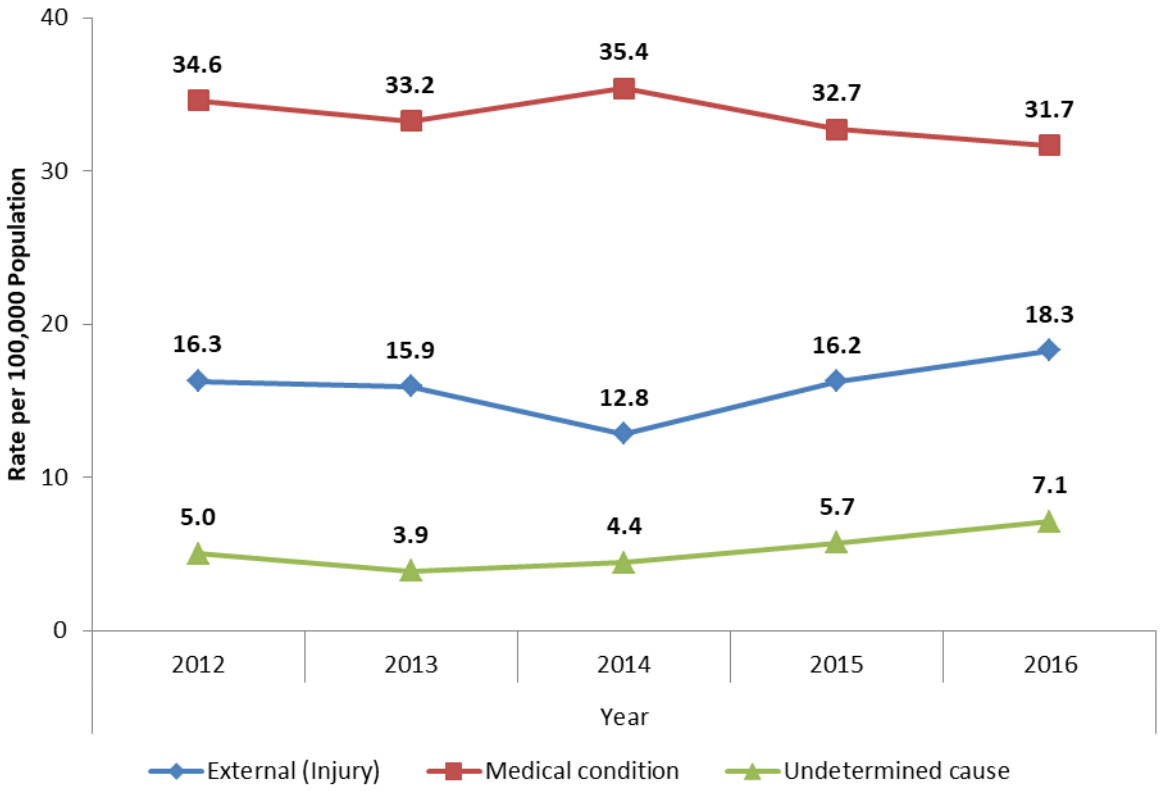
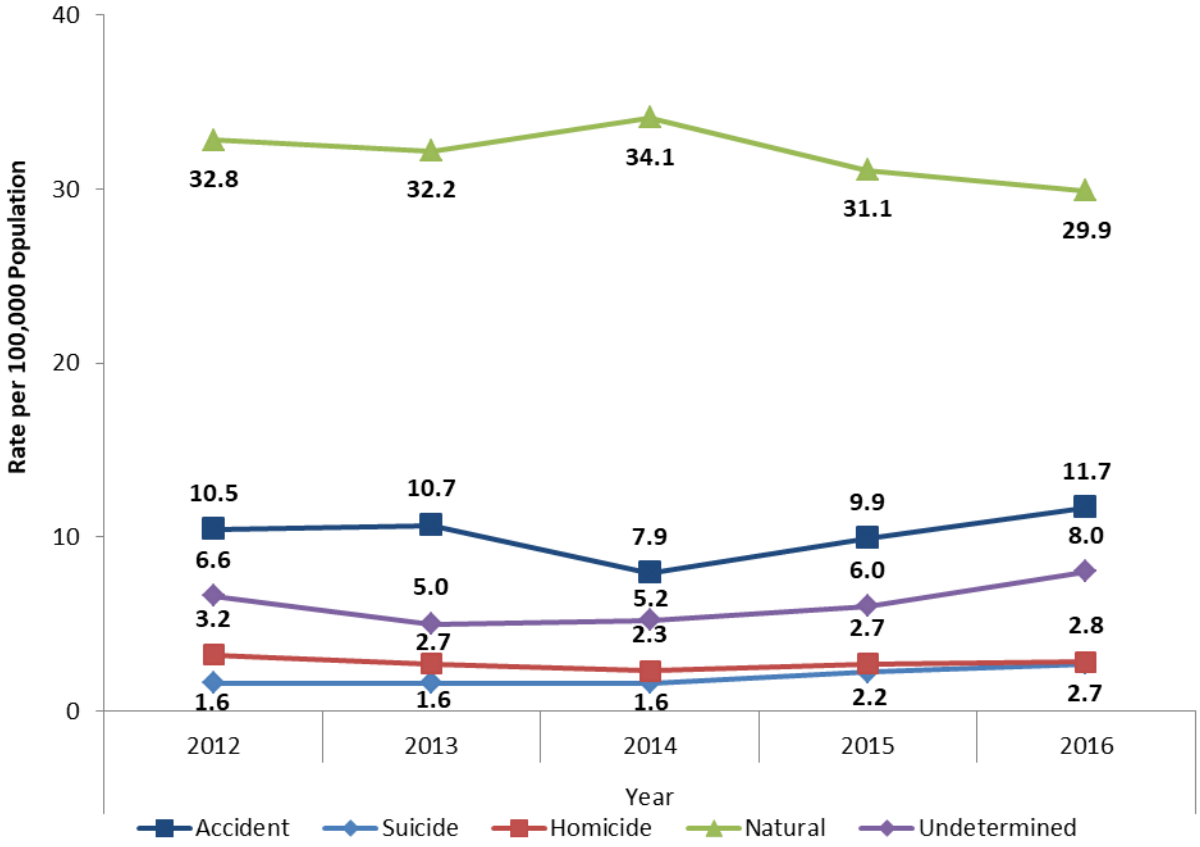


Figure 12. Rate of Child Mortality Ages 0-17 by Manner of Death in Tennessee, 2012-2016



Specific Causes of Death

Cause of death includes two broad categories: external and medical. Within the external classification, individual deaths are further classified according to the nature of the injury. Of the 854 reviewed child deaths in 2016, 32 percent (274 deaths) were classified as having been due to external causes, including motor vehicle crashes, weapons, asphyxia, fire/burns, poisoning or overdose, and fall/crush. There was a 43 percent increase (statistically significant) from external causes of death in 2014 (191 out of 784) to 2016. Detailed analysis for each specific injury death is provided in later sections of this report.

Table 7. External Cause of Death (Injury Causes) for Children Ages 0-17 by Age Groups Tennessee, 2016

Injuries	Total	Percent of Reviewed Deaths	Age Group				
			<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
Motor vehicle or other transport	71	8.3%	2	8	20	13	28
Weapon	65	7.6%	3	6	3	12	41
Asphyxia	60	7.0%	40	4	1	5	10
Fire, burn, or electrocution	29	3.4%	2	14	9	3	1
Drowning	22	2.6%	1	9	3	4	5
Other	9	1.1%	3	3	1	2	0
Poisoning, overdose or acute intoxication	7	0.8%	0	1	0	2	4
Fall or crush	5	0.6%	0	1	3	0	1
Exposure	2	0.2%	0	1	0	0	1
Undetermined	1	0.1%	1	0	0	0	0
Total	**274**	**32%**	**53**	**49**	**40**	**41**	**91**

Within the medical classification, causes are further specified by particular conditions or disease entities. In 2016, **473 deaths were attributed to medical causes.** Medical causes may include those acquired congenitally (present at birth) or those that develop as the child grows. The majority of deaths from medical causes in Tennessee are related to prematurity and congenital anomalies. Other causes include infections, neurological conditions including seizures, and childhood cancers. In 2016, approximately 55 percent of reviewed deaths were attributed to medical causes; this represents a decrease from 60 percent in 2015. The largest decrease was observed in congenital anomaly (125 cases in 2015 compared to 108 in 2016) followed by cardiovascular (26 cases in 2015 compared to 17 cases in 2016). Medical causes of death are outlined in Table 8.

It is important to note that when SIDS and/or a Sudden Unexplained Infant Death (SUID) is identified on a death certificate, the cause is classified as “Medical” or “Undetermined.”

Table 8. Medical Cause of Death for Children Ages 0-17 by Age Groups Tennessee, 2016

Medical Causes	Total	Percent of Reviewed Deaths	Age Group				
			<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
Prematurity	149	17%	148	0	1[†]	0	0
Congenital anomaly	108	13%	90	9	3	4	2
Other medical condition*	77	9%	42	8	8	15	4
Cancer	36	4%	2	9	11	8	6
Other infection	28	3%	20	3	4	1	0
Cardiovascular	17	2%	12	2	0	1	2
Other perinatal condition	15	2%	14	0	1	0	0
Neurological/seizure disorder	14	2%	4	2	2	4	2
Pneumonia	11	1%	7	3	0	0	1
Asthma	5	1%	0	1	1	3	0
SIDS	5	1%	5	0	0	0	0
Influenza	1	0%	0	0	0	1	0
Low birth weight	1	0%	1	0	0	0	0
Malnutrition/dehydration	1	0%	1	0	0	0	0
Undetermined medical cause	1	0%	1	0	0	0	0
Diabetes	1	0%	0	0	0	1	0
Total	**473**	**55%**	**350**	**17**	**31**	**38**	**17**

*Other medical condition includes all other conditions that fall under a different category than those listed above, e.g. myocarditis or intestinal infarction.
[†]The premature death was a 9 year old child that had severe medical complications from being born at 28 weeks gestation, and struggled with complications of prematurity.

FOCUSING ON PREVENTION: SPECIFIC CAUSES OF DEATH

Potential prevention opportunities include:

- Routine vaccination of infants and children against diseases such as pertussis, measles, and influenza.
- Early and regular prenatal care for pregnant women.
- Screening pregnant women for eligibility for treatment with 17 alpha-hydroxyprogesterone caproate when appropriate prematurity risk factors are identified.
- Avoidance of tobacco exposure to children, infants, and pregnant women.
- Promotion of social services for women who are of child-bearing age, pregnant, or of low socioeconomic status.
- Widespread messaging campaigns to promote the importance of safe sleep.
- Provider and patient education and utilization of antenatal steroids, when appropriate.

Current prevention efforts in Tennessee include:

- Certified Application Consultants have been staffed in each local health department and at local FQHCs to help women with presumptive Medicaid eligibility sign up on the Marketplace.
- The Tennessee Department of Health funds the Tennessee Tobacco QuitLine which offers smoking cessation services to anyone, including pregnant women.
- Tobacco prevention funds are provided to all 95 counties to prevent smoking in pregnant women.
- The Tennessee Department of Health promotes the “ABC’s of Safe Sleep” campaign to reduce SIDS and other sleep-related deaths and has expanded educational efforts in 2016-2017. Safe sleep education was provided to all new babies in Tennessee. Approximately 1500 portable cribs were distributed to families.
- Prevent Child Abuse Tennessee (PCAT) connected 89 percent of 402 families served by Healthy Families Tennessee (HFTN) this fiscal year to a medical home. 78 percent of children enrolled in the HFTN program were up to date on immunizations by 2 years of age and 92 percent of women enrolled in the home visiting programs prenatally delivered full term infants.
- Promotion of highly effective contraception including Voluntary Reversible Long Acting Contraceptives (VRLACs), when appropriate and desired by women to encourage safer spacing between pregnancies.

Summary of Infant Mortality Data

Infant mortality is defined as a death occurring within the first 12 months of life. Infant mortality accounts for the largest single component of the Child Fatality Review process and is of particular concern in the state of Tennessee. The state's infant mortality rate declined from 2011 to 2013 (from 7.4/1,000 live births in 2011 to 6.8/1,000 live births in 2013) but then increased from 2013 to 2016 (6.8/1,000 to 7.4/1,000, respectively). Tennessee's infant mortality rate in 2016 was 25 percent higher than the 2015 national average of 5.9 per 1,000 live births[8], the last year in which national data are available. In 2015, the infant mortality rate in Tennessee was 7.0 per 1,000 live births, the 15th highest rate of any state in the United States.

In 2014, (the most recent year National data by cause is available) two-thirds of infant deaths occurred during the first twenty-eight days of life in the United States. The ten leading causes of infant death in the United States in 2014 accounted for 69.1 percent of all infant deaths. By rank, the ten leading causes were:

1. Congenital malformations, deformations and chromosomal abnormalities
2. Disorders related to short gestation and low birth weight, not elsewhere classified
3. Newborn affected by maternal complications of pregnancy
4. Sudden infant death syndrome (SIDS)
5. Accidents (unintentional injuries)
6. Newborn affected by complications of placenta, cord and membranes
7. Bacterial sepsis of newborn
8. Respiratory distress of newborn
9. Diseases of the circulatory system
10. Neonatal hemorrhage[9]

In 2016, **502** Tennessee infant deaths[10] were reviewed by local child fatality review teams. Table 9 provides a list of the risk factors readily associated with infant mortality. It is important to note that, because the categories are not mutually exclusive, their total will exceed that of the 502 deaths.

[8] CDC WONDER.
[9] http://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm; National vital statistics reports; vol 6564 no 49. Hyattsville, MD: National Center for Health Statistics.2016.
[10] Deaths of less than 23 weeks' gestation and less or equal than 500 grams in weight are not reviewed. Therefore, this number may differ from that published in other Departmental reports.

Table 9. Risk Factors Associated with Infant Deaths Reviewed by Tennessee CFR Teams, 2016

Risk Factors	Total	Percent of Reviewed Infant Deaths	Manner of Death				
			Natural	Accident	Homicide	Undetermined	Pending
Low Birth Weight	361	72%	275	21	3	54	0
Premature	304	61%	251	11	1	35	0
Known Intrauterine Smoke Exposure	159	32%	83	20	4	46	4
Known Intrauterine Drug Exposure	63	13%	26	12	1	22	2
Late (>6 months) or No Prenatal Care	55	11%	35	4	1	15	0
Known Intrauterine Alcohol Exposure	3	1%	2	1	0	0	0
Deaths Reviewed	502	100%	327	44	6	105	6

As indicated in Table 9, low birth weight and prematurity were risk factors associated with many infant deaths. This is consistent with other analyses that indicate low birth weight and prematurity are major contributors to Tennessee's infant mortality rate. Additionally, 32 percent of infant deaths were associated with known intrauterine smoke exposure. Smoking during pregnancy is known to be associated with both prematurity and low birth weight, both of which are independent risk factors for infant mortality.

A detailed, county-level listing of infant mortality rates can be found in Appendix D. The count of infant deaths reported there differs from that reported through the Child Fatality Review process, as the local CFR teams only review deaths in which the infant was born weighing over 500 grams or at least 23 weeks' gestational age; whereas, Appendix D includes infant deaths of all live-born children, regardless of weight or gestational age.

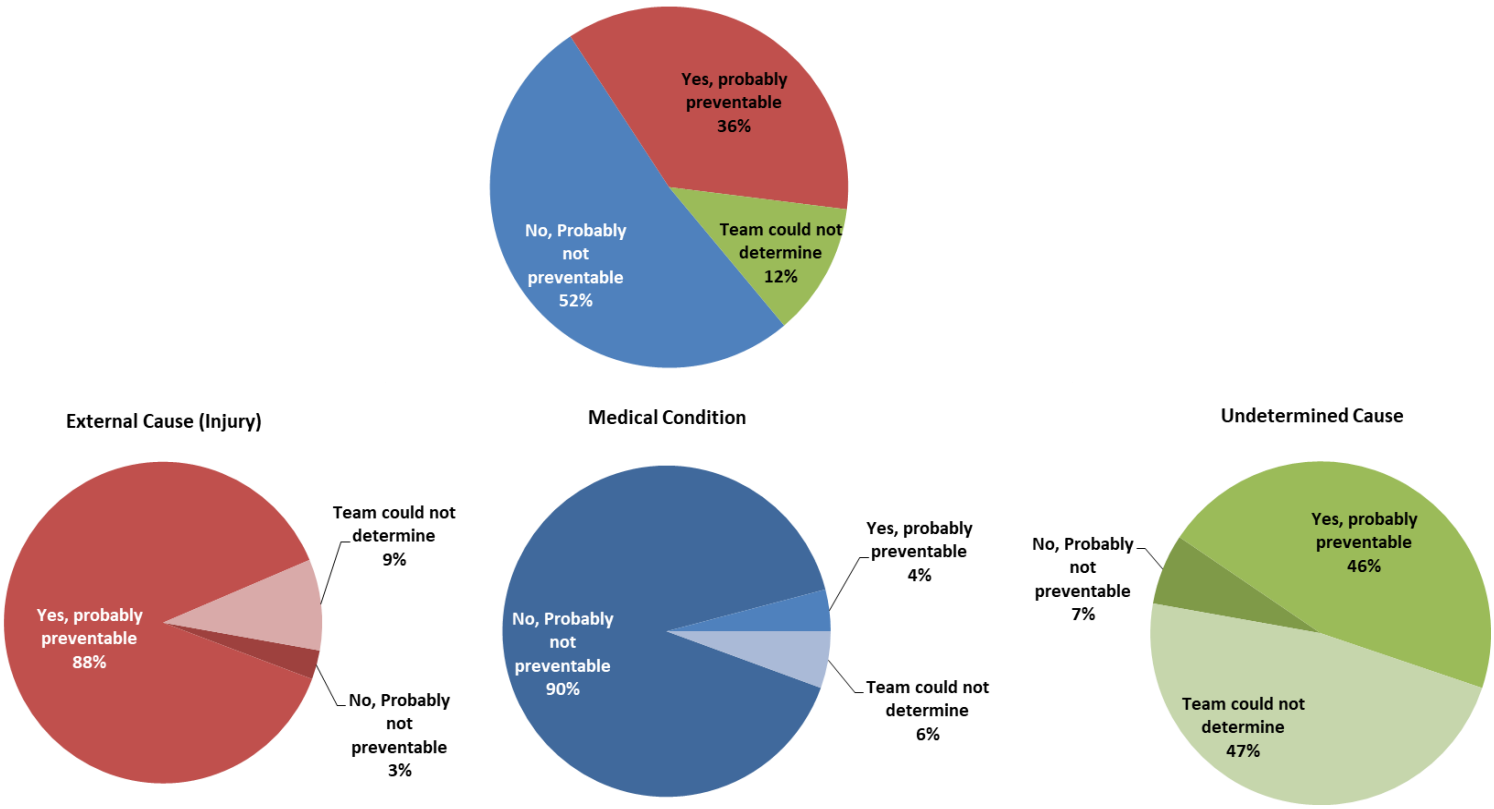
Prevention Analysis

The overarching goal of the Child Fatality Review Program is to craft and adopt recommendations for actions that can prevent future child deaths. In Tennessee, several policies have been the direct result of the Child Fatality Review process.

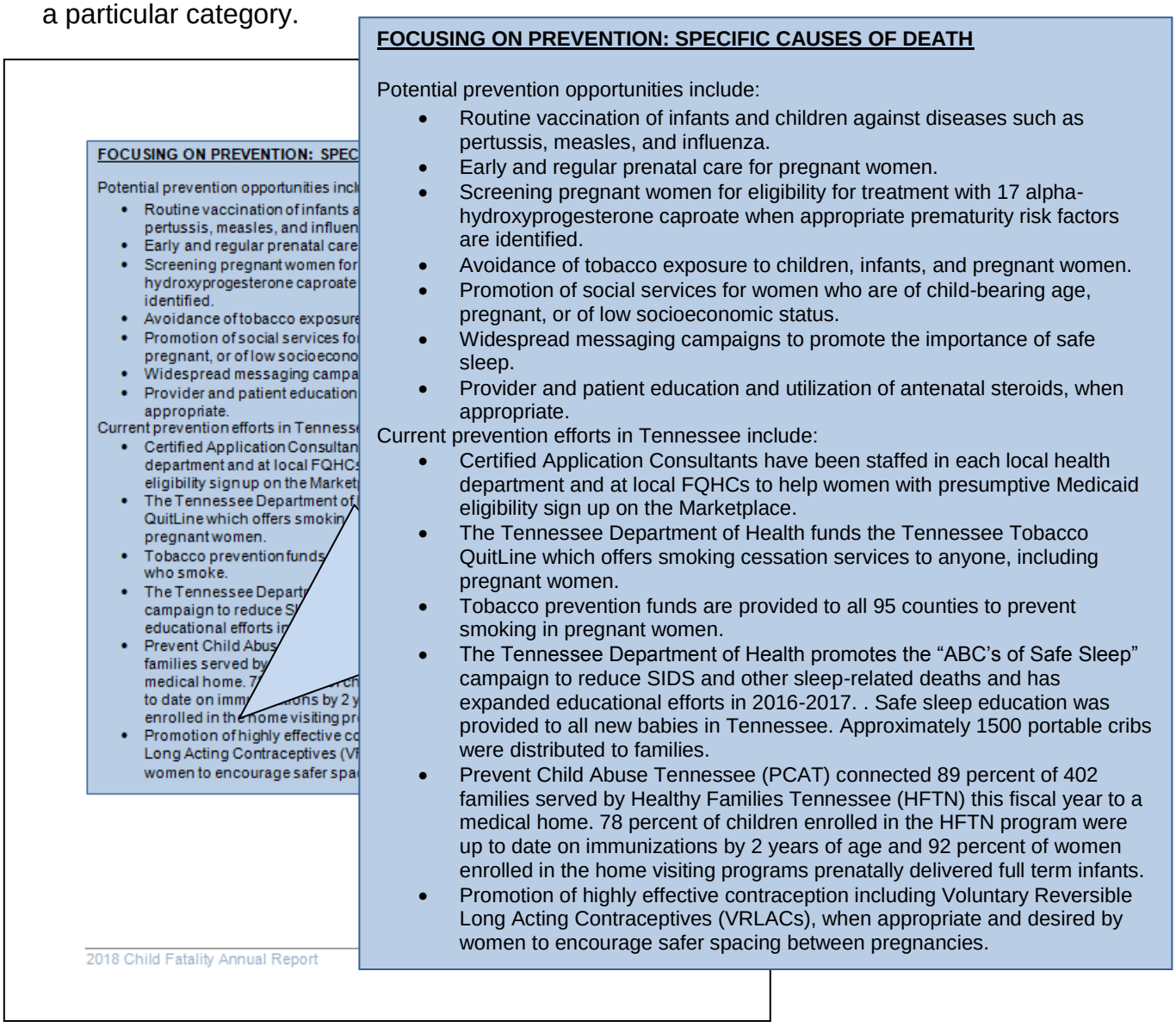
If intervention by an individual or community could have reasonably changed the circumstances leading to a child's death, that fatality is considered to have been **preventable**. CFR teams carefully examine each death in an effort to determine preventability.

Of the cases reviewed, CFR teams determined that **306 deaths (36%) could probably have been prevented**, as shown in Figure 13. As suspected, the great majority of the preventable deaths are those caused by an external cause of injury (240 cases) versus medical causes (18 cases).

Figure 13. Preventability of Child Deaths Ages 0-17 by Cause of Death in Tennessee, 2016



Prevention of future child deaths is the primary goal of Child Fatality Review. Spread throughout this report are highlighted boxes labeled "**Focusing on Prevention**." These boxes contain nationally-recommended strategies for preventing a particular type of death, as well as highlights of current TN initiatives focused on preventing deaths within a particular category.



FOCUSING ON PREVENTION: SPECIFIC CAUSES OF DEATH

Potential prevention opportunities include:

- Routine vaccination of infants and children against diseases such as pertussis, measles, and influenza.
- Early and regular prenatal care for pregnant women.
- Screening pregnant women for eligibility for treatment with 17 alpha-hydroxyprogesterone caproate when appropriate prematurity risk factors are identified.
- Avoidance of tobacco exposure to children, infants, and pregnant women.
- Promotion of social services for women who are of child-bearing age, pregnant, or of low socioeconomic status.
- Widespread messaging campaigns to promote the importance of safe sleep.
- Provider and patient education and utilization of antenatal steroids, when appropriate.

Current prevention efforts in Tennessee include:

- Certified Application Consultants have been staffed in each local health department and at local FQHCs to help women with presumptive Medicaid eligibility sign up on the Marketplace.
- The Tennessee Department of Health funds the Tennessee Tobacco QuitLine which offers smoking cessation services to anyone, including pregnant women.
- Tobacco prevention funds are provided to all 95 counties to prevent smoking in pregnant women.
- The Tennessee Department of Health promotes the "ABC's of Safe Sleep" campaign to reduce SIDS and other sleep-related deaths and has expanded educational efforts in 2016-2017. . Safe sleep education was provided to all new babies in Tennessee. Approximately 1500 portable cribs were distributed to families.
- Prevent Child Abuse Tennessee (PCAT) connected 89 percent of 402 families served by Healthy Families Tennessee (HFTN) this fiscal year to a medical home. 78 percent of children enrolled in the HFTN program were up to date on immunizations by 2 years of age and 92 percent of women enrolled in the home visiting programs prenatally delivered full term infants.
- Promotion of highly effective contraception including Voluntary Reversible Long Acting Contraceptives (VRLACs), when appropriate and desired by women to encourage safer spacing between pregnancies.

Acts of Child Abuse and Neglect

Acts of child abuse and neglect are of serious concern across the United States. In Federal Fiscal Year (FFY) 2015 (October 1, 2014 through September 30, 2015), it is estimated that 683,000 children were victims of child abuse in the U.S, of whom approximately 1,670 children died. Of the children who died from child abuse, 72.9 percent experienced neglect and 43.9 percent experienced physical abuse. Children ages 0-5 years accounted for 68 percent of child abuse victims, but were disproportionately represented among the fatalities with approximately 81 percent of child abuse fatalities having occurred in children under the age of 4 years.[11,12]

In Tennessee, 11,362 (rate of 7.6 per 1,000) children were determined to have been victims of child abuse in 2015 and 32 (rate of 2.1 per 100,000) children died. Of the children who were victims of child abuse in 2015, 68 percent experienced neglect, 24 percent experienced sexual abuse and 13 percent experienced physical abuse. The majority (68%) of child abuse victims were ages 0-5.[13]

A portion of preventable deaths are either directly or indirectly related to the lack of quality care or supervision on the part of a child's parents, guardians, or supervisors at the time of, or the time leading up to, death. Supervision may be entirely absent or inadequate for the age or activity of the child or the child's supervisor may willfully endanger the child's health and welfare. These numbers reflect all cases in which the local team determined there was poor supervision, abuse or neglect and do not necessarily represent the legal definition of poor supervision, abuse or neglect. These numbers may vary from DCS reports as DCS counts only those cases in which abuse or neglect are substantiated while the CFR local teams examine deaths from a public health approach in order to determine whether there was opportunity for prevention.

Table 10 below describes the cases[14] in which review teams found there was poor or absent supervision, child abuse, child neglect,[15] or other negligence.

[11] U.S. Department of Health and Human Services, An Office of the Administration for Children & Families, Children's Bureau. Available from: http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment

[12] Centers for Disease Control and Prevention, National Center for Injury Prevention and Control: Division of Violence Prevention. Available at: 615-253-2950

[13] Source: Child Maltreatment 2015, An Office of the Administration for Children & Families, Children's Bureau of the U.S. Department of Health and Human Services.

[14] There will always be differences in the numbers of child abuse and neglect deaths reported by DCS and TDH because the reporting focus is different for each agency. DCS reporting is focused on child deaths based on standards of proof for legal culpability. TDH reporting is focused on identifying opportunities to ***prevent*** child deaths, regardless of culpability.

[15] For purposes of this Child Fatality Review, **neglect** is defined as: "failure to act on the part of a parent or caregiver which results in death, or presents an imminent risk of serious harm." **Other negligence** is defined as: "acts or failures to act that are neglectful including criminal negligence, vehicular manslaughter, voluntary intoxication, but not restricted to the level of criminal culpability." Source: Child Death Review Case Reporting System Data Dictionary. Available at: https://www.cdrdata.org/forms/DataDictionary.pdf

Table 10. Acts of Child Abuse and Neglect among Reviewed Deaths for Children Ages 0-17 Tennessee, 2016

Age Group	Acts of Child Abuse and Neglect				Total
	Poor/absent supervision	Child abuse	Child neglect	Other negligence	
<1 yr	5	7	2	56	70
1-17 yrs	12	8	0	21	41
Total	**17**	**15**	**2**	**77**	**111**

FOCUSING ON PREVENTION: ACTS OF CHILD ABUSE AND NEGLECT

Potential prevention opportunities include:

- Increased child abuse awareness and recognition training in schools and childcare environment.
- Educational and family support programs for at-risk families that promote child social and cognitive development and increase parent-child interaction.

Current prevention efforts in Tennessee include:

- The Tennessee Department of Health (TDH) funds evidence-based home visiting programs in high-risk counties. These programs have been shown to reduce child maltreatment.
- Prevent Child Abuse Tennessee (PCAT) continues to lead the Nashville Child Protection Coalition and serve on the steering committee. The coalition's goal is to diminish the incidence and impact of child sexual abuse by teaching 5 percent of the adult population in Nashville to recognize and react responsibly to child sexual abuse. PCAT was designated as the organization responsible for coordinating efforts and facilitating *Stewards of Children* training opportunities for nonprofit organizations, businesses, congregations and parents. PCAT has trained 5,852 adults in Nashville to date and has held 23 trainings in 2016-2017.
- Of the 402 families served by PCAT from 2015 to 2016, 88 percent of mothers affected by post-partum depression were referred to mental health services and 94 percent of children had no new substantiated reports of abuse.
- The Second Look Commission (SLC) has the statutory duty to review an appropriate sampling of cases involving a second or subsequent incident of severe child abuse in order to provide recommendations and findings to the General Assembly regarding whether or not severe child abuse cases are handled in a manner that provides adequate protection to the children of this state. Child fatalities have been included in the case review since 2014. Many of the findings and recommendations of the SLC focus on areas that improve the quality of investigations and strengthen the collaboration and coordination among Child Protective Services team members. These activities have the potential to improve child safety and prevent child fatalities.

Continued on next page

- The Tennessee Department of Children's Services, through the Title IV-E waiver ("the Waiver") has implemented services and supports impacting both in-home and foster care/placement services. Tennessee has initiated interventions that address the need for effective support services delivery to families in order to reduce admissions into foster care. In addition, interventions have been implemented for families experiencing foster care placement in order to reduce length of stay and expedite permanency.
- The DCS Child Abuse Hotline (CAH) received 137,905 calls in 2016, resulting in 122,961 referrals.
- In calendar year 2016, 170 deaths and near deaths were reviewed by DCS. This included 126 deaths of children not in DCS custody, 34 near deaths of children not in DCS custody, and 10 deaths of children in DCS custody.
- Annual reports are released by DCS following the first quarter of each calendar year. The report may be found at http://tn.gov/assets/entities/dcs/attachments/2016_CDR_Annual_Report.pdf

Deaths to Children with Special Circumstances

Children with special circumstances include those with a disability, chronic illness, or an open Child Protective Services (CPS) case at the time of death. Approximately one-third of the deaths in 2016 involved children known to have suffered from a disability or chronic illness. Of those 264 children, 22 were enrolled in the Tennessee Department of Health's Children's Special Services program (CSS). CSS is a voluntary program that provides families of children with special health care needs with care coordination and payments for medical services. The families of 61 children were known by the local Child Fatality Review teams to have been involved in an open CPS case at the time of their child's death.[16]

Table 11. Children with Disability among Reviewed Deaths* of Children Ages 0-17 by Age Group Tennessee, 2016

Age Group	Type of Disability or Chronic illness				Total
	Physical	Sensory	Mental Health	Cognitive	
<1 yr	120	1	0	10	130
1-4 yrs	28	0	0	10	31
5-9 yrs	27	2	7	8	34
10-14 yrs	35	1	5	10	41
15-17 yrs	17	2	10	6	28
Total	**227**	**6**	**22**	**44**	**264**

*Because more than one disability or chronic illness may be present in a child, the sum of each type exceeds the total.

Table 12. Children with Special Circumstances among Reviewed Deaths of Children Ages 0-17 Tennessee, 2016

Circumstance	If disabled, child was enrolled in Children's Special Services (CSS)	Open child protective services (CPS) case at time of death
Number of Deaths	22	61

[16] This number will vary from the data reported by DCS as child fatalities from DCS are based on the date of the abuse or neglect substantiation and not the date of death; thus the reporting timeframe for DCS is different than that of TDH. Local Child Fatality Review Teams make their determinations based upon information available to them at the time of the review.

FOCUSING ON PREVENTION: CHILDREN WITH SPECIAL CIRCUMSTANCES

Potential prevention opportunities include:

- Provide respite care and other support services for families of children who are at high risk for abuse and neglect, including children and youth with special health care needs.

Current prevention efforts in Tennessee include:

- The Tennessee Department of Health operates Children's Special Services in all 95 counties. Trained care coordinators work with children with special health care needs and their families. Families are referred to community resources that assist in meeting family-specific needs and assist families in coping with their child's condition.

Sudden Death in the Young (SDY) Registry Project

In October 2014, Tennessee was awarded a $200,000 grant per year for four years from the Centers for Disease Control and Prevention (CDC) to help establish the Sudden Death in the Young (SDY) Registry. Ten other states/jurisdictions received funding, including Delaware, Georgia, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, Wisconsin, the city of San Francisco and the Tidewater region of Virginia.

The goals of the SDY registry are to a) establish the incidence of sudden death in the young in the United States using a population-based approach through state public health offices, and b) investigate the etiologies and risk factors for sudden death in the young, including sudden unexpected infant death (SUID), sudden cardiac death (SCD) and sudden unexpected death in epilepsy (SUDEP). All deaths in young people under age 20 may be considered for inclusion in the registry, except in cases where death was due to any of the following:

1. Accident in which the external cause was the obvious and only reason for the death, except infant suffocation
2. Homicide
3. Suicide
4. Accidental or intentional overdose of drugs even if this caused cardiac or respiratory arrest with no prior history of other possible chronic disease or autopsy findings suggestive of another cause
5. Terminal illness in which the death was reasonably expected to occur within 6 months.

To accomplish this, the TDH has partnered with three of the five regional forensic centers (RFCs) in Tennessee (ETSU William L. Jenkins, Middle Tennessee Center and West Tennessee) and our 34 local CFR teams. The RFCs are responsible for identifying and notifying the state CFR program staff of any cases eligible for inclusion in the registry within 72 hours of death, conducting a thorough investigation into the circumstances of the death and obtaining consent from families for participation in the registry. The local CFR teams are responsible for reviewing SUID/SDY deaths within 90 days of notification.

For infant deaths, teams follow the SUID algorithm provided by CDC to categorize all cases where the death certificate indicated the cause as unknown, undetermined, SIDS, SUID, unintentional sleep-related asphyxia/suffocation/strangulation, unspecified suffocation, cardiac or respiratory arrest without other well-defined causes, or unspecified causes with potentially contributing unsafe sleep factors. The local teams review all of the circumstances surrounding the SUID event, including the autopsy and death scene investigation reports to categorize the death into one of the 6 categories shown in Table 13.

Table 13. Categorization for SUID Case Registry (Age<1 yr), 2016

Categorization for SUID Case Registry	Number of Infant Deaths
Unexplained: Unsafe sleep factors	62
Explained: Suffocation with unsafe sleep factors	43
Unexplained: Possible suffocation with unsafe sleep factors	24
Excluded	9
Unexplained: Incomplete case information	9
Unexplained: No unsafe sleep factors	6
Unexplained: No autopsy or death scene investigation	0
Total	**153***

*This number is inclusive of all sudden unexpected infant deaths, including sleep-related and other causes.

There must be strong evidence of factors contributing to suffocation present in order for a SUID case to be categorized as “unexplained: possible suffocation with unsafe sleep factors” or “explained: suffocation with unsafe sleep factors” including a mechanism for suffocation such as “soft bedding”, “overlay”, and/or “wedging”. Table 14 summarizes the primary mechanism(s) explaining the suffocation, or possible suffocation, as detailed in the autopsy and/or death scene investigation reports that are reviewed by local teams. The excluded category is defined as a SUID case in which the cause of death is ultimately not sleep related, such as illness unlikely to cause death, trauma, or cardiac cause.

Table 14. Unsafe Sleep Factors, 2016

Unsafe Sleep Factors	Number of Infant Deaths
Soft bedding	50
Overlay	10
Wedging	5
Other	6
Total	**71**

Teams follow the SDY algorithm provided by the CDC to determine whether cases – including SUID cases – meet the criteria of having an “explained cause of death”. Cases that are not determined as having an explained cause of death are sent to an advanced review team if both an autopsy and death scene investigation were conducted. The advanced review teams are located in Memphis and Nashville and include pediatric neurologists, pediatric cardiologists, an epileptologist, a neonatologist and forensic pathologists. The advanced review teams review all medical and investigative records to categorize the death into one of the following seven categories: explained cardiac, explained neurological, possible cardiac, possible SUDEP, possible cardiac and SUDEP, unexplained death ≥ one year of age or unexplained death under age one. Table 15 summarizes how the teams have categorized the SDY cases.

Table 15. Categorization for SDY Case Registry (Ages 0-17 yrs), 2016

Categorization for SDY Case Registry	Age Group		Total
	<1 yr	1-17 yrs	
Unexplained infant death	83	0	83
Explained infant suffocation	45	0	45
Explained other	6	27	33
Incomplete case information	8	10	18
Unexplained, possible cardiac	3	4	7
Unexplained, SUDEP	1	5	6
Unexplained child death(age 1+)	0	6	6
Explained cardiac	1	4	5
Unexplained, possible cardiac and SUDEP	0	2	2
Explained neurological	0	0	0
Total	**147***	**58**	**205**

* This total is different from the Table 13, SUID Categorization total because all 2016 deaths have not been categorized by the SDY Advanced Review team as of December 2017. The SUID categorization is completed by the local CFR teams, and the SDY categorization is completed by the SDY Advanced Review Team.

Registry Initiatives

The state CFR program was able to allocate funding from the SDY Registry project to purchase and distribute digital cameras and Sudden Unexplained Infant Death Investigation (SUIDI) dolls. Any agency responsible for conducting infant or child death investigations was eligible to apply for these materials. All three of the participating regional forensic centers are now obtaining consent for and collection of bio-samples. The bio-samples are used by researchers to extract DNA to better understand why children die suddenly. An individual meeting was held with each center to discuss the consent process and new ideas for obtaining consent. A one-page document explaining the process and other information was created. In 2016, 205 SDY cases were identified and reviewed by the local teams. Of those cases, 153 were investigated at advanced clinical review. To date, 643 cases have been identified as potential SDY, 465 cases have been closed by local CFR teams, and 263 cases have been referred and closed at advanced clinical review. A total of 152 consents have been attempted. Fifty-five signed consents with 47 bio-specimens have been sent to the biorepository, and five have been approved for diagnostic genetic testing.

DETAILED REVIEW: SPECIFIC CAUSES OF DEATH

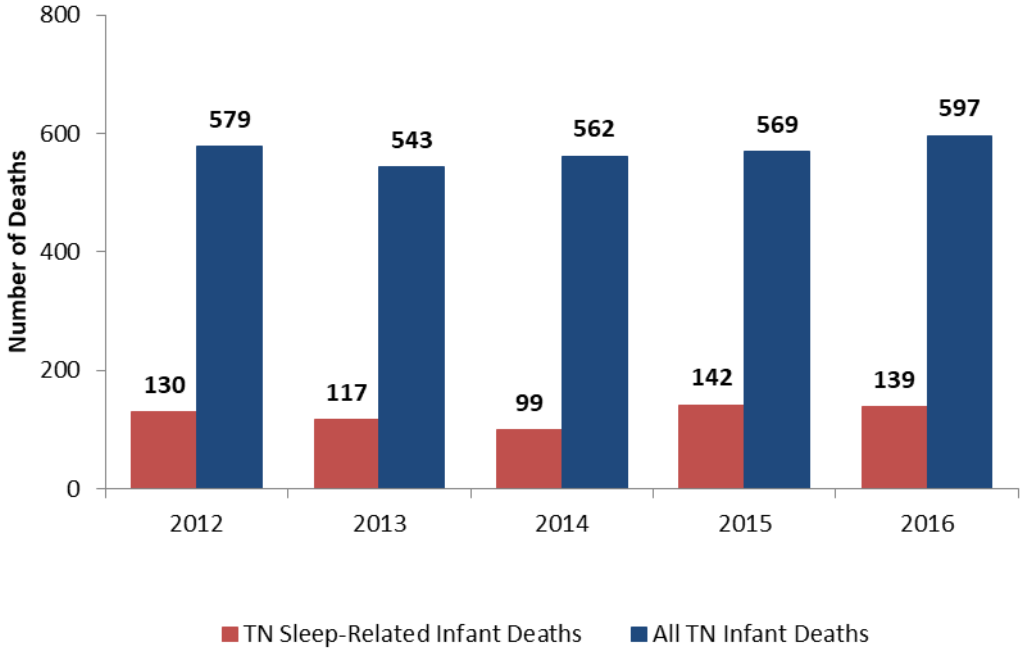
Sleep-Related Infant Deaths

Sleep related infant deaths are identified when a baby is found deceased in a sleeping environment and is found with his or her head pressed into the mattress or pillow, in the presence of a co-sleeper, found wedged against an object, or when an infant is found in other circumstances that may have contributed to the infant's suffocation or strangulation. Sleep-related infant deaths may also be classified as Sudden Infant Death Syndrome (SIDS). SIDS is considered an exclusionary cause of death for children under one year of age. A diagnosis of SIDS indicates that all evidence (including an autopsy, death scene investigation, and review of the medical record) has failed to yield the specific cause of death. SIDS deaths are classified under sleep-related infant deaths.

The cause and manner of death in these cases are determined from the information obtained in the death scene investigation and after a medical examiner's autopsy. When seemingly healthy infants fail to awaken from sleep, their deaths may be considered to be due to SIDS, the result of suffocation related to the sleep environment, or the sign of an undiagnosed childhood malady. The exact cause of death may be difficult, if not impossible, to determine. In 2016, the cause of death in 98 reviewed fatalities (20%) of children under the age of one year was classified as 'Undetermined'. This number reflects the complexities inherent in determining the exact cause of a sudden infant death.

In 2016, there were 139 infant deaths that resulted from, or were associated with, an unsafe sleep environment. Figure 14 displays the number of sleep-related infant deaths and total number of infant deaths in Tennessee over the last five years. These sleep-related deaths accounted for 23 percent of all infant fatalities in Tennessee. The overall infant mortality rate rose from 7.0 per 1,000 live births in 2015 to 7.4 in 2016. This increase was not statistically significant. There was also no significant change in sleep-related infant deaths from 2015 to 2016.

Figure 14. Number of Sleep-Related Infant Deaths in Tennessee, 2012-2016



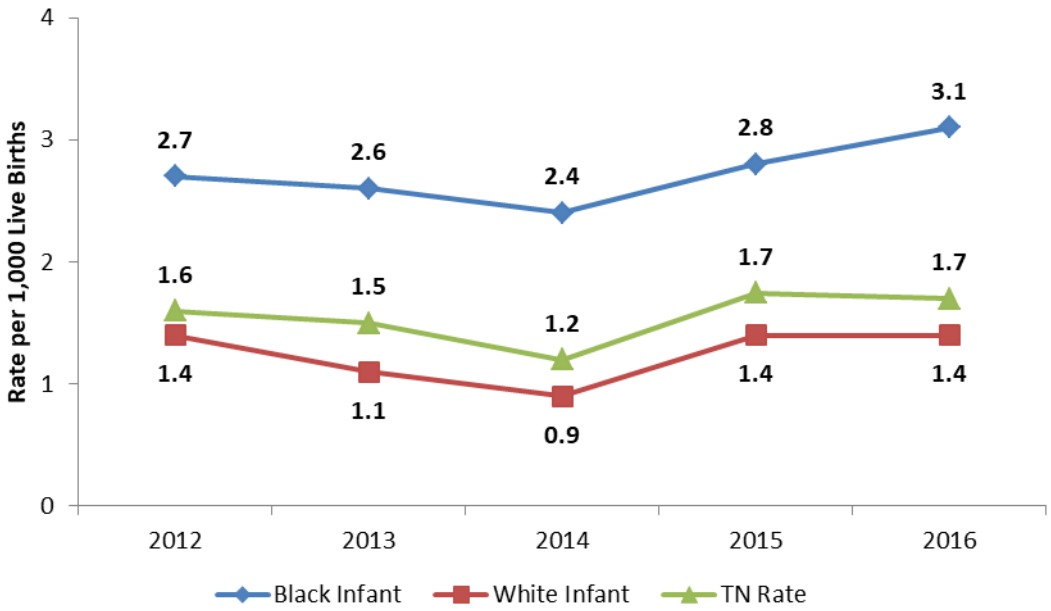
Of the 139 sleep-related deaths, 38 were confirmed as asphyxia in the sleep environment. In many cases, family members or others who find the baby may not be able to provide a detailed history of what transpired. When investigators arrive on the scene the baby has often been moved, and accurately recreating the death scene may not be possible. Thus, despite autopsies and the efforts of Child Fatality Review teams, the exact cause of infant sleep-related deaths may never be known for some infants and their families.

Among sleep-related infant deaths there is significant racial disparity. Black infants are 2.2 times more likely to suffer a sleep-related fatality as white infants, as shown in Table 16. Also, males are disproportionally affected by sleep-related deaths (60%) over females (40%).

Table 16. Number of Sleep-Related Infant Deaths and Rates by Race
Tennessee, 2012-2016

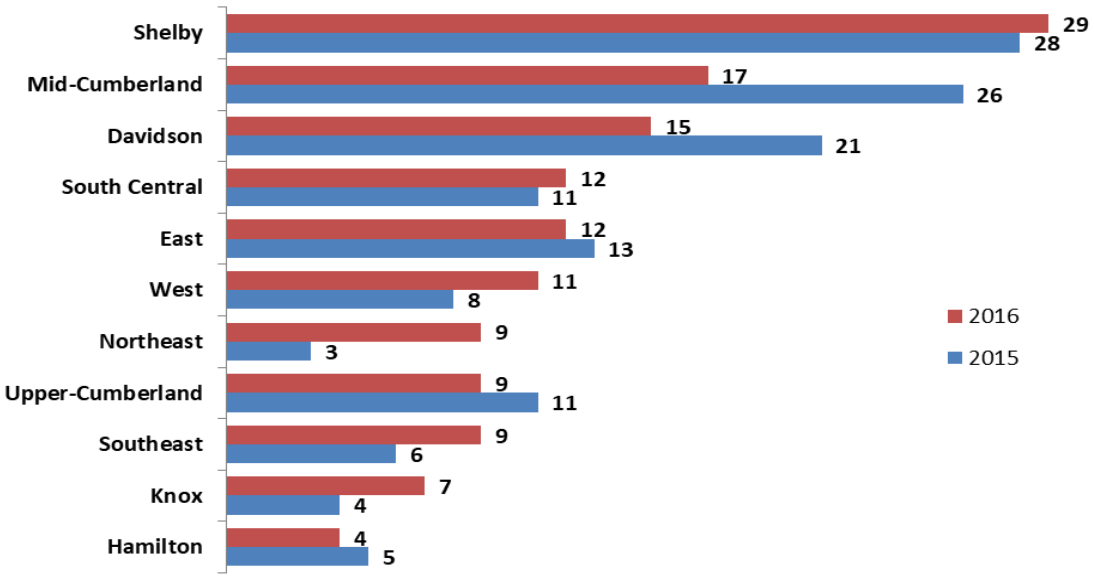
Year	Blacks		Whites		TN
	Number of Deaths	Rate per 1,000 Live Births	Number of Deaths	Rate per 1,000 Live Births	Rate per 1,000 Live Births
2012	45	2.7	85	1.4	1.6
2013	44	2.6	68	1.1	1.5
2014	41	2.4	55	0.9	1.2
2015	47	2.8	87	1.4	1.7
2016	51	3.1	86	1.4	1.7

Figure 15. Sleep-Related Death Rates by Race in Tennessee, 2012-2016



Additionally, a regional distribution of sleep-related infant deaths is provided in Figure 16. In 2016, the region with the highest number of sleep-related infant deaths was Shelby County with 29 cases (24% of all sleep related deaths), followed by the Mid-Cumberland region with 17 cases (17%) and Davidson County with 15 cases (20%). Mid-Cumberland was the region with the largest decrease (not statistically significant) in sleep-related deaths (26 cases in 2015 vs 17 cases in 2016, representing a 35 percent decrease).

Figure 16. Number of Sleep-Related Infant Deaths in Tennessee by Region, 2015 vs 2016



* Numbers for Madison and Sullivan are suppressed due to confidentiality concern.

Table 17. Contributing Factors in Sleep-Related Infant Deaths[17] in Tennessee, 2012-2016

Circumstance	2012	2013	2014	2015	2016	2016 Percent of Sleep-Related Infant Deaths
Unsafe bedding or toys in sleeping area*	53	72	70	123	126	91%
Infant found not sleeping in crib or bassinette	95	88	78	114	108	78%
Infant sleeping with other people	68	67	65	88	76	55%
Infant found not sleeping on back	72	71	40	71	65	47%
Infant sleeping with obese adult	9	13	7	21	18	13%
Drug impaired adult sleeping with infant	1	5	12	4	16	12%
Alcohol impaired adult sleeping with infant	2	2	3	3	4	3%
Adult fell asleep while breast feeding infant	2	3	1	6	3	2%
Adult fell asleep while bottle feeding infant	0	3	3	1	1	1%

*Includes comforter, blanket, pillow, bumper pads, toys, plastic bags and other.

As indicated in Table 17, four main contributing factors are consistently present in sleep-related infant deaths: unsafe bedding or toys in sleeping area (91% of sleep-related infant deaths), infant not sleeping in a crib or bassinette (78% of sleep-related infant deaths), infant not sleeping alone (55% of sleep-related infant deaths), and infant

[17] Because more than one contributing factor may have been present in a single death, the total number of contributing factors exceeds the number of sleep environment deaths.

not sleeping on their back (47% of sleep-related infant deaths). These risk factors are key points for education in the Tennessee Department of Health's "ABC's of Safe Sleep" campaign (Babies should sleep **A**lone, on their **B**ack, and in a **C**rib).

FOCUSING ON PREVENTION: SAFE SLEEP

Potential prevention opportunities include:

- Widespread messaging campaigns particularly targeted at parents and caregivers of infants.
- Provision of portable cribs to families with limited resources.
- Modeling of correct safe sleep practices by trusted professionals such as physicians and nurses.
- Focusing safe sleep messaging on most at risk infants and communities.

Current prevention efforts in Tennessee include:

- TDH continues to partner with 100 percent of birthing hospitals (65) and 5 non-delivery hospitals across Tennessee, all of which have developed and implemented safe sleep policies to include modeling of safe sleep behavior in the hospital, and education for staff, parents and caregivers. In addition, hospitals are responsible for completing quarterly crib audits and submitting annual reports to monitor compliance with their safe sleep policies. TDH continues to provide safe sleep materials and the *Sleep Baby Safe and Snug* board books to hospitals.
- In addition to the S*afe Sleep Policy Project*, hospitals have been encouraged to apply for the national Safe Sleep Certification through Cribs for Kids. Currently 25 hospitals have certification: 11 bronze, 2 silver, and 12 gold. Each level represents additional tasks required to educate and promote safe sleep to parents.
- Implementation of the *Direct On Scene Education (D.O.S.E.)* program has continued to expand across the state. When responding to an emergency or non-emergency call from a household with a pregnant woman or an infant, responders are trained to look for unsafe sleep conditions and offer the residents a safe sleep kit with information on the ABC's of Safe Sleep. Thirty-three first responder agencies across the state are participating in the D.O.S.E. program. They have distributed 1415 safe sleep kits and 54 portable cribs.
- TDH implemented the *Safe Sleep Floor Talker Project* in 2014. Partner sites display a large vinyl decal on the floor or other hard surface to promote the safe sleep message. Thus far 804 floor talkers have been placed in various partner sites including stores, clinics, and health departments.

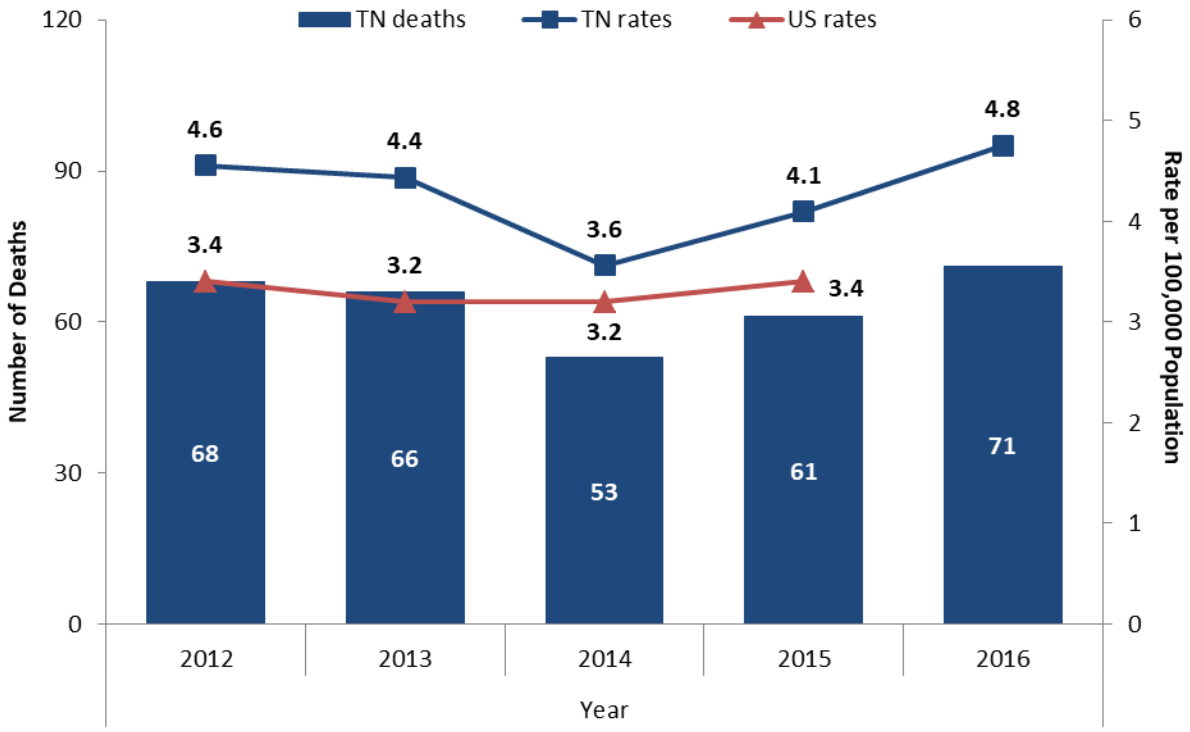
Continued on next page

- In 2015, Tennessee Department of Health launched an online safe sleep educational module for WIC participants, and a new module was created in the WICHealth.org system and launched in June 2017. The module has been completed by approximately 3000 WIC parents. The post-test data from the module show significant improvement in intent to practice safe sleep.
- TDH created a safe sleep church bulletin insert to promote the safe sleep message within faith-based communities.
- TDH created crib cards with the safe sleep message to distribute to birthing hospitals.
- Each of the DCS regions throughout the state has established a local protocol to guide their staff on the importance of educating families on safe sleep. DCS staff assessed for safe sleeping environments, educate parents and caregivers on the importance of safe sleep, and ensure each infant has a safe sleeping environment.
- Prevent Child Abuse Tennessee (PCAT) is educating families enrolled in the Healthy Families Tennessee (HFTN) and Nurturing Parenting programs about the importance of a safe sleep environment. Parents in the programs are offered coaching and empowerment though voluntary home visitation, receive education on safe sleep and are provided with a portable crib. In the past fiscal year 555 families were served through these important programs.
- PCAT collaborated with TDH to implement a pilot project to distribute baby boxes to all newly enrolled families in their programs. These boxes are large enough to use as a sleep environment for an infant and contain several safe sleep-related items that deliver consistent safe sleep messaging. Training was provided to staff on how to present the box to families. Information is being collected from families to evaluate whether or not they use the box as a sleep environment.
- Tennessee Commission on Children and Youth (TCCY) regional councils distribute safe sleep information at regional council meetings and conferences where they exhibit.
- TCCY included information about the “ABCs of Safe Sleep” in a video released in conjunction with the release of the national 2016 KIDS COUNT Data Book (http://www.tn.gov/tccy/article/tccy-kc-2016-data-book-flourishes).

Motor Vehicle and Other Transportation Deaths

Motor vehicle crashes are the number one external cause of child deaths nationally.[18] Nationally, in 2015, motor vehicle crashes resulted in 2,467 deaths among children ages 17 and under (as either occupants or drivers). Teenagers (age 15-17) and males make up the majority (45% and 61% respectively) of child motor vehicle fatalities.[19] Teens are more likely than older drivers to underestimate dangerous situations. In addition, teens have the lowest rate of seat belt use compared to other age groups.

Figure 17. Motor Vehicle Related Deaths and Rates per 100,000 Children Ages 0-17 in Tennessee and the US, 2012-2016



In Tennessee, deaths related to motor vehicle incidents represented the highest number of fatalities among all external causes of death. In 2016, **71 deaths** were related to motor vehicles or transportation modalities, representing **8 percent of all reviewed**

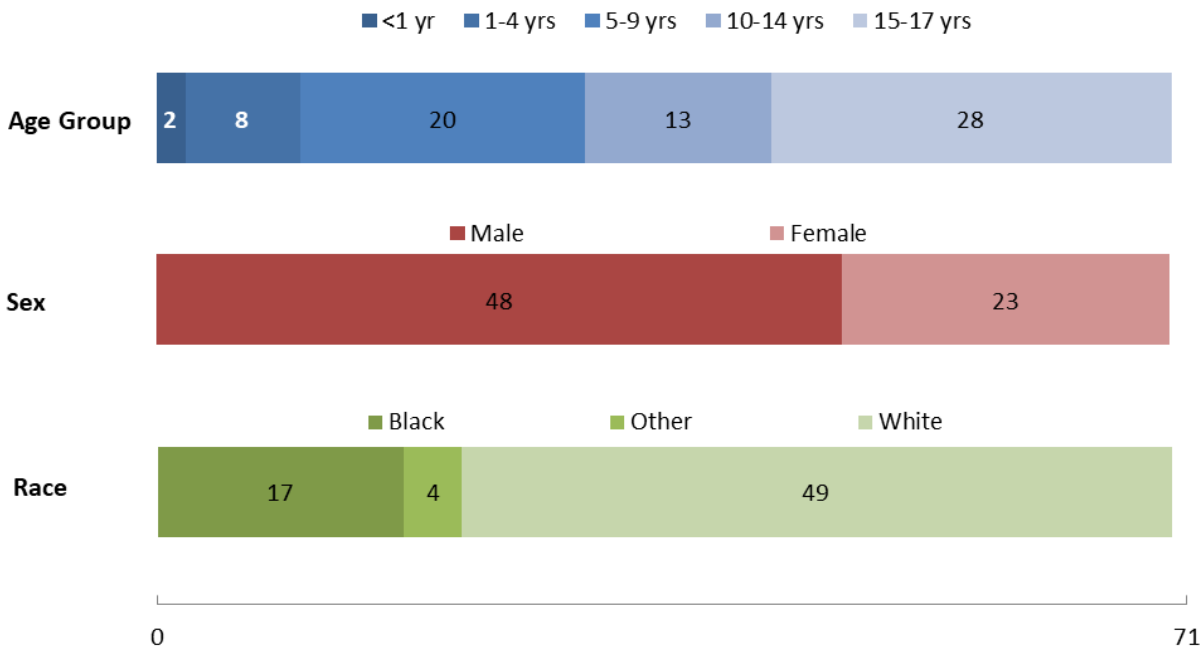
[18] Centers for Disease Control and Prevention: Leading Causes of Death Reports, 1999-2015, for National, Regional, and States (Restricted). Accessed at http://webappa.cdc.gov/cgi-bin/broker.exe

[19] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

child fatalities. This is a 16 percent increase (not statistically significant) in motor vehicle fatalities among children compared to the previous year. They occurred more frequently among males (N=48) than females (N=23), and among whites (N=49) than blacks (N=17).

Motor vehicle deaths were experienced among every age category although, predictably, those of driving age (within the 15-17 year age cohort) were affected most frequently. Of the 28 teen (ages 15-17 years) fatalities, 54 percent (15 cases) were driving at the time of the accident. Table 19 summarizes the position of the children in the vehicle at the time of the accident. 75 percent of the motor vehicle related deaths (N=53) were victims of a motor vehicle crash. As shown in Table 20, 53 percent (N=28) did not use any protective measure, such as a seat belt, helmet or a child/booster seat. An additional 16 child fatalities were pedestrians.

Figure 18. Demographic Distribution of Motor Vehicle Fatalities among Children Ages 0-17 in Tennessee, 2016



***in one case race was unknown**

Table 18. Motor Vehicle/Other Transport Fatalities among Children Ages 0-17 by Age Groups and Position with Respect to Vehicle, Tennessee, 2016

Victim Position	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Driver	0	0	2	2	15	19
Passenger	2	5	11	8	8	34
Bicycle rider	0	0	0	1	1	2
Pedestrian	0	3	7	2	4	16
Total	2	8	20	13	28	71

Table 19. Motor Vehicle Deaths* among Children Ages 0-17 by Vehicle Type and Protective Measure in Tennessee, 2016

Vehicle Type	Protection Not Used	Protection Used	Total Deaths
Car, Truck, Sport Utility Vehicle (SUV),Van	23	14	37
All-Terrain Vehicle, Motorcycle, Other	5	11	16
Total	28	25	53*

*Total deaths by vehicle type shown are lower than total motor vehicle deaths because pedestrian, on bicycle deaths are excluded.

FOCUSING ON PREVENTION: MOTOR VEHICLE DEATHS

Potential prevention opportunities include:

- Imposition of stricter nighttime driving restriction for teen drivers to align with CDC best practices.
- Promotion of the importance of infant car seats, as well as booster seats for toddlers and young children.
- Stricter enforcement of laws prohibiting texting and driving.
- Encourage school participation in a teen driver safety program such as "Battle of the Belt" or "Checkpoints™".

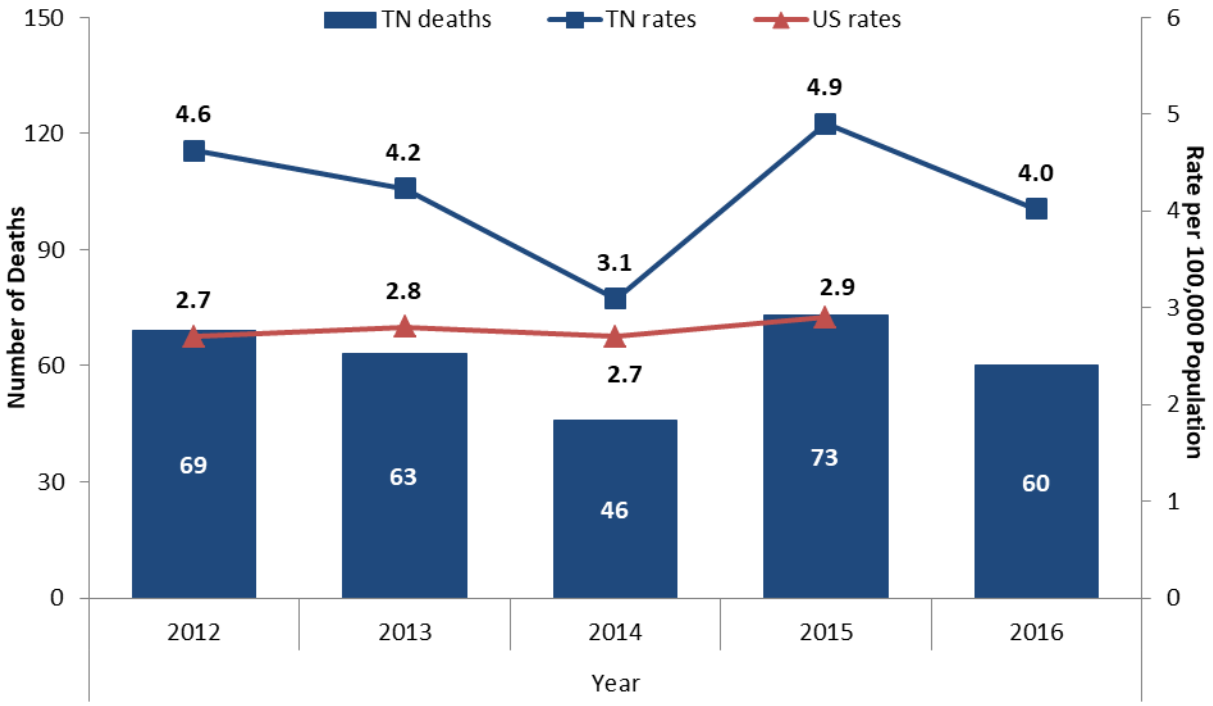
Current prevention efforts in Tennessee include:

- The Tennessee General Assembly passed a Graduated Driver's License (GDL) law in 2001. TDH has created educational pamphlets for parents and teens about the GDL law.
- The TDH, in conjunction with the regional trauma centers, sponsors "Battle of the Belt" and "Checkpoints™" programs to increase teen driving safety.
- The TDH encourages schools to participate in the Tennessee Highway Safety Office's program "reducetncrashes.org". Schools register on the website and receive points for each motor vehicle crash prevention activity they complete. Points may be redeemed for items schools can use to promote safe driving to their students.
- The TDH provided funding to 28 agencies through the end of FY2017 and 20 agencies through FY 2018 to purchase and distribute child safety seats and booster seats to provide to families that cannot afford them.
- Safe Kids provides car seat checks in the community through their "Buckle Up" program.

Asphyxia Deaths

Asphyxia is the leading cause of death of children under the age of one year, and accounts for approximately 1,000 infant deaths each year nationally. Accidental suffocation rates have increased fourfold since 1984.[20] Nationally, males (vs. females) and black (vs. white) infants have higher rates of death due to asphyxia. While infant asphyxia deaths are closely linked to sleep environment factors, deaths of older children are more likely to be related to choking on food or toys.

Figure 19. Asphyxia Deaths and Rates per 100,000 Children Ages 0-17 in Tennessee and the US, 2012-2016



In Tennessee, deaths related to asphyxia represent the second highest number of fatalities among all external causes of death. **Sixty** children died of asphyxia in 2016. This number represents **7 percent of all reviewed deaths**. Asphyxia cases may be related to either suffocation, strangulation, or choking. **Forty of the asphyxia cases were infants under the age of one year** who died due to an unsafe sleep environment. **Twelve** of the 60 who suffered an asphyxia fatality died due to self-inflicted strangulation (hanging).

[20] Centers for Disease Control and Prevention. Morbidity and Mortality Weekly Report. Suffocation Deaths Associated with Use of Infant Sleep Positioners. Accessed at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6146a1.htm

Figure 20. Demographic Distribution of Asphyxia Deaths among Children Ages 0-17 in Tennessee, 2016

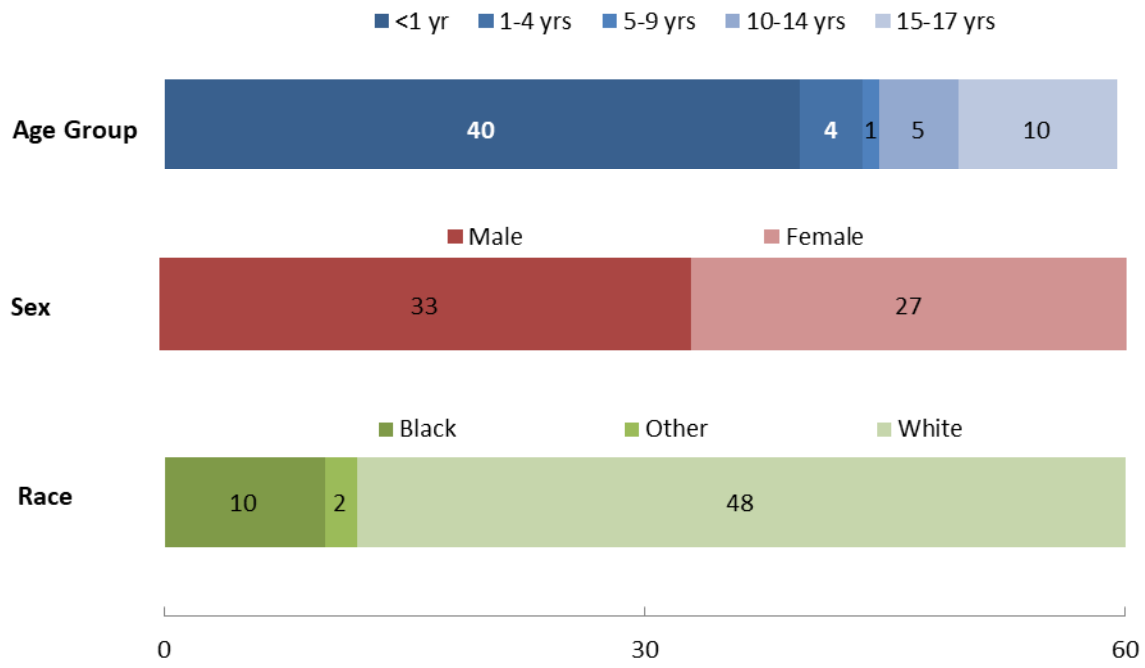


Table 20. Asphyxia Cause and Manner of Death among Children Ages 0-17 by Age Groups Tennessee, 2016

Cause of Asphyxia	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Sleep-related (Strangulation, Suffocation, Other)	38	0	0	0	0	38
Suffocation	0	1	1	1	2	5
Strangulation	0	2	0	4	8	14
Choking	0	1	0	0	0	1
Other	2	0	0	0	0	2
Total	40	4	1	5	10	60
Manner of Asphyxia	**<1 yr**	**1-4 yrs**	**5-9 yrs**	**10-14 yrs**	**15-17 yrs**	**Total**
Accident	37	4	0	1	1	43
Suicide	0	0	0	4	8	12
Homicide	1	0	1	0	0	2
Undetermined	1	0	0	0	1	2
Unknown	1	0	0	0	0	1
Total	40	4	1	5	10	60

FOCUSING ON PREVENTION: ASPHYXIA DEATHS

Potential prevention opportunities include:

- Increasing education regarding the importance of a safe sleep environment for infants.
- Safer meal and play time education (importance of monitoring toddlers during meal and play time).
- Basic first aid and CPR education for child care professionals and parents, including skills needed to safely remove airway obstructions.
- Educate parents of young children to properly child-proof the home.

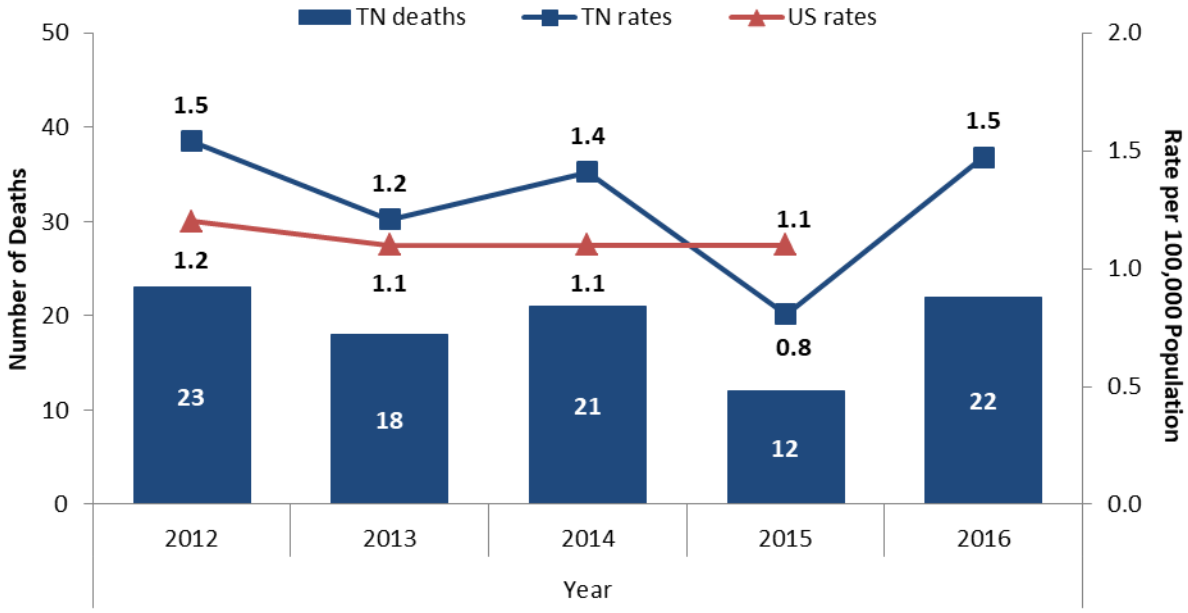
Current prevention efforts in Tennessee include:

- The Tennessee Department of Health's "ABC's of Safe Sleep" campaign educates parents on the dangers of asphyxia in the sleep environment.
- Safe Kids sends out a monthly email to alert parents and caregivers of recent safety recalls specific to children's products.
- Multiple state and community agencies educate the community about the "ABCs of Safe Sleep" at various outreach events across Tennessee.

Drowning-Related Deaths

Drowning ranks fifth among the causes of unintentional injury death in the United States.[21] Between 2011 and 2015, an average of 844 fatal drownings of children ages 0 to 17 occurred annually in the United States. From 2006 to 2015, drowning became the leading cause of death from unintentional injury for ages 1 to 4 years.[22] Nationwide, drowning occurred most often in bathtubs for infants and in swimming pools for children ages 1 to 4.[23]

Figure 21. Drowning Deaths and Rates per 100,000 Children Ages 0-17 in Tennessee and the US, 2012-2016



In Tennessee, **twenty-two** children perished by drowning in 2016. This number represents approximately **2.6 percent of all reviewed deaths**. Drowning deaths were more frequent in males (N=19) and whites (N=16) than females (N=3) and blacks (N=6). Of the 22 drowning case reports, there were two cases with definitive knowledge that the child was able to swim.

[21] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention. Unintentional Drowning: Get the Facts. Accessed at http://www.cdc.gov/HomeandRecreationalSafety/Water-Safety/waterinjuries-factsheet.html

[22] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

[23] Control and Prevention: National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention. Unintentional Drowning Deaths in the U.S. (2017). Accessed at http://www.cdc.gov/nchs/data/databriefs/DB149.pdf

Most of these deaths (N=16) occurred while children were playing near the water, primarily by a swimming pool (N=10), as shown in Table 23 and Figure 35. Of the ten drowning deaths that occurred in a pool, only six had some kind of barrier/protection around the pool. Four deaths occurred in bathtubs.

Figure 22. Demographic Distribution of Drowning Deaths among Children Ages 0-17 in Tennessee, 2016

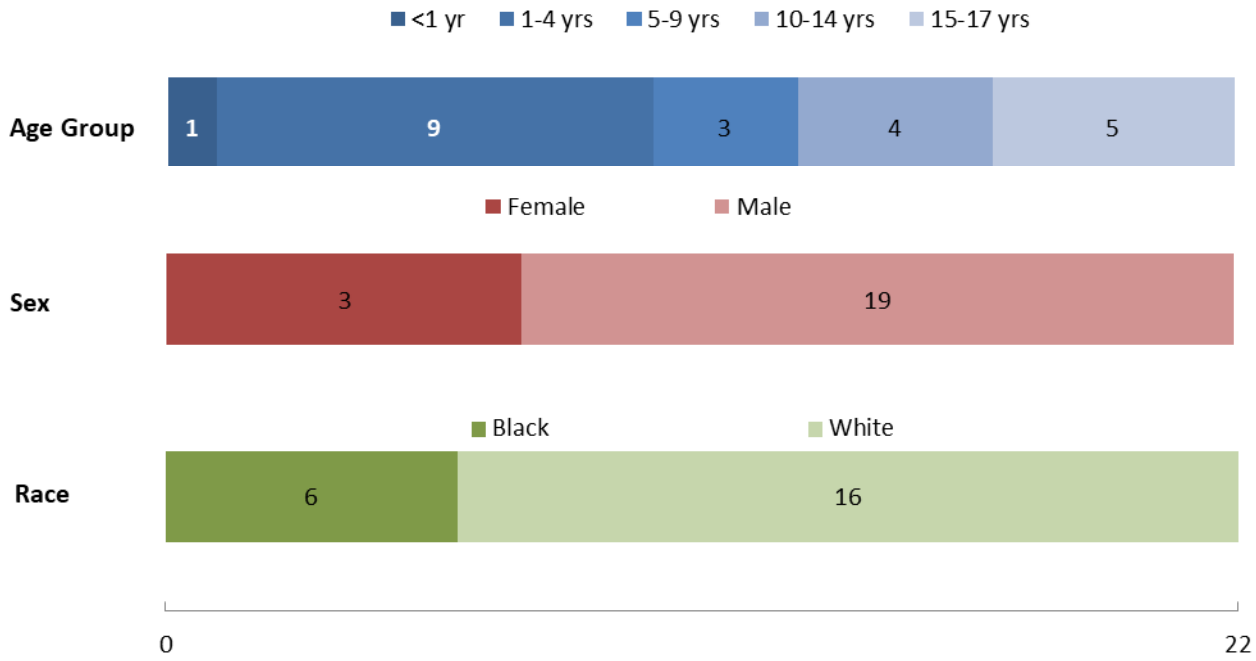
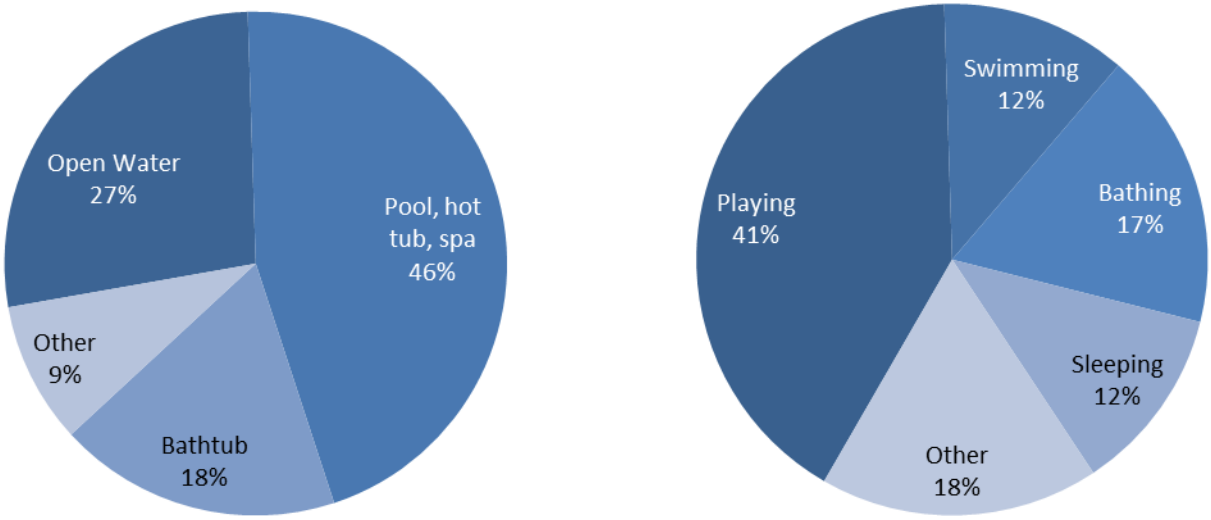


Table 21. Drowning Deaths among Children Ages 0-17 by Location[24] and Age Groups in Tennessee, 2016

Location of Accident	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Open Water	0	1	1	1	3	6
Pool, hot tub, spa	0	6	1	2	1	10
Bathtub	1	1	1	0	1	4
Other	0	1	0	1	0	2
Total	**1**	**9**	**3**	**4**	**5**	**22**

[24] Older children who died in bathtubs may have been disabled, either chronically or just prior to the event.

Figure 23. Drowning Deaths among Children Ages 0-17 by Location and Activity* at the Time of Death in Tennessee, 2016



* The last known or observed activity of child before incident leading to drowning.

FOCUSING ON PREVENTION: DROWNING DEATHS

Potential prevention opportunities include:

- Educational efforts to promote a buddy system when swimming.
- Promotion of formal swimming lessons for young children.
- Teaching cardiopulmonary resuscitation (CPR) skills to children in school to reach those at the greatest risk for drowning.
- Installing four-sided isolation fences with self-closing and self-latching gates around pools.

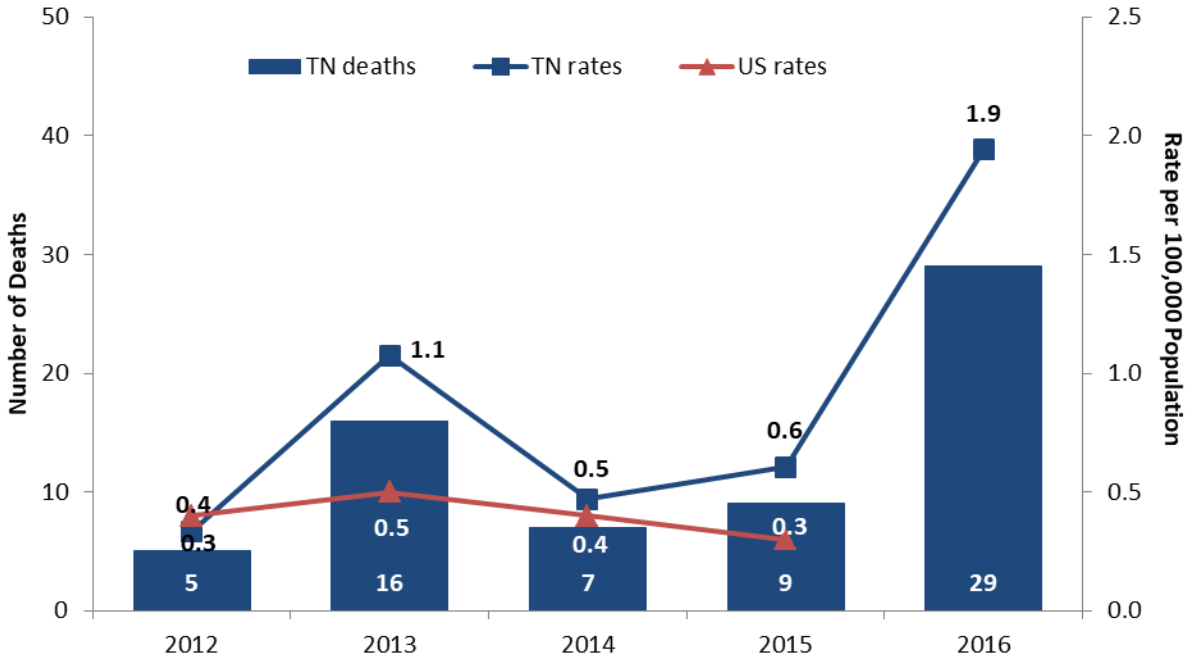
Current prevention efforts in Tennessee include:

- Safe Kids collaborates with many partners throughout the spring and summer to provide water safety education, including proper supervision of children in and around water, swimming with a friend and use of properly fitting flotation devices.

Fire/Burn Deaths

Fire deaths in the U.S. have declined gradually over the past several decades; however, fire deaths remain the third leading cause of fatal home injury.[25] In 2015, 246 children ages 0 to 17 (0.33 per 100,000) died from unintentional fires nationally, of which 222 occurred in residential structures.[26] Children ages 0 to 4 years have the highest fire death rates compared to children 5 to 17 years.[27] Fire deaths are also more common among black (vs. white) children nationally. Cooking is the leading cause of residential fires overall; however, most fires that result in deaths are a result of smoking.

Figure 24. Fire/Burn Deaths and Rates per 100,000 Children Ages 0-17 in Tennessee and the US, 2012-2016



Tennessee had observed a gradual increase in fire/burn deaths from 2014 to 2015; however, there was an unusually high number of child fatalities (N=29) in 2016. In 2016, eight fire incidents involved two or more children, accounting for 21 of the 29 deaths.

[25] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Facts: Preventing Residential Fire Injuries. Available at http://www.cdc.gov/Injury/pdfs/Fires2009CDCFactSheet-FINAL-a.pdf http://www.usfa.fema.gov/data/statistics/fire_death_rates.html

[26] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

[27] Federal Emergency Management Agency: U.S. Fire Administration. Child Fire Death Rates and Relative Risk 2002-2011. Accessed at https://www.usfa.fema.gov/data/statistics/fire_death_rates.html

Almost half of all fire-related deaths were among ages 1-4 years old, followed by 5-9 years old. Most were females (N=18). Black children are at a higher risk of dying from fires/burns with 15 out of 29 (51.7%) involving black children. Most of these tragedies occurred in single-family homes. Out of the 21 known sources of fire, six reported not having a working smoke detector in the residence.

Figure 25. Demographic Distribution of Fire/Burn Deaths among Children Ages 0-17 Tennessee, 2016

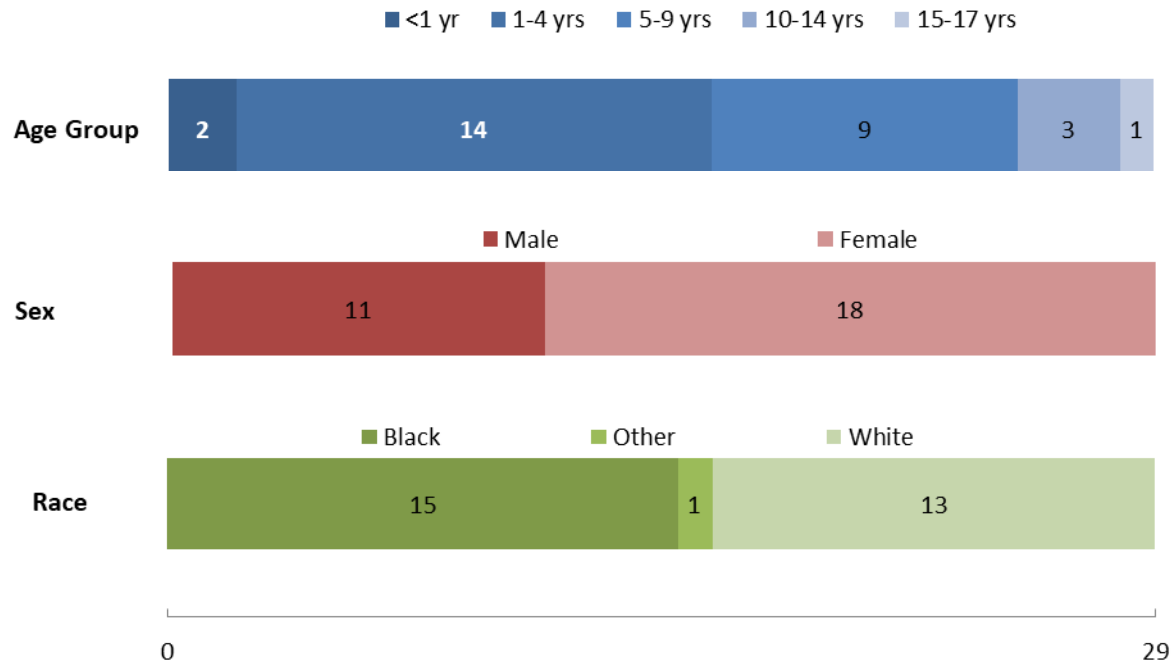


Figure 26. Fire/Burn Deaths among Children Ages 0-17 by Fire Source in Tennessee, 2016

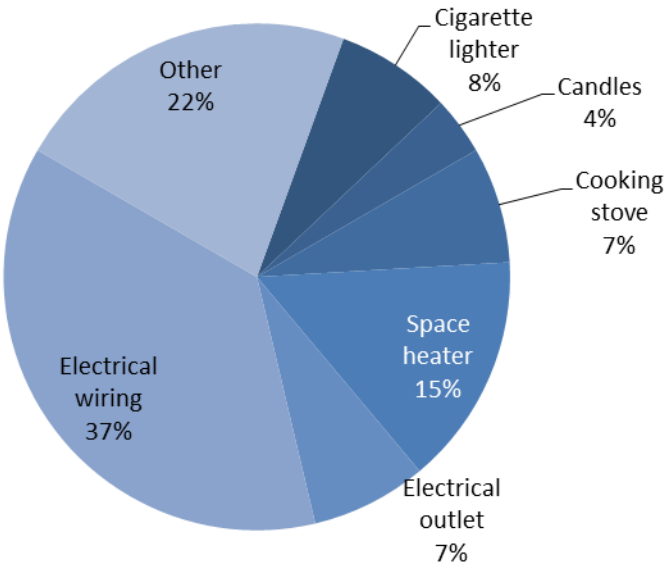
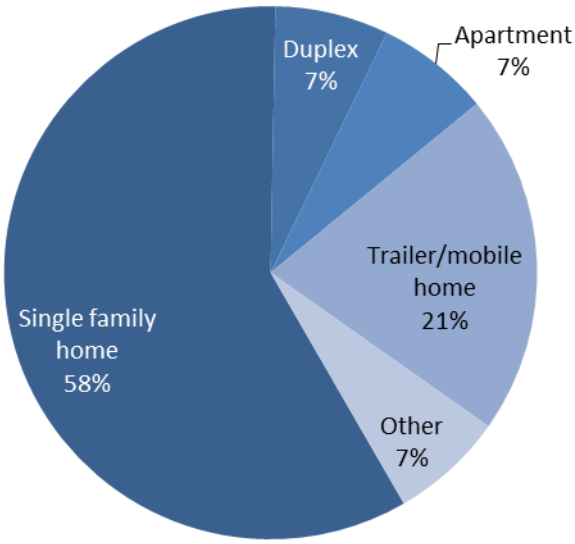


Figure 27. Fire/Burn Deaths among Children Ages 0-17 by Structure Type in Tennessee 2016



FOCUSING ON PREVENTION: FIRE/BURN DEATHS

Potential prevention opportunities include:

- Increased education to create awareness of fire safety and cost of fires.
- Incorporation of fire-safe features into high risk devices (ex. stoves, lighters).
- Distribution of smoke alarms to low income families.

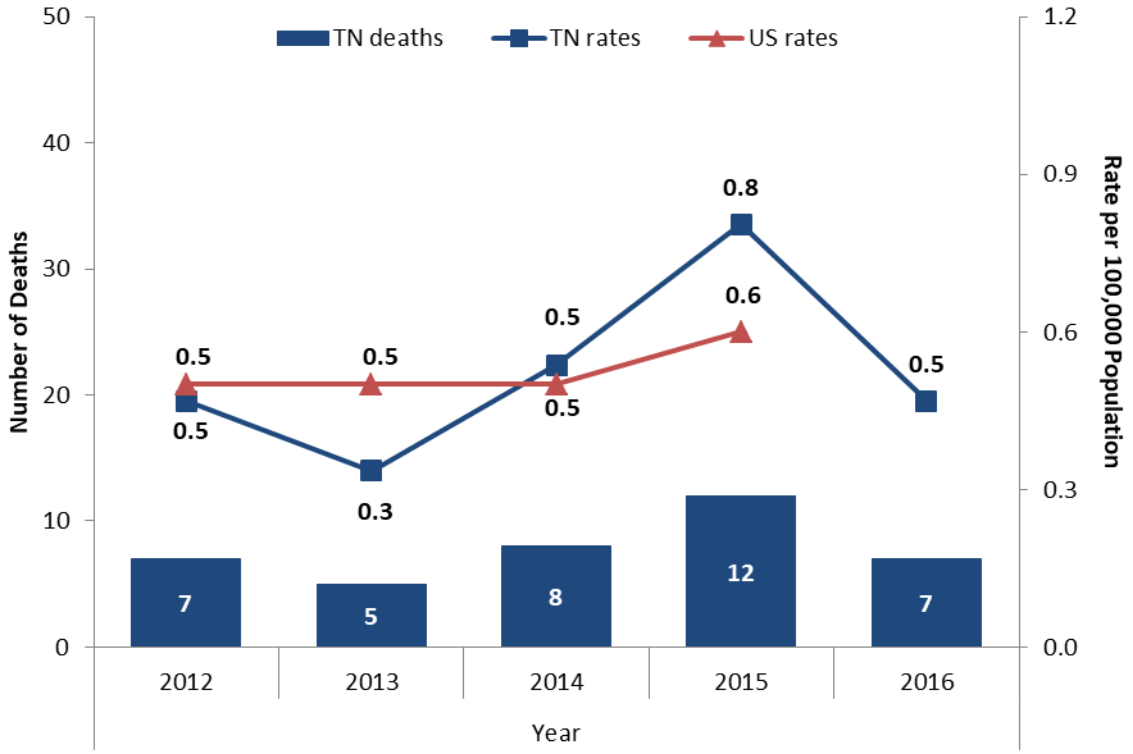
Current prevention efforts in Tennessee include:

- The Tennessee Department of Commerce and Insurance ran a public service campaign to provide residents of Tennessee with free installed smoke alarms. To date, over 150,000 smoke alarms have been distributed, averaging 195 homes per week.
- The Tennessee Department of Commerce and Insurance Fire Prevention and State Fire Marshal's office conducts a "Close the Door!" campaign, teaching residents that if a room is on fire, simply closing the door can be a lifesaving act.
- The Tennessee Department of Commerce and Insurance Fire Prevention and State Fire Marshal's office held a video contest to convey crucial fire safety messages to their fellow Tennesseans. To view the last year's winners please visit https://tn.gov/commerce/article/SFMO-Video-Contest

Poisoning Deaths

Poisoning is the leading cause of injury death in the United States for all ages. Drugs, both prescribed and illicit, cause the vast majority of poisoning deaths. Since 2000, the age-adjusted drug poisoning death rate more than doubled, from 6.2 per 100,000 in 2000 to 16.3 per 100,000 in 2015 in the United States.[28] Unintentional poisoning deaths among children ages 0 to 17 years decreased 24 percent from 2010 to 2013; however, the rates increased 19 percent from 2014 (0.47 per 100,000 population) to 2015 (0.56 per 100,000 population) in the United States. **Opioid analgesic pain relievers are the most-frequently involved drug in drug poisoning deaths in the United States.** Nationally, males (vs. females) and teens are more likely to die from unintentional poisoning.[29]

Figure 28. Poisoning Deaths and Rates per 100,000 Children Ages 0-17 in Tennessee and the US, 2012-2016



[28] Centers for Disease Control and Prevention: National Center for Health Statistics. NCHS Fact Sheet: NCHS Data on Drug Poisoning Deaths. Accessed at http://www.cdc.gov/nchs/data/factsheets/factsheet_drug_poisoning.pdf

[29] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

Seven children died in Tennessee as the result of a poison-related incident in 2016, representing **0.8 percent of all reviewed child fatalities**. Most of the cases occurred among teens ages 15-17 years. Five of the deaths were males, two were females, and six of them were white children. **Three of seven poisoning fatalities in Tennessee involved prescription drugs.**

Figure 29. Demographic Distribution of Poison-Related Deaths among Children Ages 0-17 Tennessee, 2016

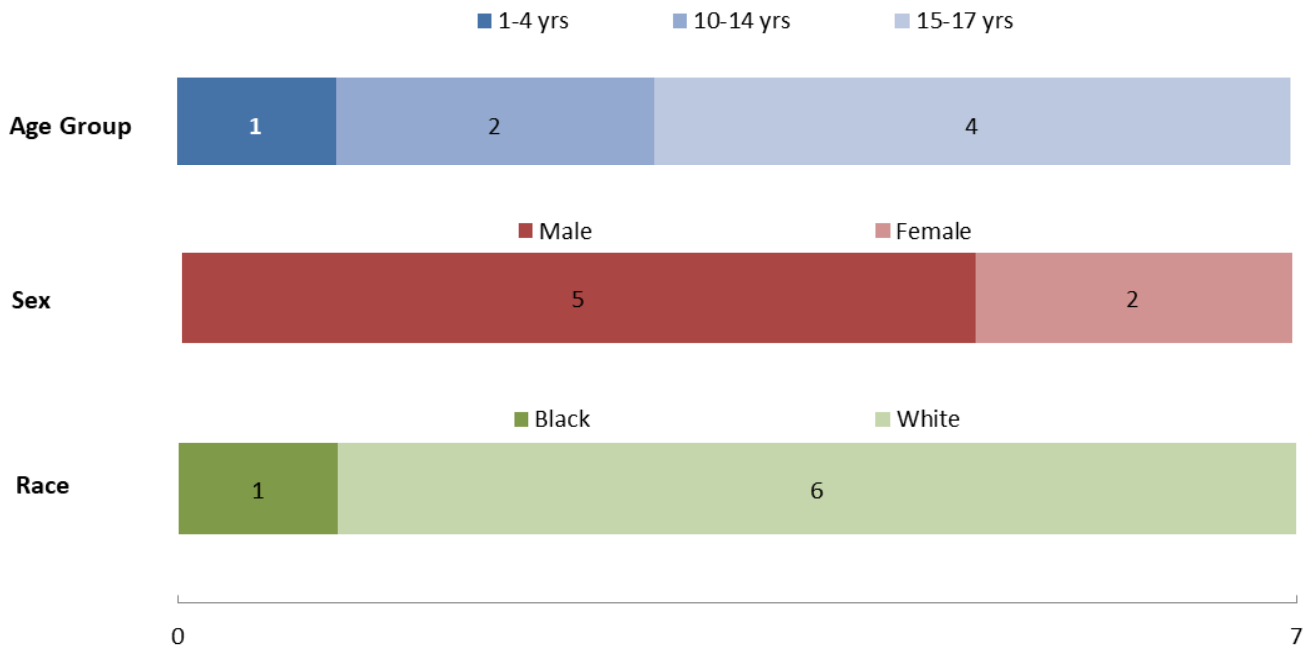


Table 22. Poison-Related Deaths among Children Ages 0-17 by Substance and Age Groups Tennessee, 2016

Type of Substances	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Prescription drug	0	1	0	2	0	3
Other substances	0	0	0	0	4	4
Total	**0**	**1**	**0**	**2**	**4**	**7**

FOCUSING ON PREVENTION: POISONING DEATHS

Potential prevention opportunities include:

- Educational campaign regarding prevention of prescription drug abuse and proper disposal of medications no longer needed.
- Increase access to secure drop-off locations for unused medications.
- Encouraging healthcare providers to implement *Screening to Brief Intervention* (S2BI) at every opportunity, especially in interactions with teens. Such screening assists in identifying patients with substance abuse disorder, and provides opportunities to intervene and refer to appropriate treatment resources.

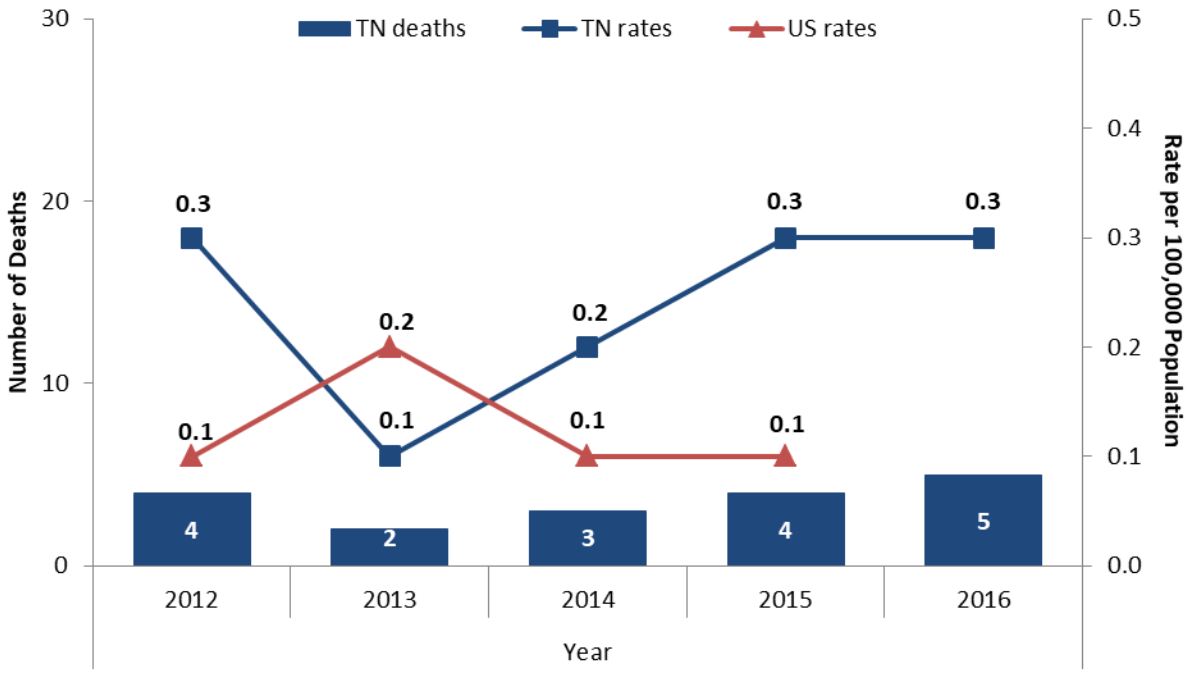
Current prevention efforts in Tennessee include:

- The Department of Health, Tennessee Department of Environment and Conservation, the Tennessee Department of Mental Health and Substance Abuse Services, and the Prevention Alliance of Tennessee have collaborated to place 236 medication drop boxes in all 95 counties in Tennessee. Thirty-four (34) new bins were installed throughout Tennessee and 97,237 pounds of medications were collected from all 95 counties in 2016.
- The Department of Health partnered with the Prevention Alliance of Tennessee, and the Department of Mental Health and Substance Abuse Services to promote ***Count It! Lock It! Drop It!*** to existing and new substance abuse coalitions, county health councils, and other community groups. *Count It, Lock It, Drop It*™ is a program to educate the community to count their medications, lock up medications and dispose of them properly when no longer needed. As of September 30th, 2017, 61 counties have implemented the *Count It, Lock It, Drop It*™ program.
- The Tennessee General Assembly passed Tenn. Code 53-11-308(e) (2014) which prohibits prescriptions for any opioids or benzodiazepines from being dispensed in quantities greater than a thirty-day supply.
- During National Poison Prevention Week, March 19-25, 2017 TDH posted three PSA messages about poison prevention.

Fall/Crush Deaths

While falls are the leading cause of both fatal and non-fatal injuries among older adults, falls are the leading cause of non-fatal injuries among children ages 0 to 19.[30] Nationally, approximately 2.3 million children are treated in emergency rooms for fall related injuries. In 2015, 90 children ages 0 to 17 years died of unintentional fall injuries (0.12 per 100,000) nationally. Males have higher rates of fall-related deaths than females.[31]

Figure 30. Fall/Crush Deaths and Rates per 100,000 Children Ages 0-17 in Tennessee and the US, 2012-2016

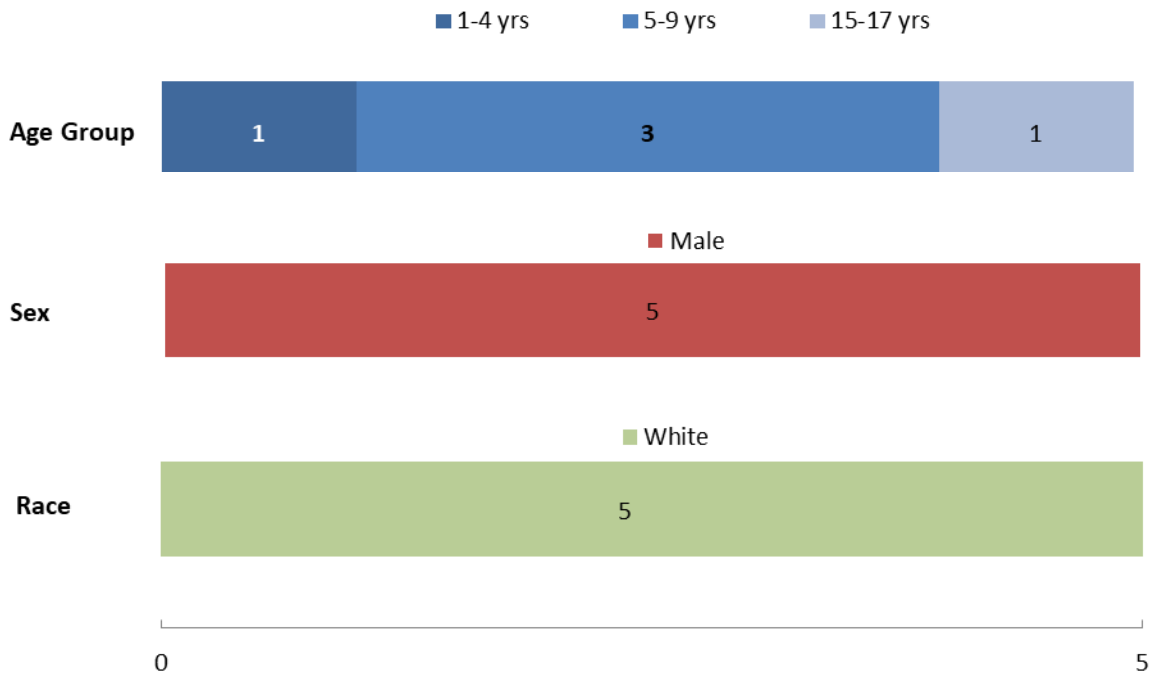


[30] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Protect the Ones You Love. Falls: The Reality http://www.cdc.gov/safechild/Falls/index.html

[31] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

In Tennessee, five children died as the result of a fall or crush injury in 2016. All were white males. **These five deaths represent 0.6 percent of all reviewed child fatalities**.

Figure 31. Demographic Distribution of Fall/Crush Deaths among Children Ages 0-17 in Tennessee, 2016



FOCUSING ON PREVENTION: FALL/CRUSH DEATHS

Potential prevention opportunities include:

- Safety checks on playgrounds to ensure that playground equipment is safe and well-maintained.
- Encourage child safety features in homes such as window guards, stair gates and guard rails to prevent accidental falls.
- Increase awareness regarding the importance of supervision in both the home and outdoors.

Current prevention efforts in Tennessee include:

- Safe Kids provides education for parents and the community around home safety including furniture safety (such as television and furniture tip overs) and child proofing the home.
- Safe Kids publishes media reports about fall/crush injuries, including product safety recalls.

Intentional Violence-Related Deaths

Intentional violence-related deaths accounted for nearly 10 percent of all child fatalities in Tennessee in 2016.

Homicide and suicide deaths are forms of intentional violence and are indicated by a manner of death. Homicide deaths are the deliberate and unlawful killing of one person by another. Suicide deaths are defined as deaths caused by self-directed injurious behavior with intent to die. These deaths are considered injury deaths and involve acts of "omission or commission". Acts of omission or commission are defined as any act or failure to act which directly causes or indirectly contributes to the death of the child and may include poor or absent supervision, child abuse, child neglect, other negligence, assault, religious or cultural practices, suicide, or medical misadventures.

In 2016, there were 42 (2.8/100,000) homicide deaths and 41 (2.7/100,000) suicide deaths accounting for 9.6 percent of all reviewable deaths. Both the rates of homicide and suicide deaths are significantly higher than the national average, with children ages 15-17 years being the primary demographic for these deaths.

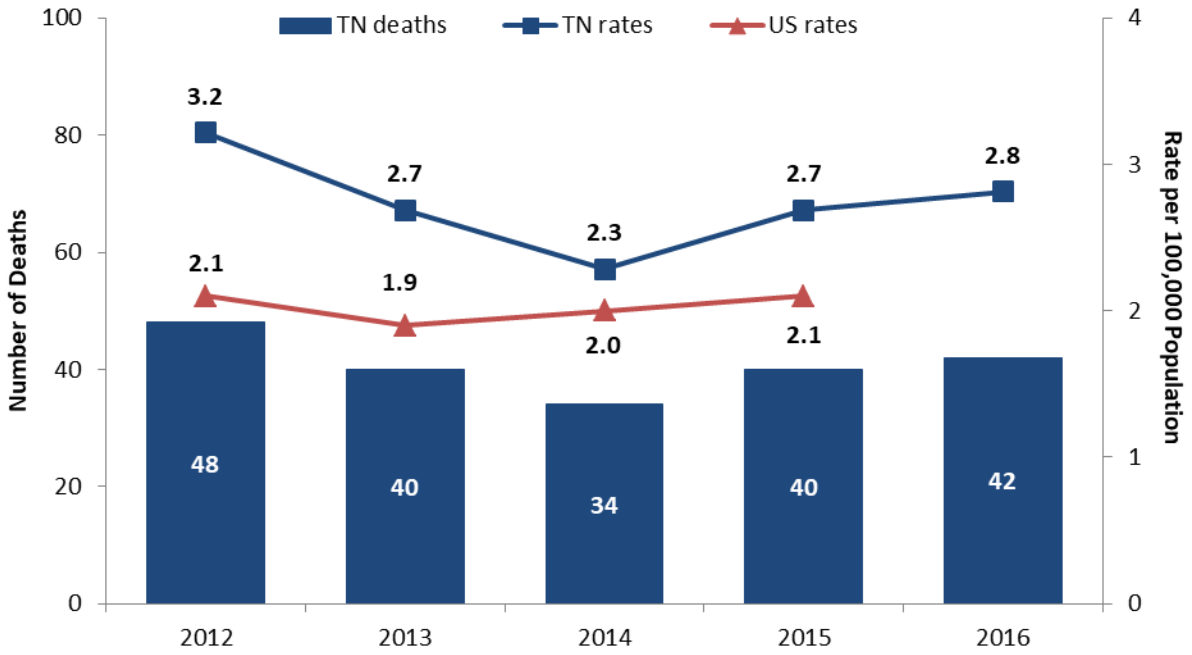
Many of the risk factors for homicide and suicide are similar and include race, gender, mood or mental health disorder, access to weapons or firearms, the general tendency for reckless behavior, and family history of violence or suicide. Homicide does have some unique indicators of risk including gang involvement, drug use, low family socioeconomic status, antisocial family behaviors, minimal parental involvement, increased neighborhood crime, family abuse, and substance abuse. Suicide also has unique risk factors such as drug or alcohol use, talking about suicide, reckless behaviors, isolating self from family and friends, depression, rage, irritability, stressful life events, prolonged stress factors such as bullying or family abuse, and previous suicide attempts.

Adverse Childhood Experiences (ACEs) also increase the risk of intentional violence and have significant impact upon future violence victimization and perpetration, as well as lifelong health and opportunity. ACEs are potential traumatic events that can have negative, lasting effects on health and well-being. These experiences range from physical, emotional or sexual abuse to parental divorce or incarceration of a parent or guardian. As such, Adverse Childhood Experiences are an important public health issue. Recognizing the impact of ACEs is critical if there is to be improvement in the health and well-being of children in Tennessee.

Homicide Deaths

Homicide is a serious problem nationally, affecting people across all stages of life. In 2015, over 17,000 people nationwide were homicide victims, of which 1,556 were children under 18 years old. Homicide is a leading manner of death for children between the ages of 1 and 17 years in the United States. Black children (vs. white) and males (vs. females) had higher homicide rates in 2015. [32]

Figure 32. Homicide Deaths and Rates per 100,000 Children Ages 0 to 17
Tennessee and US, 2012-2016



Tennessee's child homicide rate has remained consistently above the national rate. In 2016, **forty-two children died of homicide in Tennessee**, an increase from the 40 deaths from 2015. This number represents **5 percent of all reviewed child deaths**. Twenty-four homicide victims were males; 18 were females. More than half of the victims (27 deaths) were black children and 13 were white. Older teenagers (age 15-17) suffered the highest percentage of fatalities at 45 percent. Seventy-five percent of all homicides involved firearms and 45 percent occurred in the child's home.

[32] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

Figure 33. Demographic Distribution of Homicide Deaths among Children Ages 0-17 Tennessee, 2016

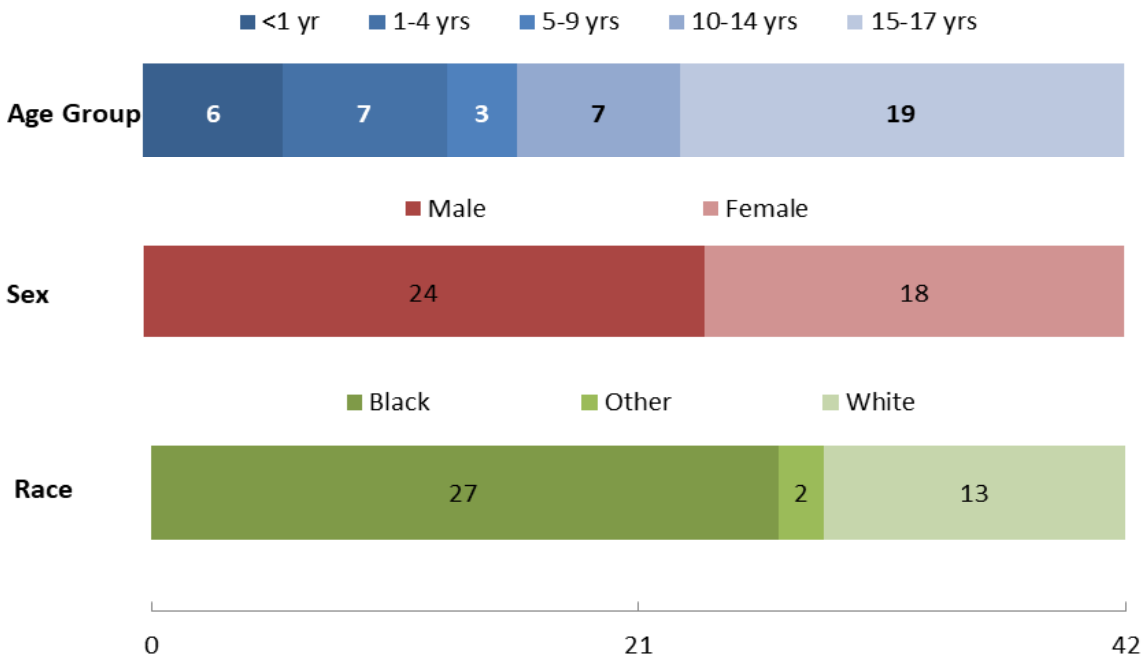


Figure 34. Cause of Homicide Deaths among Children Ages 0-17 in Tennessee, 2016

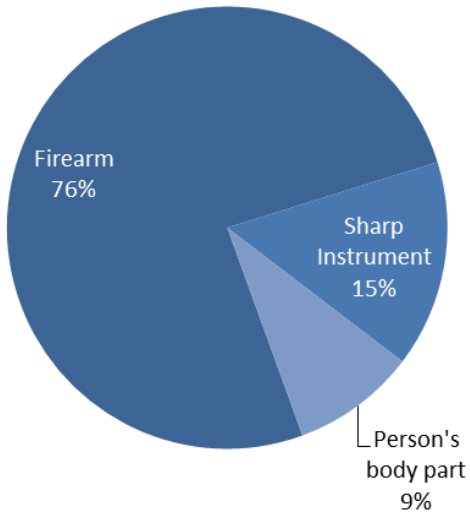
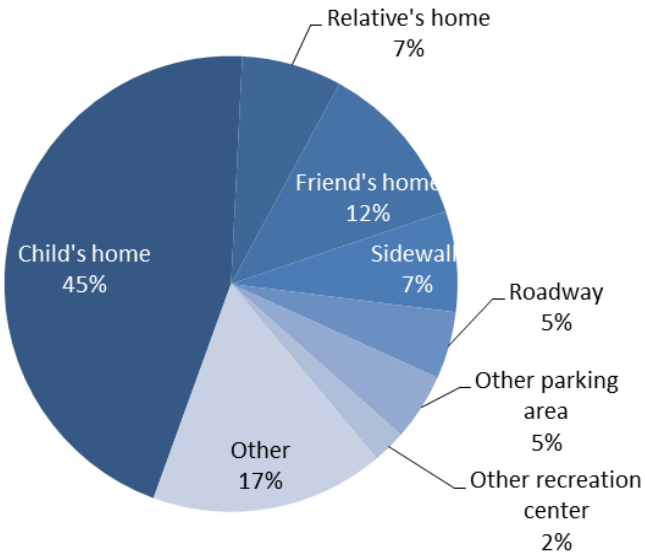


Figure 35. Homicide Deaths among Children Ages 0-17 by Victim's Location Tennessee, 2016



FOCUSING ON PREVENTION: HOMICIDE DEATHS

Potential prevention opportunities include:

- Targeted activities, including: enhanced police presence, neighborhood watch and after school recreation programs in neighborhoods with high homicide rates.

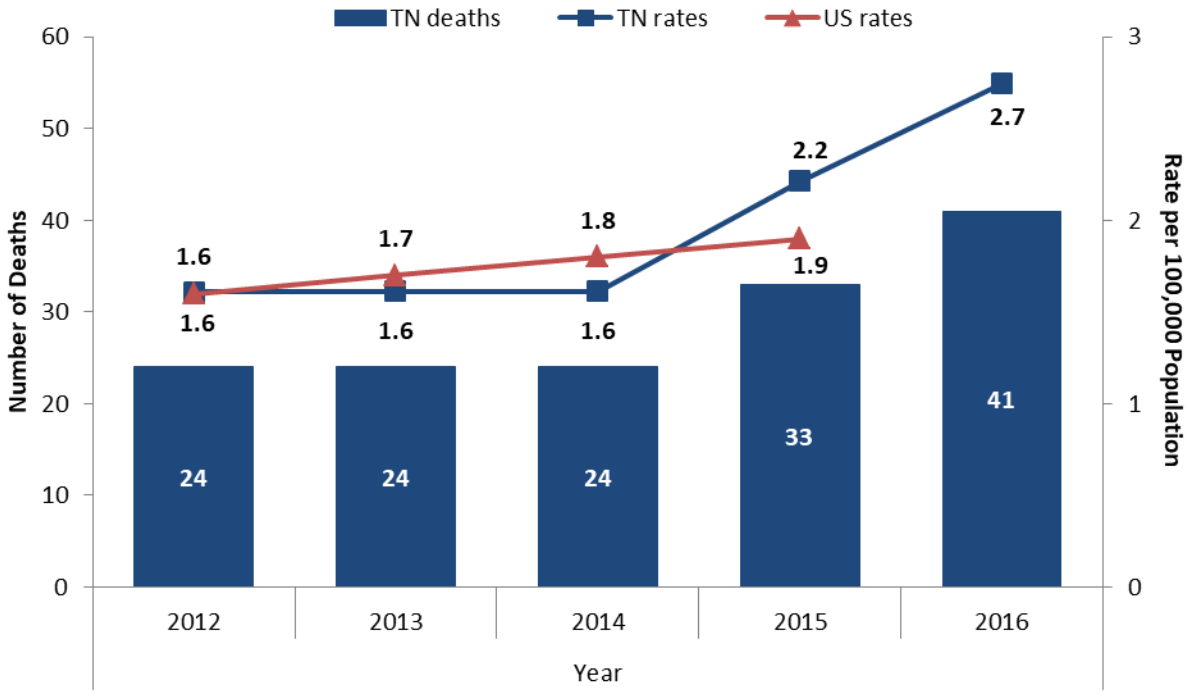
Current prevention efforts in Tennessee include:

- Prevent Child Abuse Tennessee's Shaken Baby/Abusive Head Trauma Prevention project materials are disseminated statewide to every birthing hospital in Tennessee.
- In FY2017, PCAT distributed over 85,000 materials (in English and Spanish) to 100 percent of birthing hospitals to educate parents about abusive head trauma prevention.
- The Tennessee Department of Health provides presentations on bullying and violence prevention in schools.
- The Tennessee Commission on Children and Youth awards grants to agencies to provide services for at-risk youth in order to prevent criminal behavior. The grants allow agencies to provide interventions to ensure that youth who commit offenses receive needed services.
- School districts and other non-profit agencies primarily serving low-income students receive federal funding from the 21st Century Community Learning Centers. This initiative supports afterschool programs designed to reinforce and complement the regular academic program. Approved activities include parent involvement, counseling programs, character education, and drug and violence prevention.

Suicide Deaths

The second highest number of deaths for children ages 10 to 17 nationwide in 2015 is due to suicide. In 2015, 1,395 children between ages 10-17 died from suicide (4.2 per 100,000) throughout the United States. White (vs. black) children and males (vs. females) had higher rates of suicide nationally in 2015.[33]

Figure 36. Suicides and Suicide Rates per 100,000 Children Ages 0-17 in Tennessee and the US, 2012-2016



In Tennessee**, forty-one** young people took their own lives during 2016, a figure that represents **5 percent of all reviewed deaths**. More than half (63%) of all suicide cases involved a weapon. Suicides were more frequent among males (N=27) than females (N=14), and among whites (N=37) than blacks (N=4). The majority of the cases (70%) occurred in the child's home.

[33] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

Figure 37. Demographic Distribution of Suicides among Children Ages 0-17 in Tennessee, 2016

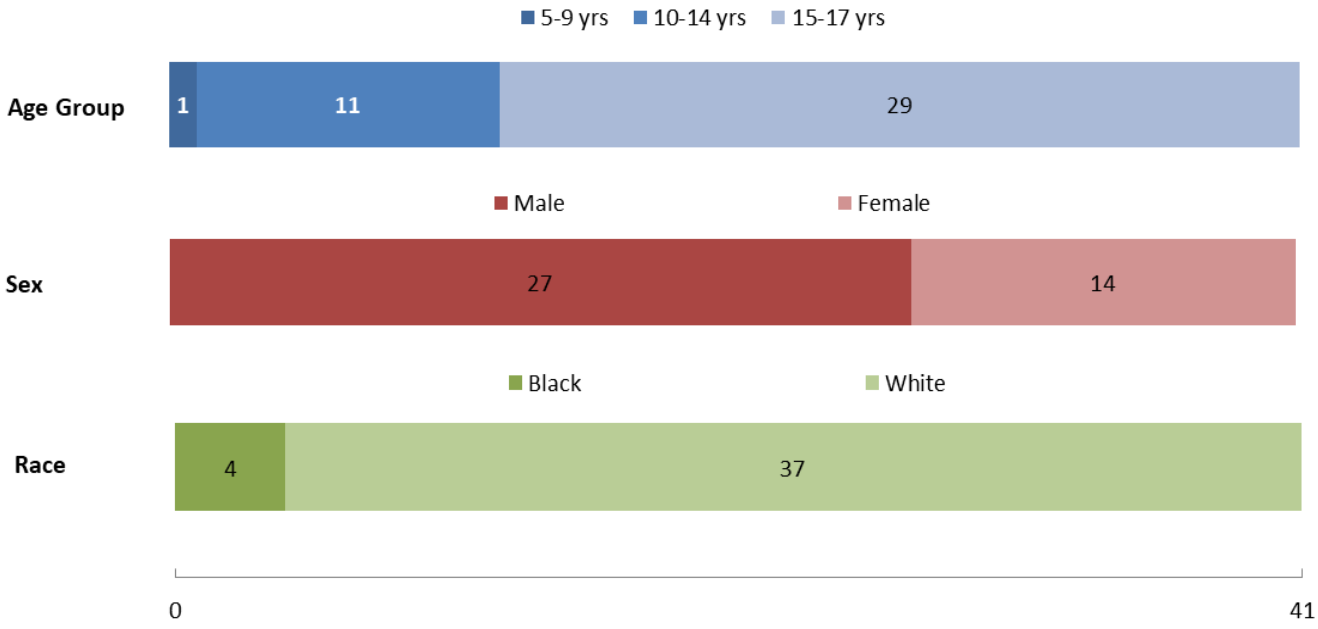


Figure 38. Method of Suicides among Children Ages 0-17 in Tennessee, 2016

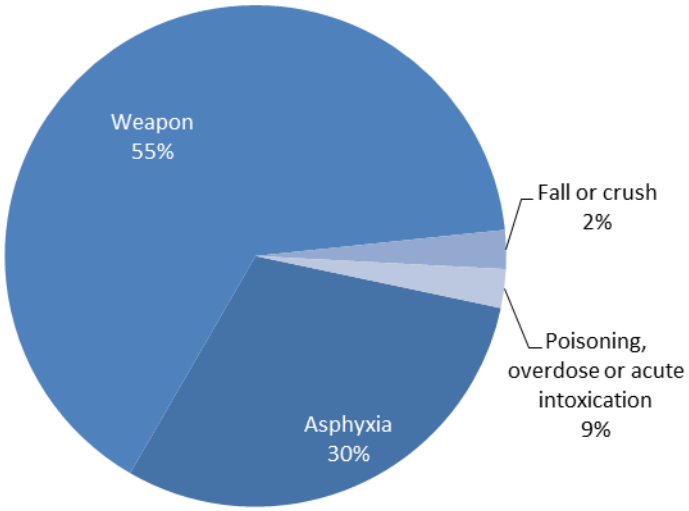


Figure 39. Suicides among Children Ages 0-17 in Tennessee by Victim's Location, 2016

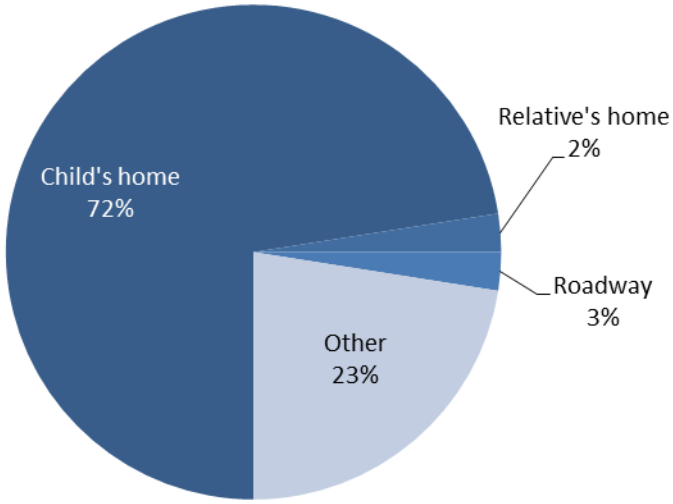


Table 23. Suicides among Children Ages 0-17 by Victim Age Groups and Methods in Tennessee, 2016

Methods of Suicides	5-9 yrs	10-14 yrs	15-17 yrs	Total
Asphyxia	0	4	8	12
Weapon, including body part	1	5	20	26
Fall or crush	0	0	1	1
Poisoning, overdose or acute intoxication	0	1	0	1
Other	0	1	0	1
Total	**1**	**11**	**29**	**41**

FOCUSING ON PREVENTION: SUICIDE DEATHS

Potential prevention opportunities include:

- Increase educational opportunities that help teens understand warning signs of suicide.
- Increase opportunities to train school staff to identify and refer students at-risk for suicide and respond to suicide and other crises in the school.
- Restrict access to lethal means of suicide, including safe storage or removal of firearms in homes of high-risk teens.

Current prevention efforts in Tennessee include:

- In collaboration with the Jason Foundation and Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS), the Tennessee Department of Education offers schools a no cost, web-based professional development training series on suicide prevention.
- The Jason Foundation provides a no-cost curriculum for all schools to increase education and help teens understand warning signs of suicide.
- The TDH, in collaboration with the Tennessee Suicide Prevention Network, convened a youth suicide data working group for the past year. The goal of the group is to utilize more real-time data to identify areas with high suicide attempts. As a result, the TDH is accessing the ESSENCE database to monitor suicide attempt trends on a weekly basis. ESSENCE is a database in which hospitals report emergency department visit information. This will allow prevention efforts to be focused in areas with the most need.
- TDH encourages all employees to participate in select primary prevention activities. The TDH has made suicide prevention one of the primary prevention initiatives in which employees may choose to participate.
- TDMHSAS offers mobile crisis services for those who are experiencing a mental health emergency.

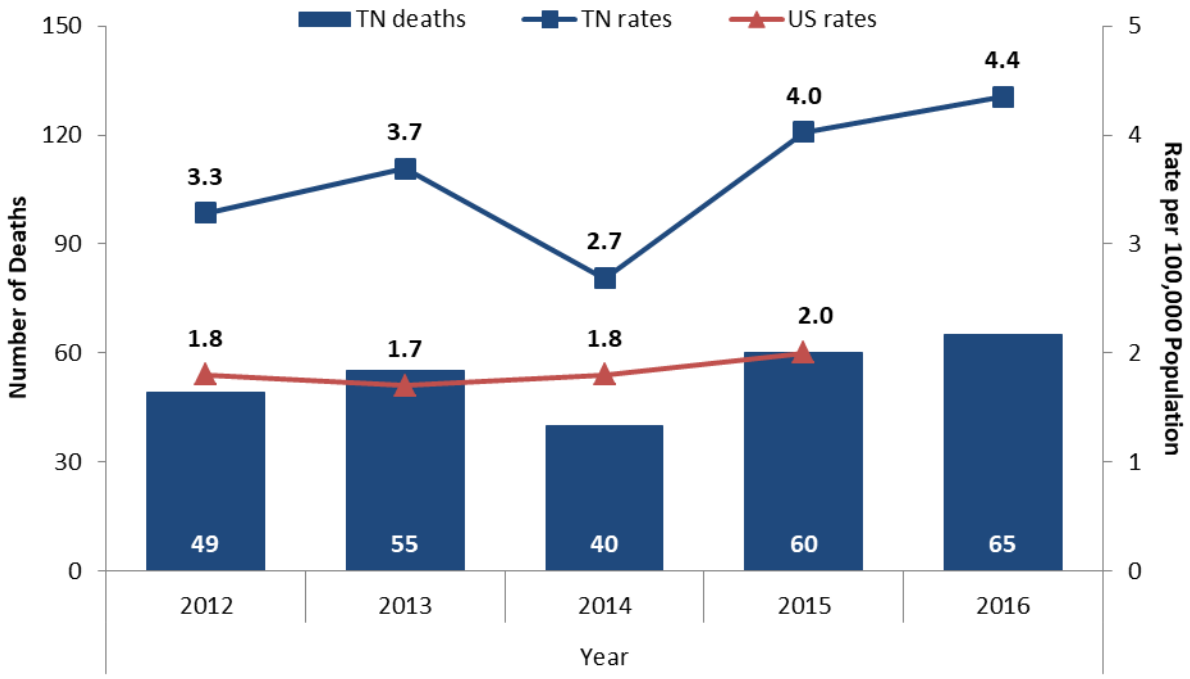
Continued on next page.

- The Tennessee Suicide Prevention Network has a number of efforts aimed at reducing suicide, including:
  - Distribution of resources on suicide grief across the state. These include, but are not limited to, the pamphlet *Survivors of Suicide* and regional resource directories.
  - Provides schools affected by confirmed or suspected suicide death of a teacher or student with guidelines in best practices regarding postvention activities.
  - Connects families who have recently experienced a suicide death with other survivors of suicide loss who can guide them through the grief and recovery process.
  - Provides funeral homes across the state with materials to help survivors of suicide loss. These include the brochures *Survivors of Suicide*, *Gun Safety Project* and *Suicide-Proofing Your Home* as well as *Supporting Survivors of Suicide Loss*, a guide for funeral directors published by the U.S. Department of Health and Human Services.
  - Support schools to produce model policies addressing suicide prevention and postvention efforts. Provision of no-cost training sessions to assist schools in meeting the standards set forth in the Jason Flatt Act of 2007 and the Jared's Law amendment in 2016.
  - Promotion of the National Suicide Prevention Lifeline 1-800-273-TALK, the state toll-free crisis line 1-855-CRISIS-1, and the Crisis Text Line (text TN to 741741) as resources for young people in crisis.

Weapons-Related Deaths

In 2015, firearms alone accounted for 1,458 deaths (2.0 per 100,000) of children ages 0 to 17 nationally. An additional 1,605 children (2.2 per 100,000) died from violence involving weapons other than firearms such as body parts, knives or other objects.[34] For classification purposes, body parts are included as weapons.

Figure 40. Weapons-Related Deaths and Rates per 100,000 Children Ages 0-17 in Tennessee and the US, 2012-2016



In Tennessee**, sixty-five** children died via weapons injuries in 2016, an 8 percent increase (not statistically significant) from 2015. This number represents approximately **8 percent of all reviewed deaths**. Of the 65 deaths, 46 were males and 19 were females. Although the number of deaths of white children from a weapons injury was greater than that of black children, the rate of fatality is higher among black children. Most of the weapons-related deaths (52%) were due to homicide. Eight-two percent (N=52) of all weapon fatalities were the result of firearms. Of the 52 deaths involving firearms, 38 were related to handguns, five were related to shotguns and the remaining nine were other types of guns.

[34] Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

Figure 41. Demographic Distribution of Weapons-Related Deaths among Children Ages 0-17 in Tennessee, 2016

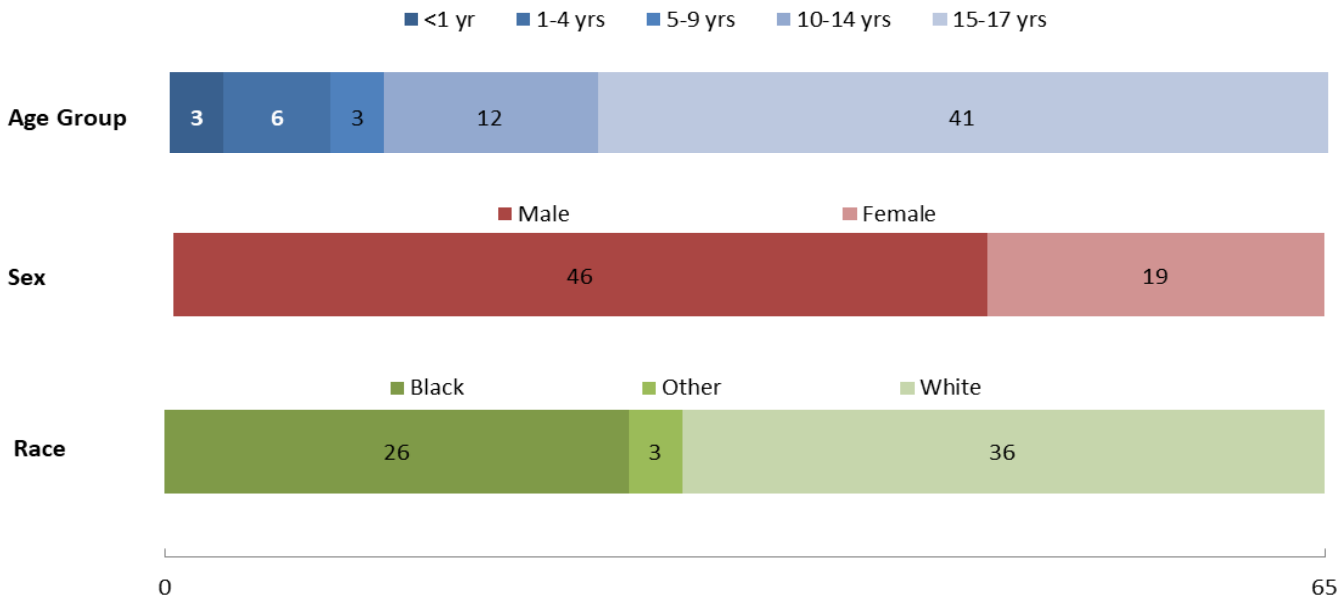


Table 24. Weapons-Related Deaths among Children Ages 0-17 by Manner of Death and Age Groups, Tennessee, 2016

Manner of Death	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Accident	0	1	0	0	1	2
Suicide	0	0	0	5	20	25
Homicide	3	4	1	7	19	34
Undetermined	0	0	1	0	0	1
Pending	0	1	1	0	1	3
Total	**3**	**6**	**3**	**12**	**41**	**65**

Figure 42. Weapons-Related Deaths among Children Ages 0-17 in Tennessee by Weapon Type,[35] 2016

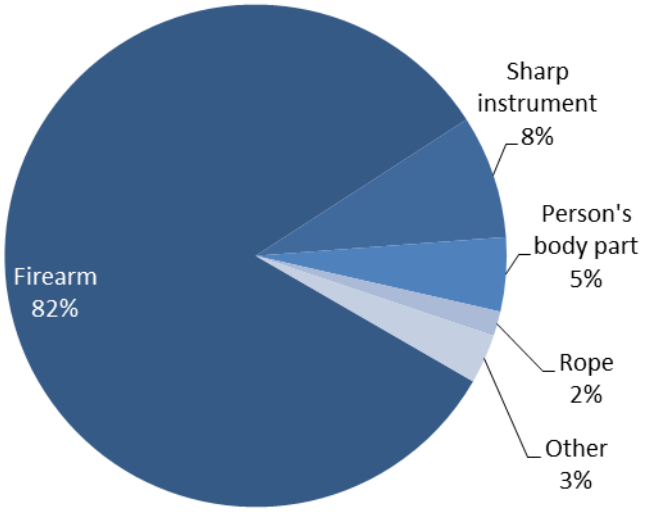
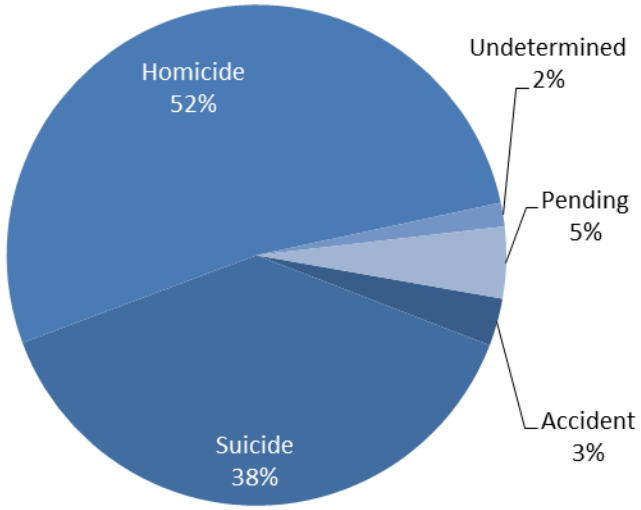


Figure 43. Weapons-Related Deaths among Children Ages 0-17 in Tennessee by Manner of Death 2016



FOCUSING ON PREVENTION: WEAPONS RELATED DEATHS

Potential prevention opportunities include:

- Increase awareness of safe firearm handling and storage practices.
- Promote safety programs to encourage parental supervision and prevent unsafe child-weapon interactions.
- Promote safe weapon storage to eliminate child access to weapons.

Current prevention efforts in Tennessee include:

- The Tennessee Department of Safety requires firearm safety training and certification by a licensed trainer for all handgun owners prior to issuing a permit to carrying a handgun.
- The Tennessee Department of Safety distributes information on promoting safe firearm storage and practices.
- The Tennessee Department of Health provides education in the schools on bullying and violence prevention.

[35] There are multiple cases, particularly those involving infants, where the exact weapon type is unknown. These may include cases where the medical records showed evidence of "blunt force trauma" but the source of the trauma was not evident by history or exam.

Suicide

Improve real time monitoring and intervention for suicide indicators in youth. In addition, increase capacity of state departments to recognize and respond to adverse childhood experiences (ACEs).

Tennessee and other states across the nation have seen an alarming increase in youth suicide. In Tennessee, forty-one young people took their own lives during 2016, an increase of 24 percent from thirty-three people in 2015. Addressing this pattern will require better and more real time information to better inform prevention activities. TDH will monitor ED visits for suicide attempts and ideation for youth via emergency department surveillance (the ESSENCE system) at least weekly and identify communities that appear to have increased need for suicide prevention training. These communities will be offered suicide prevention education such as Question, Persuade, Refer (QPR) or Youth Mental Health First Aid. TDH will collaborate with Tennessee Suicide Prevention Network, Department of Education, Department of Mental Health and Substance Abuse Services and Tennessee Commission on Children and Youth to implement education in identified areas.

ACEs have a significant impact on future violence victimization and perpetration, as well as lifelong health and opportunity. As such, early experiences are an important public health issue. Recognizing the impact of ACEs is critical if there is to be improvement in the health and wellbeing of Tennesseans. Therefore, all state agencies serving children will have staff attend the Building Strong Brains training addressing ACEs.

Motor Vehicle Crashes

Increase the number of schools implementing evidence-based motor vehicle crash (MVC) prevention programs, such as Checkpoints, from 24 to 40, with emphasis in counties with the highest MVC child death rates. In addition, promote the availability and correct usage of child safety seats.

In 2016, 71 deaths were related to motor vehicles or transportation modalities, representing 8 percent of all reviewed child fatalities. This is a 16 percent increase in motor vehicle fatalities among children compared to the previous year. Protective measures, such as a seat belt, helmet or a child/booster seat were not used in 53 percent of these deaths. TDH will collaborate with the Tennessee Highway Safety Office and Department of Education to engage multiple school systems located in high risk counties to adopt evidence-based or evidence-informed practices to reduce teen motor vehicle crash deaths and injuries. TDH will also work to ensure schools have registered with the ReduceTNCrashes.org website to track all of their motor vehicle crash prevention activities. Schools will be encouraged to choose a distracted driving prevention program from the options available on ReduceTNCrashes.org.

TDH will collaborate with Department of Children's Services, Tennessee Commission on Children and Youth, Tennessee Highway Safety Office and Department of Education to promote the correct usage of child and booster seats.

Safe Sleep

Enhance efforts to increase the safety of infant sleep environments through evaluation of current efforts and expanding efforts to increase the number of BEST hospitals from 7 to 12. In addition, provide safe sleep education and portable cribs to families.

TDH Partnered with the Tennessee Hospital Association to launch the BEST for Tennessee babies award in 2017 to recognize hospitals in their work to decrease infant mortality by improving breastfeeding (B) initiation rates, avoid early (E) elective deliveries, and model safe (S) sleep practices. In 2016, there were 139 infant deaths that resulted from, or were associated with, an unsafe sleep environment. These sleep-related deaths accounted for 23 percent of all infant fatalities in Tennessee There was also no significant change in sleep-related infant deaths from 2015 to 2016. TDH will work with THA to ensure accurate collection of data on BEST indicators, work with the hospitals to achieve the National Cribs for Kids certification, and ensure the hospitals are teaching and modeling safe sleep behavior.

TDH will also continue to partner with the Department of Children's Services, Prevent Child Abuse Tennessee (PCAT), the Tennessee Commission on Children and Youth (TCCY) and evidence-based home visiting to provide safe sleep education and portable cribs to families. TDH will develop a new safe sleep toolkit for families in home visiting or care coordination services to target 15,000 at risk families.

Racial Disparities

Identify and implement a minimum of 3 strategies to target racial and ethnic disparities. In addition, expand strategies already in place.

African American children suffer a higher rate of mortality than Whites and other races. While there was a 15 percent increase in the mortality rate of black children from 2015 to 2016, there was an 8 percent increase in that of white children. Specific causes of child death with a significant racial disparity include sleep-related infant deaths, fire/burn deaths and weapons-related deaths. Among manners of death, homicide had a significant racial disparity. The Department of Health's Division of Family Health and Wellness and Office of Minority Health and Disparities Elimination will engage disproportionately affected communities, identify key stakeholders and identify evidence-informed strategies that may be implemented or expanded in our state to mitigate racial and ethnic disparities.

To address these specific causes of death with a significant racial disparity, TDH will analyze data collected from safe sleep focus groups. The data will be utilized to develop and implement specific strategies to impact racial disparities. In addition, TDH will expand the Kappa fraternity safe sleep education initiative from 1 Kappa chapter to 3 Kappa chapters. TDH will expand outreach to faith-based organizations to promote safe sleep. TDH will promote the Fire Marshal's Office free smoke alarm program to disparate populations through home visiting and care coordination, WIC and other public health

programs. TDH will collaborate with TSPN to explore strategies to promote proper weapons storage.

Medical

Increase access to Voluntary Reversible Long Acting Contraceptives and 17 alpha-hydroxyprogesterone (17P). In addition, reconvene the birth defects registry advisory committee to better inform decisions for prevention of birth defects.

Prematurity is the leading cause of death among Tennessee infants. In 2016, 473 deaths (55%) were attributed to medical causes. The majority of deaths from medical causes in Tennessee are related to prematurity and congenital anomalies. Addressing the risk factors for prematurity, including substance exposure, requires a focus on preconception/interconception health (a mother's health before she becomes pregnant). In Tennessee, nearly half of all pregnancies are unintended, putting the mother and baby at risk for adverse outcomes related to premature birth. Likewise, research has shown that spacing pregnancies more than 18 months apart decreases the risk of prematurity and infant mortality. Utilizing effective contraception can assist women of child-bearing age in avoiding unintended pregnancy, as well as provide a window of opportunity wherein risk factors for premature delivery may be identified and mitigated before a woman becomes pregnant. The TennCare MCOs have significantly expanded access to Voluntary Reversible Long Acting Contraceptives (VRLACs) in the post-partum period by unbundling of payment mechanisms for the device. TDH will work with THA, TIPQC, hospitals and payers to increase the number of hospitals offering this service and documenting client-centered contraceptive counseling during the prenatal and early post-partum period to reduce unplanned pregnancies. In addition, 17P reduces the risk of repeat premature delivery when given to appropriate expectant mothers at appropriate intervals during pregnancy. It is recognized that there is room for improvement in the delivery of 17P to women at high risk for premature delivery. The state team recommends wider access to 17P through collaborative partnerships with providers and payors in the state. In addition, TDH will provide outreach to prescribers of medication-assisted therapy regarding the importance of prescribing contraception when a woman of child-bearing age is treated with any controlled substance and will facilitate training and provision of contraceptive services where possible.

Birth defects continue to be a significant contributor to infant mortality in the state of Tennessee. TDH will work with hospitals to improve reporting of birth defects to the state registry to better inform decisions regarding prevention of birth defects. TDH will reconvene the birth defects registry advisory committee to facilitate this process.

DATA TO ACTION

Statewide Activities

In December 2016, the State Child Fatality Review Team met to review aggregate child death data from the 2015 death reviews and to consider recommendations from local teams. State Team members considered the latest trends in the causes of child deaths and contemplated strategies for reducing future fatalities. The State Team decided to focus on a few key strategies for reducing child fatalities in Tennessee, a practice identified during a series of national meetings aimed at strengthening state child fatality reviews.

The State Team made the following recommendations in the 2017 report:

- Expand the safe sleep campaign with an emphasis on aggressively increasing efforts to increase the safety of infant sleep environments and developing new projects to target at-risk groups.

- Expand motor vehicle safety educational efforts by increasing participation in evidence-based motor vehicle crash prevention efforts among schools, with an emphasis on the regions with the highest motor vehicle crash fatalities involving teens.

- Encourage all state departments to participate in the Building Strong Brains training initiative addressing ACEs in order to build capacity in every agency to recognize and appropriately respond to ACEs.

- Increase the violence prevention work in schools, including expanding mental health services for staff and students, providing resources for families in order to provide appropriate resources and services where needed, and offering training on ACEs to school personnel.

- Make Voluntary Reversible Long Acting Contraceptives (VRLACs) easily available to promote optimal birth spacing, reducing the number of babies exposed to prescription drugs and reducing unplanned pregnancies.

- Promote proper storage of medication to reduce access to medications by children.

Tennessee Department of Health staff, in conjunction with colleagues from other state agencies, local child fatality review teams and other community partners, accomplished the following related to the priorities outlined above:

Safe Sleep

- The Tennessee Department of Health (TDH) entered into new partnerships including those with Kappa Alpha Psi, Dollar General, and City of Franklin Utility

Company, in addition to ongoing partnerships, to distribute safe sleep educational materials to parents, healthcare providers, child care agencies, social services providers and other caregivers.

- Birthing hospitals continued to implement their safe sleep policies developed in 2014. As part of the Safe Sleep Policy project, another 80,000 *Sleep Baby, Safe and Snug* board books and other safe sleep educational materials were distributed to new parents prior to their discharge from the hospital.
- In 2017, TDH, along with the Tennessee Hospital Association implemented the ***BEST for Babies*** award for birthing hospitals. Hospitals must meet infant mortality reduction criteria in breastfeeding initiation, early elective delivery elimination and safe sleep practices to receive recognition as a *BEST for Babies* hospital. This year 7 hospitals received the award.
- TDH continues to promote the ***Direct on Scene Education*** (D.O.S.E.) program. When responding to an emergency or non-emergency call from a household with a pregnant woman or an infant, first responders are trained to look for unsafe sleep conditions and offer the residents a safe sleep kit with information on the *ABC's of Safe Sleep*. Over the past year, four new first responder agencies implemented the D.O.S.E. program, increasing the total number of active participating departments to sixteen. Since implementation, agencies have distributed 1,415 kits and 54 portable cribs.
- TDH implemented the ***Safe Sleep Floor Talker*** project in 2014 and continued to place floor talkers across the state in 2016. The floor talkers are large vinyl decals designed to be placed on the floors of businesses, daycares, clinics and other agencies. To date, 804 floor talkers have been placed across Tennessee.
- Portable cribs and infant sleep sacks were supplied to regional health departments, hospitals and evidence-based home visiting programs to distribute to families that could not afford to purchase a safe sleep environment for their infants.
- In FY2017, Prevent Child Abuse Tennessee (PCAT) served 402 first-time parents through the Healthy Families Tennessee (HFTN) program. HFTN is an evidence-based home visiting program serving twenty counties in Tennessee. During the assessment and initial home visit, families explore safe sleep information and options. In 2016, PCAT collaborated with TDH to implement a "Baby Box" pilot project. The project provides a baby box to families to use as a sleep environment. Information is being collected about whether the families use these boxes for sleep. As of December 2017, 151 boxes had been distributed to families.
- TDH created a safe sleep church bulletin insert for local churches to distribute to their members. The church bulletin insert has been shared across Tennessee and was designed using the American Academy of Pediatrics' safe sleep recommendations, as well as a personal story from a mother who lost a baby due to unsafe sleep.

- The TDH developed an online safe sleep educational module for participants in the Women, Infants and Children (WIC) program. The module was made available statewide in December 2015. A new module was created in the WICHealth.org system in 2017. Other states utilizing WICHealth.org system are able to access this module. As of October 2017, nearly 3000 Tennessee WIC parents completed the educational module.
- The safe sleep door hanger was updated to include resources for families including information on the breastfeeding hotline, PCAT's 24/7 parenting help line, the TN tobacco QuitLine, the poison control hotline and how to obtain a portable crib through Cribs for Kids.

Motor Vehicle

- TDH continues to collaborate with the Department of Education and the trauma centers to promote involvement in the "Battle of the Belt" seat belt program to high schools.

- TDH has implemented a pilot of the ***Checkpoints™*** program in Williamson County schools with over 2000 parent-teen agreements signed. This program promotes the use of a parent-teen driving agreement and informs parents of what they can do to help their teens become safer drivers. The *Checkpoints™* program educates parents and teens about teen driving risks, Graduated Driver License (GDL) requirements, and how compliance with GDL requirements helps reduce teen driving risks.

- A teen driving task force, with representation from the Department of Health, Department of Education, Governor's Highway Safety Office, Tennessee Highway Patrol, Vanderbilt Trauma Center and UT Trauma Center, continues to meet. The goal of this task force is to increase teen motor vehicle crash prevention education in schools. In particular, the task force is working with schools in counties with the highest rates of teen motor vehicle accidents and encouraging them to participate in motor vehicle prevention activities.

- The Governor's Highway Safety Office website promotes teen driving prevention activities within high schools. The website allows anyone to click on a county and view a list of motor vehicle prevention activities that are available in that particular county. Each school can also input prevention activities in which they are participating. As of October 2017, 200 schools in 94 of 95 counties had completed 910 activities.

Intentional Violence

- State agencies have received *Building Stronger Brains* ACEs training and the program has been expanded into schools.

- In collaboration with the Jason Foundation and Tennessee Department of Mental Health and Substance Abuse Services, the Tennessee Department of Education offered schools a no-cost, web-based professional development training series on suicide prevention.

Medical

- TDH provided funding for training supplies for health department clinics and Federally Qualified Health Centers to provide Voluntary Reversible Long Acting Contraceptives (VRLACs) to women as part of a spectrum of contraceptive options for women.

- TDH provides support for educating high risk women including incarcerated women and women receiving opiates, on VRLACs, Neonatal Abstinence Syndrome, and reducing unwanted pregnancies.

- TDH hosted a recorded webinar with free continuing education units for healthcare providers on the use of 17 alpha Hydroxyprogesterone as a means of preventing premature delivery by at-risk women.

- TDH facilitated work groups with payors, providers and advocates to expand access to VRLACs in the immediate post-partum period.

Poisoning

- TDH partnered with the Prevention Alliance of Tennessee and the Department of Mental Health and Substance Abuse Services to promote Count It! Lock It! Drop It! ™ (CLD) to substance abuse coalitions, county health councils, and other community groups. CLD teaches patients to count their medication, store it when not using it and discard of it appropriately when it is no longer needed. There are currently 61 groups who conduct Count It! Lock It! Drop It! ™ in Tennessee. As a condition of the program, each county must obtain and use drug drop boxes. As of October, 2017, 61 counties had implemented the Count It! Lock It! Drop It!™ program

- TDH collaborated with the Tennessee Department of Environment and Conservation, the Tennessee Department of Mental Health and Substance Abuse Services, and the Prevention Alliance of Tennessee to increase the number of secure medication drop boxes in the state. As of September 30, 2017, there were 236 drop boxes in 95 of 95 Tennessee counties. Thirty-four (34) new bins were installed in Tennessee and 97,237 pounds of medications were collected from all 95 counties in FY 2017.

Local Prevention Activities

As part of the CFR process, the review of each case and the discussions that follow identify opportunities for preventing future child deaths. In addition to submitting recommendations for state-level policy or program changes, local teams also engage in prevention efforts in their own communities.

Examples of local prevention activities implemented over the past year by local CFR teams include:

- Judicial Districts 1 and 3 continued to educate female inmates about Neonatal Abstinence Syndrome (NAS) and family planning services, and provided contraceptives to inmates. CFR members have also reached out to local providers by sending letters on how to educate patients on NAS and family planning services.

- Judicial District 1 collaborated with Tennessee Highway Patrol on teen safe driving courses and ATV safety.

- Judicial District 3 expanded the safe sleep campaign to local child care providers and physicians.

- Judicial District 3 collaborated with local hospitals to implement a "Cribs for Kids" program for mothers who give birth in their facilities. This program will provide a portable crib to any family that does not have a safe sleep environment for their infant.

- Judicial District 4 collaborated with stakeholders to educate the community on infant safe sleep practices.

- Judicial District 4 educated all teens in the court system on NAS and its prevention.

- Judicial District 5 collaborated with local schools and the Child Advocacy Center to provide "*Stewards of Children*" child abuse awareness training.

- Judicial District 5 implemented suicide prevention activities throughout the community to raise awareness on youth suicide prevention and educate the community on available resources.

- Judicial District 6 increased infant safe sleep awareness efforts, including sending letters to local hospitals to inform them of the number of infants discharged from their hospital that later died from sleep-related causes.

- Judicial District 6 created a workgroup around suicide prevention in public and private schools.

- Judicial District 6 implemented a workgroup around suicide prevention and outreach to private schools in order to provide education on suicide prevention and the creation of a suicide intervention policy.
- Judicial District 6 expanded their “Strong Baby” campaign into the “*Stronger Baby*” campaign to include pictures of local babies and promotional videos about what makes each baby and family “stronger”. The campaign include education on breastfeeding, prenatal care, safe sleep, immunizations, smoking cessation, annual well-woman check- ups, full-term babies, timing between pregnancies and healthy eating
- Judicial District 7 collaborated with local EMS and law enforcement to create a PSA on drowning prevention.
- Judicial District 7 provided mental health training to all school system staff and community clergy. Training included education on suicide, the “Question, Persuade, Refer” model, having a suicide action plan and utilizing local resources.
- Judicial District 9’s local judge implemented NAS education within the court system.
- Judicial District 20 collaborated with the Bicycle and Pedestrian Advisory Committee to implement adequate student protections in their downtown metropolitan area.
- Judicial District 20 worked to streamline the record collection and notification system with their local FIMR team.
- Judicial District 25 completed projects on suicide prevention, including an anti-bullying campaign and engaging unconventional stakeholders.
- Judicial District 26 ran safe sleep billboard ads throughout the county and hosted a “Safe Sleep Supper” to engage high risk populations.
- Judicial District 29 partnered with local fire departments to provide community smoke detector checks and fire safety education.
- Judicial Districts in the East and Northeast Regions actively participated in providing Neonatal Abstinence Syndrome education in jails and pain clinics, as well as Voluntary Reversible Long Acting Contraceptive for those interested.

CONCLUSION

The goal of child fatality review is to better understand the causes of death of children in Tennessee and to identify strategies for preventing future deaths. The overall 2016 child mortality rate for Tennessee was 64.7 child deaths per 100,000 child population, a significant (10 percent) increase from the rate of 58.6 in 2013. Tennessee's 2016 child fatality rate remains 28 percent above the 2015 national average, leaving important work to be done in order to protect our children.

Several key areas identified in this report warrant further attention, as recommended by the state team. We encourage all who read this report to utilize the data contained herein to explore opportunities for improving the health and well-being of children within their own communities.

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Appendix B—Glossary

Asphyxia – Oxygen starvation of tissues. Asphyxia is a broad cause of death that may include more specific causes, such as strangulation, suffocation, or smothering.

Autopsy – Medical dissection of a deceased individual for the purpose of determining or confirming an official manner and cause of death.

Birth Certificate – Official documentation of human birth, filed with the Tennessee Office of Vital Records.

Cause of Death – Cause of death refers to the disease process or injury which set into motion the chain of events which eventually resulted in death. A different classification from Manner of Death.

Child Fatality Review (CFR) Team– Tennessee's local/regional groups, comprised of such agencies as public health, law enforcement, social services, etc., that examine the deaths of children, ages 17 years and under, with the ultimate goal of preventing future fatalities.

Child Maltreatment – Intentional injury of a child, involving one or more of the following: neglect, physical harm, sexual abuse or exploitation, or emotional abuse.

Circumstances – Situational findings.

Commission (Act of) – Supervision that willfully endangers a child's health and welfare.

Congenital anomaly – A medical or genetic defect present at birth.

Contributing Factors – Behavioral actions that may elevate the potential risk of fatality.

Coroner – Jurisdictional official charged with determining the manner and cause of death for individuals perishing in sudden, violent, or suspicious circumstances. Performs much the same function as a Medical Examiner, but may or may not be a physician.

Child Protective Services (CPS) – Social service system engaged in protecting children from maltreatment.

Children's Special Services (CSS) – Tennessee Department of Health program that provides medical care and coordination to families with severely ill or disabled children under the age of 21.

Death Certificate – Official documentation of an individual's death, indicating the manner and cause of death.

Death Scene Investigation – Portion of the Child Fatality Review process that gathers relevant information and interviews at the site of a child's death for the purpose of determining or confirming the manner and cause of death.

Exposure – Cause of death directly related to environmental factors; typically death from hyper- or hypothermia.

External – Categorization of non-medical manners of death: i.e., accident, homicide, or suicide.

Full-term – A gestation of 37 or more weeks.

Homicide – Death perpetrated by another with the intent to kill or severely injure.

Hyperthermia – High body temperature.

Hypothermia – Low body temperature.

Infant – Child under one year of age.

Manner of Death – Manner of death refers to the circumstances under which a death occurred. In Tennessee, deaths must be classified as one of the following manners of death: Natural, Accident, Suicide, Homicide, or Could not be determined.

Medical Examiner – Physician charged with determining the manner and cause of death for individuals perishing in sudden, violent, or suspicious circumstances.

Missing – Case information or data that has not been included on the Child Fatality Review reporting form.

Natural – Categorization of deaths indicating a medical cause, such as congenital conditions, illness, prematurity, or SIDS.

Neglect – Failure to provide basic needs, such as food, shelter, and medical care.

Omission (Act of) – Supervision entirely absent or inadequate for the age or activity of the child.

Pending – Indication that an official manner of death awaits further investigation.

Preterm – Birth occurring at a gestation of less than 37 weeks.

Preventability – Indicates the likelihood that a death could have been averted with reasonable efforts on the part of an individual or community.

Sudden Death in the Young (SDY) – Refers to any death that occurs within 24 hours of symptoms or death in a hospital after cardiac resuscitation from cardiac arrest. The decedent is someone who was believed to be in good health, someone who had a stable chronic condition, or someone with an acute illness which would not be expected to cause death.

Sudden Infant Death Syndrome (SIDS) – An exclusionary manner of death for children less than one year of age, indicating that all evidence (including an autopsy, death scene investigation, and review of the medical record) has failed to yield the specific cause of a natural death.

Supervisor – Individual charged with the care of a child at the time of his or her death.

Undetermined – Default manner of death when circumstances and/or investigation fail to reveal a clear determination.

Unknown – Case information or data that is unattainable or unavailable after review by the CFR team.

Appendix C—Child Deaths by County of Residence

Table 25. Child Fatalities (Number and Rate) by County, 2016

County	Deaths	Population, Ages 0-17	Rates per 100,000 Population
ANDERSON	11	15613	70.5
BEDFORD	11	12037	91.4
BENTON	2	3111	64.3
BLEDSOE	2	2349	85.1
BLOUNT	13	26188	49.6
BRADLEY	10	23252	43
CAMPBELL	6	8122	73.9
CANNON	2	2890	69.2
CARROLL	3	6125	49
CARTER	3	10607	28.3
CHEATHAM	9	8909	101
CHESTER	0	3962	0
CLAIBORNE	2	6130	32.6
CLAY	5	1522	328.5
COCKE	2	7124	28.1
COFFEE	11	12944	85
CROCKETT	3	3405	88.1
CUMBERLAND	3	10415	28.8
DAVIDSON	116	147605	78.6
DECATUR	1	2456	40.7
DEKALB	2	4188	47.8
DICKSON	8	12026	66.5
DYER	9	8920	100.9
FAYETTE	1	7822	12.8
FENTRESS	2	3781	52.9
FRANKLIN	9	8673	103.8
GIBSON	11	11857	92.8
GILES	7	6131	114.2
GRAINGER	3	4725	63.5
GREENE	6	13413	44.7
GRUNDY	1	2867	34.9
HAMBLEN	7	14600	47.9
HAMILTON	56	75402	74.3

HANCOCK	0	1346	0
HARDEMAN	2	4941	40.5
HARDIN	5	5205	96.1
HAWKINS	7	11449	61.1
HAYWOOD	3	4035	74.3
HENDERSON	6	6336	94.7
HENRY	4	6591	60.7
HICKMAN	4	5254	76.1
HOUSTON	0	1729	0
HUMPHREYS	4	3941	101.5
JACKSON	3	2104	142.6
JEFFERSON	4	10873	36.8
JOHNSON	5	3026	165.2
KNOX	56	97543	57.4
LAKE	1	1105	90.5
LAUDERDALE	4	5964	67.1
LAWRENCE	13	10661	121.9
LEWIS	2	2590	77.2
LINCOLN	7	7384	94.8
LOUDON	9	9979	90.2
MCMINN	10	11235	89
MCNAIRY	2	5635	35.5
MACON	2	5679	35.2
MADISON	17	22664	75
MARION	2	5940	33.7
MARSHALL	3	7349	40.8
MAURY	7	20774	33.7
MEIGS	2	2489	80.4
MONROE	3	9875	30.4
MONTGOMERY	29	52044	55.7
MOORE	1	1229	81.4
MORGAN	1	4232	23.6
OBION	2	6557	30.5
OVERTON	4	4736	84.5
PERRY	0	1719	0
PICKETT	0	944	0
POLK	3	3295	91
PUTNAM	10	16470	60.7

RHEA	5	7429	67.3
ROANE	4	9970	40.1
ROBERTSON	17	16695	101.8
RUTHERFORD	37	76515	48.4
SCOTT	2	5305	37.7
SEQUATCHIE	0	3130	0
SEVIER	11	19931	55.2
SHELBY	190	233953	81.2
SMITH	2	4465	44.8
STEWART	5	2688	186
SULLIVAN	17	30362	56
SUMNER	21	42611	49.3
TIPTON	12	15124	79.3
TROUSDALE	1	1872	53.4
UNICOI	1	3266	30.6
UNION	2	4204	47.6
VAN BUREN	1	1088	91.9
WARREN	5	9486	52.7
WASHINGTON	15	25028	59.9
WAYNE	1	2860	35
WEAKLEY	8	6806	117.5
WHITE	3	5758	52.1
WILLIAMSON	15	59569	25.2
WILSON	16	31341	51.1
Tennessee	**966**	**1493549**	**64.7**

Data source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics.

Appendix D—Infant Deaths by County of Residence

Table 26. Infant Mortality (Number and Rate) by County, 2016*

County	Deaths	Live Births	Infant Mortality Rate per 1,000 Live Births
ANDERSON	11	794	13.9
BEDFORD	11	637	17.3
BENTON	2	144	13.9
BLEDSOE	1	138	7.2
BLOUNT	5	1229	4.1
BRADLEY	4	1206	3.3
CAMPBELL	3	437	6.9
CANNON	2	157	12.7
CARROLL	2	304	6.6
CARTER	1	485	2.1
CHEATHAM	6	490	12.2
CHESTER	0	183	0
CLAIBORNE	1	297	3.4
CLAY	3	68	44.1
COCKE	0	368	0
COFFEE	4	672	6
CROCKETT	0	155	0
CUMBERLAND	2	526	3.8
DAVIDSON	75	10020	7.5
DECATUR	0	118	0
DEKALB	0	190	0
DICKSON	5	568	8.8
DYER	5	471	10.6
FAYETTE	1	409	2.4
FENTRESS	1	199	5
FRANKLIN	5	404	12.4
GIBSON	8	590	13.6
GILES	6	332	18.1
GRAINGER	2	249	8
GREENE	2	689	2.9

GRUNDY	0	150	0
HAMBLEN	4	754	5.3
HAMILTON	33	4287	7.7
HANCOCK	0	79	0
HARDEMAN	1	257	3.9
HARDIN	4	297	13.5
HAWKINS	6	537	11.2
HAYWOOD	2	194	10.3
HENDERSON	2	335	6
HENRY	4	333	12
HICKMAN	2	267	7.5
HOUSTON	0	96	0
HUMPHREYS	2	190	10.5
JACKSON	1	111	9
JEFFERSON	4	488	8.2
JOHNSON	4	121	33.1
KNOX	30	5263	5.7
LAKE	1	67	14.9
LAUDERDALE	3	332	9
LAWRENCE	7	553	12.7
LEWIS	1	139	7.2
LINCOLN	5	329	15.2
LOUDON	6	561	10.7
MCMINN	6	568	10.6
MCNAIRY	1	288	3.5
MACON	1	290	3.4
MADISON	9	1208	7.5
MARION	1	310	3.2
MARSHALL	3	384	7.8
MAURY	4	1170	3.4
MEIGS	1	115	8.7
MONROE	2	469	4.3
MONTGOMERY	21	3433	6.1
MOORE	1	46	21.7
MORGAN	1	198	5.1

OBION	0	367	0
OVERTON	4	218	18.3
PERRY	0	104	0
PICKETT	0	42	0
POLK	1	180	5.6
PUTNAM	7	867	8.1
RHEA	3	385	7.8
ROANE	3	484	6.2
ROBERTSON	4	884	4.5
RUTHERFORD	26	4129	6.3
SCOTT	2	272	7.4
SEQUATCHIE	0	152	0
SEVIER	8	1086	7.4
SHELBY	123	13218	9.3
SMITH	1	262	3.8
STEWART	4	146	27.4
SULLIVAN	10	1484	6.7
SUMNER	14	2053	6.8
TIPTON	6	723	8.3
TROUSDALE	1	101	9.9
UNICOI	1	159	6.3
UNION	2	213	9.4
VAN BUREN	0	58	0
WARREN	4	463	8.6
WASHINGTON	10	1287	7.8
WAYNE	1	137	7.3
WEAKLEY	3	359	8.4
WHITE	1	302	3.3
WILLIAMSON	9	2267	4
WILSON	7	1528	4.6
Tennessee	**597**	**80755**	**7.4**

Data source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics.

*The count of infant deaths reported there differs from that reported through the Child Fatality Review process, as the local CFR teams only review deaths in which the infant was born weighing over 500 grams or at least 23 weeks' gestational age;

Building Unique Partnerships to Engage Communities in Infant Safe Sleep

In Tennessee, infant sleep-related deaths continue to be a leading cause of preventable infant death. Sleep-related deaths are defined as a baby found deceased in a sleeping environment with a history of his or her head having been pressed into the mattress or pillow, positioned with a co-sleeper, or when he or she is found wedged against an object and other object that may have contributed to the infant's suffocation or strangulation. In 2016, there were 139 infant sleep-related deaths; a slight but statistically insignificant decrease from 142 deaths in 2015. Due to the high percentage of infant deaths that are sleep-related, TDH has strived to create new and unique community partnerships that would allow for a broadened reach of infant safe sleep messaging.

In early 2017, after TDH shared sleep-related death data, Tennessee-based Dollar General Corporation agreed to utilize existing safe sleep materials to create a "shelf talker" to display in the baby aisle of stores. This "shelf talker" contains a check list of safe sleep recommendations. By October 2017, these educational materials had been placed in Dollar General Stores across Tennessee. This collaboration helps us reach at-risk and rural populations.

ΚΑΨ

Working in collaboration, the Division of Family Health and Wellness and the Office of Minority Health and Disparity Elimination provided education on infant safe sleep to the Hamilton County Kappa Alpha Psi alumni group. Each participant was asked to educate at least 25 other men about the importance of infant safe sleep, with the goal of educating the community and eliminating disparities in infant sleep-related deaths. The project is a partnership with the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) and Kappa Alpha Psi Fraternity.

TDH also collaborated with City of Franklin Utilities to share the infant safe sleep message. During SIDS Awareness Month, the utility company agreed to include a flyer that provided an infant safe sleep checklist along with information as to how to obtain a free portable crib, if needed, in all City of Franklin utility bills. The flyer also included information on the Tennessee Breastfeeding Hotline and the Tennessee Tobacco Quitline.

Checkpoints™ and Safe Teen Driving

The leading preventable cause of teen fatalities is motor vehicle crashes. In 2016, there were 71 child deaths due to motor vehicle crashes, accounting for 7 percent of all child fatalities in Tennessee.

Checkpoints™ is an evidence-based parent-oriented teen driving intervention. The program is consists of a one-hour class and is attended by new teen drivers and their parents. The program provides parents with information about the risks teens face when driving, how to make their teens drive more safely, and how to effectively communicate with their teens about safe diving.

Checkpoints™ helps families address risk factors such as driving at night, having teen passengers, and driving at high speeds or in unsafe weather, as well as texting while driving and improper seatbelt use. The program has been evaluated and proven to be effective. Checkpoints™ helps parents create and use a parent-teen driving agreement that is followed during the first year of independent driving. Teens who develop an agreement with their parents report fewer risky driving behaviors.

From November 2016 through January 2017, Williamson County had five teen fatalities from motor vehicle crashes. As a result, TDH collaborated with Williamson County Schools to implement the Checkpoints™ program. The parents and teens were asked to complete pre- and post-tests to ascertain their knowledge of teen driving risks, including Graduated Driver's License (GDL) rules, perception of high risk driving behaviors and confidence in implementing the parent-teen driving agreement. Within the first three months of the program over 2,000 parent-teen driving agreements were completed.

Analysis of the pre- and post-tests showed significant improvements in feelings and knowledge about teen driving as a result of this intervention. Parents and teens reported strong agreement that they felt "like they fully understand Tennessee GDL rules", with improvements in test scores of 74.3 percent and 36.1 percent, respectively. Parents and teens also indicated strong agreement that they felt "very knowledgeable about the risks of teen driving", with improvement in test scores of 39.1 percent and 18.1 percent, respectively.

For more information on the Checkpoints™ or other evidence based teen driving programs visit http://www.reducetncrashes.com/

Engaging Local Recreational Youth Sports Leagues: *Safe Stars*

Safe Stars is a collaboration between TDH and the Program for Injury Prevention in Youth Sports at The Monroe Carell Jr. Children's Hospital at Vanderbilt. The *Safe Stars* initiative recognizes youth sports leagues in Tennessee that adhere to high standards of safety; helps leagues implement policies on various safety topics such as concussion education, injury prevention and weather safety; and provides resources and opportunities for every youth sports league to enhance their safety standards.

The criteria for achieving recognition as a *Safe Stars* league was developed by a committee of health professionals dedicated to reducing sports-related injuries among youth.

Safe Stars Standards:
At a minimum, a league must adhere to the following standards:
Bronze:

- Emergency Action Plan (EAP) / Team emergency contacts (specific plan and practiced annually)
- Background checks completed on all coaches
- Minimum of two coaches CPR/AED certified (one always present)
- AED on site for all practices and games
- All coaches trained in concussion and sudden cardiac arrest recognition/management
- Severe weather policy (including heat and lightning)
- Anaphylaxis and Allergy Emergency plan

To qualify for higher levels the league must choose from the following: Silver Star (choose 2) or Gold Star (choose 4).

- Pre-participation physical examination (PPE) required
- Risk and safety information/policies relayed to parents/guardians
- All coaches complete additional health, safety and injury prevention training
- All athletic equipment undergoes safety checks
- Medical professional (Athletic Trainer Certified, first responder, etc.) on site for all games
- Medical professional (Athletic Trainer Certified, first responder, etc.) on site for all practices
- ALL coaches CPR/AED certified
- On site tobacco policy / “Young Lungs at Play”
- Promote positive culture and standard of expectations regarding behavior

Leagues can apply online by visiting https://www.tn.gov/health/article/the-safe-stars-initiative. The website also provides leagues with examples of the various policies.

Sullivan County Regional Health Department Receives NAS Grant

Neonatal Abstinence Syndrome, or NAS, is a condition in which a newborn baby exhibits withdrawal symptoms as a result of being exposed to certain substances. This may occur when a mother uses opioid-containing medications or illicit drugs during pregnancy. After the baby is born, the baby may experience symptoms of withdrawal as they are no longer receiving those substances through the mother's blood supply. Many babies who experience withdrawal require specialized medical care, including prolonged and costly hospitalization in a neonatal intensive care unit.

In the past decade, Tennessee has seen nearly a ten- fold increase in babies born with NAS. Medications and other common drugs that are known to contribute to NAS include opioids, benzodiazepines, cocaine, methadone, and buprenorphine among others. Infants born with NAS are at increased risk for adverse health outcomes and mortality. Prevention and intervention are pivotal in helping women receive treatment for drug addictions and decreasing the chance of unplanned pregnancy.

Sullivan County has one of the highest NAS rates in the state, (50.5 per 1,000 live births in 2016) the leading contributor of which being prescription medications. In January 2017, Sullivan County Health Department employed a registered nurse to provide education to the community on NAS, provide family planning services, and educate other health care providers about NAS.

Several important programs have resulted from Sullivan County's efforts. A collaboration was formed between local judges and DCS that requires attendance at classes as a condition of probation. These classes include information on NAS and pregnancy prevention. Educational classes have been provided to seven medication-assisted treatment facilities, two mental health facilities, and a local halfway house. Sullivan County Health Department has formed strong partnerships with the local United Way and the Sullivan County Anti-Drug Coalition, and three billboards have been placed in Sullivan County that address NAS awareness and prevention.

Since May 2017, 358 individuals and 73 health care professionals have received education on the NAS program and the services it offers, and four women have utilized contraception services in an effort to prevent an unplanned pregnancy that could result in a newborn impacted by NAS.

Northeast Tennessee: Building Partnerships

The CFR team members in Northeast Tennessee have been collaborating with Niswonger Children's Hospital and the local anti-drug coalition, Insight Alliance, to increase child fatality prevention activities. These collaborative efforts of key community stakeholders have allowed for progress on several initiatives that strive to improve the overall health and well-being of children in the community. Located in Johnson City, Niswonger Children's Hospital is the only children's hospital in Northeast Tennessee and is a part of Johnson City Medical Center and Mountain States Health Alliance.

Motor vehicle injuries are among the leading causes of death and injury in children. Many of these deaths and injuries could have been prevented. In 2016, eighteen children under the age of 9 years died as passengers in motor vehicles and, of those, seven were not properly restrained. Child safety seats are one of the best ways to prevent these deaths. Niswonger Children's Hospital wants to ensure families in the hospital and in the community have access to child safety seats. The hospital has several certified car seat technicians on staff to provide seat checks, both at the hospital and in the community. Families can come to the hospital to be sure their safety seat fits appropriately. The hospital receives funding from TDH to provide a car seat to those families that meet specific income guidelines and do not have a safe way for their child to leave the hospital.

In an effort to reduce the number of infants born dependent on drugs, Niswonger Children's Hospital staff has collaborated with the local anti-drug coalition, Insight Alliance to provide prescription drug lock boxes to families at no cost. Drug lock boxes are part of the *Count It! Lock It! Drop It!* ™ campaign, a comprehensive community program for prescription drug abuse prevention. This program teaches patients to count their medications, lock them up, and dispose of them when no longer needed.

Niswonger Children's Hospital promotes infant safe sleep. The hospital, along with Johnson City Medical Center, is a National Gold Certified Safe Sleep Hospital through the Cribs for Kids Foundation. To qualify for this national recognition, the hospital trained staff on infant safe sleep, provided patient education, created a policy on infant safe sleep, provided community education outreach and became a Cribs for Kids partner. The hospital has also purchased portable cribs to provide to families that do not have a safe place for their child to sleep when they are discharged home from the hospital.

Engaging Fathers to Reduce Infant Mortality in Shelby County

Fathers are important influences upon children in every society. *The Fatherhood Initiative* in Shelby County engages a full spectrum of fathers, including those who are in the home and those who are not. The goal of the initiative is to help fathers fully understand the impact they have upon their children's lives and how they can fulfill the needs of their family in a variety of ways.

Greg Dixon, Fetal and Infant Mortality Director and CFR team member in Shelby County, works diligently to engage fathers as critical participants in successful two-parent homes, keeping in mind that paternal behaviors and roles frequently vary across and within sociocultural contexts.

Mr. Dixon states, "Our aim is to briefly touch on the various impacts fathers have on their unborn child when the child is still being cared for inside the mother while fully developing." He continues by adding, "The father brings great value to the child's life before birth and after birth."

The Fatherhood Initiative in Shelby County engages and supports fathers in the community. This is done through education on infant safe sleep, decreasing exposure to second-hand smoke, engaging in skin to skin contact and supporting breastfeeding. Education is provided to fathers through social services, including pre-trial services where fathering classes have been mandated in parent court. The Fatherhood Initiative also engages the Kappa Alpha Psi fraternity in educating community members on safe sleep. There has also been outreach to hardware stores to include safe sleep floor talkers. The ultimate goal of *The Fatherhood Initiative* is to bridge the gap between fathers and their children and increase paternal involvement in a child's life while providing education to keep the child safe and healthy.

For more information on the Shelby County Health Department Fatherhood Initiative visit http://shelbytnhealth.com/363/Fatherhood-Initiative

Appendix G—Local Child Fatality Review Team Members and Staff

(Team leaders are in **bold** print. JD=Judicial District)

JD 1 (Carter, Johnson, Unicoi, and Washington Counties)

Beth Bare	Michelle Hansen, RN	Lori Shields, EdS
Inv. Christopher Bowers	Shawn Hollinger, MD	Kristen Spencer
Regina Bowman	**David Kirschke, MD**	Jack Stewart
Inv. Shawn Brown	Brittany Lews	Edward Tester
Seth Brown, MD	Nicole Masian, MD	Regan Tilson
Heidi Casey, RN	Donna Pleasant	Cynthia Thomas, DO
Tara Chadwell	Sheree Pierce	Karen Thompason
Capt. Mike Cooke	Patsy Pope	Mary Williams
Heidi Dulebohn	Inv. Nicki Salyer	Fay Willis, RN
Inv. Deborah Dunn	Martina Schmidt, MD	Rick Woodby
Kim Garland	Darshan Shah, MD	

JD 2 (Sullivan County)

Kathy Benedetto	Ray Hayes	Marjorie Miller
Andrea Black	Barry Honeycutt	Heather Mullins
Justin Bush	William Hudson, MD	Teresa Nelson, JD
Julie Canter, JD	Sgt. Darell Johnson	Jim Perry
Lt. Sean Chambers	Capt. Joel Jones	Jessica Ritchie
Steven Combs, MD	Ashley Justice	Emily Smith
John Eanes	**Stephen May, MD**	Barry Stabus, JD
Danielle Eller	Gary Mayes	Michelle Steadman
Andy Hare	Darrell Mears	
William Harper, JD	Janice Miller	

JD 3 (Hancock, Hawkins, Hamblin, and Greene Counties)

Kristina Adams	Heidi Dulebohn	TJ Manis
Melandie Akins	Kim Fox	Nicole Masian, MD
Carmelia Alexander	Kendra Hammonds	Julie Minton
Brenda Cannon	Calvin Hawkins	Christian Newman
Terry Cannon	Deana Hicks	Laura Reneau-Dockery
Tara Chadwell	Scott Hollenbeck	Martina Schmidt, MD
Diane Cofield	Shawn Hollinger, MD	Darshan Shah. MD
Betty Davis	Hannah Hunter	Kristen Spencer
Eddie Davis	Rob Jacobs	Brandon Stipes
Cynthia Doty	**David Kirschke, MD**	Cynthia Thomas, D.O.

JD 4 (Cocke, Grainger, Jefferson, and Sevier Counties)

Juli Allen, RN	Derek Chambers	Teresa Moyers Atty.
Charles Arms	Kristin Dean, PhD	Charles Murphy
Amy Ball	Rita Hillhouse, RN	Rodney Satterfield
Don Best, BSE, ME	John Holland, EMT-P	Jodi Stott
Susan Blair, RN	David McConnell, MD	**Tara Sturdivant, MD**

JD 5 (Blount County)

Jaclyn Anderson	Danni Lambert, RN	Tara Sturdivant, MD
Charles Arms	Amanda May	Capt. Mark Taylor
Lori Baxter, MD	Jonathon Rodgers	Michael Teague, MD
Mary Beth Blevins, RN	Det. Kris Sanders	James Trentham
Tabitha Damron	Det. Mike Seratt	
Mike Flynn, JD	Jodi Stott	

JD 6 (Knox County)

Lt. Brad Anders	Rita Hillhouse, RN	Nate Ogle
Mona Blanton-Kitts, LCSW	Paige Huggler	**Mary Palmer, MD**
	David Kitts, PhD	Matthew Schlosshan
John Brinkley	Amber Knapper, NP	David Teaster, MD
Laura Clabo	Melissa Massie	Alicia Verlinde, MPH
Tracy Davis	Ashley McDermott, JD	Lisa Wagoner, MSN, RN
Amy Dolinky	Christopher McLain	Capt. Mark Wilbanks
Chris Gregory	Darinka Mileusnic, MD	Zachary Young, RN
Amy Hawes	Cheryl Nix	Sarah Zimmerman

JD 7 (Anderson County)

Emily Abbott	Bobbi Jo Henderson	Stacy Park
Patty Campbell, RD	Kelly Johnson	Angela Perez
Thomas Clary, MD	Danni Lambert	Jodi Stott
Anthony Craighead	Darinka Mileusnic-Polchan, MD, PhD	Tara Sturdivant, MD
Det. Kevin Craig		Rune Writ
Margaret Durgin	Det. Rodney Minor	

JD 8 (Campbell, Claiborne, Fentress, Scott, and Union Counties)

Samantha Cardwell-Jennings	Rosemary Jeffers	Kim Sanderson
	Creasha King, M. Ed	Meredith Slemp
Sara Coble	Det. Randy Lewallen	Jodi Stott
Trent Cross, MD	J. Mann, MD	**Tara Sturdivant, MD**
Kim Hammock	Bruce Perkins	Zachary Young-Lutz, RN
Det. Ricky Jeffers	Magen Rudd	

JD 9 (Loudon, Meigs, Morgan, and Roane Counties)

Dr. William Bennett, MD	Judge Dennis	Jodi Stott
Melissa Denton	Humphrey	Tara Sturdivant, MD
James P. Guider, MD	Alyson Kennedy	Millicent Thomas
Sherriff Tim Guider	Missy Layne	Mona William-Hayes, PhD
Mary Harding, EdS	Autumn Mays	

JD 10 (Bradley, McMinn, Monroe, and Polk Counties) Resent email

Jeannie Bentley	Carol Henson	Calvin Rockholt
Deanna Brooks	Det. Cody Hinson	Teresa Rogers
Allyson Cornell, MD	Sandra Holder	Lt. David Shoemaker
Det. Shaunda Efaw	Nita Jergian	Nadine Stone
Tina Florey	Travis Jones	Eloise Waters
Roger Freeman	Debra Macon-Robinson	Andy Wattenbarger
Daniel Gibbs	Susan Merriman	Laura Wittmaier

JD 11 (Hamilton County)

Beverly Allen	Ashley Haynes, PNP	Keith Nilsen
Sharon Barker	Jackie Jolley	Atty, Boyd Patterson
Valerie Boaz, MD	Atty. Leslie Longshore	Elizabeth Peeler, MD
Barbara Breedwell	Lisa Lowery-Smith, MD	Det. Henry Ritter
Steven Cogswell, MD	Debbie McKeehan	Det. Mickey Rountree
Denise Cook	Capt. Henry McElvain	Lt. Glenn Scruggs
Amber Dennison	Shelley McGraw	
Sheryl Fletcher, RN	James Metcalfe, MD	

JD 12 (Bledsoe, Franklin, Grundy, Marion, Rhea, and Sequatchie Counties)

Vicki Carr	Jessica Hill	Inv. Kevin Snyder
Allyson Cornell, MD	Sandra Holder	Lt. Coy Swanger
Rosalind Crokett	Nita Jergian	Mike Taylor
Kimberly A. Dean	Susan Merriman	Elise Young
Nikki Harris	Charlene Nunley	
Carol Henson, RN	Rhonda Sills	

JD 13 (Clay, Cumberland, DeKalb, Overton, Pickett, Putnam, and White Counties)

Bobby Anderson	Andrea Fox	Lynn Mitchell
Brandon Boone	Lloyd Franklin, MD	Jim Morgan
Greg Bowman	Pam Gannon	Chad Norris
James Breyer, MD	John Garrett	Kristi Paling
Lisa Bumbalough	Done Grisham, MD	Greg Pauch
JoAnn Clouse	Hoyte Hale	James Payne
Jean Coffee	Kendall Hargis	Billy Price
Tommy Copeland	Jerry Jackson	Michael Railling
Casey Cox	Gayla Jestice	Sheriff Patrick Ray
Michael Cox, MD	Andy Langford	Tonya Scott
Tina Davis, RN	Caroline Knight	Sheriff Oddie Shoupe
Lindsey Dennis	Larry Mason, MD	Sullivan Smith, MD
Doris Denton	Ralph Mayercik	Brian Tompkins
Dana Dowdy	Carrie McCrary	Carolyn Valerio, PsyD
Mindy Doyle	Mickey McCullough	J.C. Wall, MD
Bryant Dunaway	David McKinney, MD	Richard Williams
Eddie Farris	Justice Medlin	

JD 14 (Coffee County)

LeeAnne Boeringer	Leanne Eaton	Darla Sain, RN
Michael Bonner	Susan Ferencei	Clifford Seyler, MD
Al Brandon, DO	Kellie Lusk	**Lang Smith, MD**
Debbie Dickey	Susan Minger	Ray Stewart
David Brumley, DDS	Shaun Noblit	Frank Watkins
Inv. Billy Butler	Atty. Jason Ponder	L.B. Windley, Jr., DVM
Mike Clements	Kimberly Primm, RN	

JD 15 (Jackson, Macon, Smith, Trousdale, and Wilson Counties)

Alison Asaro, MD	Don Grisham, MD	Brian Newberry
Matt Batey	Felicia Harris	Donald Nuessle, MD
Kimberly Brindley	Angie Hassler	Kristi Paling
Darlene Brown	Marty Hinson	James Payne
Robert Bryan	Steve Hopper	Michael Railing
Patrick Cockburn	Heather Jefferies	Ray Russell
Jean Coffee	Gayla Jestice	Ricky Slack
Tina Davis, RN	Randall Kirby	Tom Swink
Mark Gammons	Jason Lawson	Mark Taylor
Pat Gannon	Nathan Miller	Tommy Thompson, JD
Scott Giles, DO	Christina Moody	Sharice Williams

JD 16 (Cannon and Rutherford Counties)

Hugh Ammerman	Jennings Jones	Sheneka Morgan
Alison Asaro, MD	Det. Andrea Knox	Will Pinson
Jennifer Croft	Jason Lamberth	Lt. Britt Reed
Tina Davis, RN	Toni McDaniel	Det. Tommy Roberts
Doris Denton	Capt. Nathan McDaniel	Audrey Sherer
Dana Garrett	Lorraine MacDonald, MD	Det. Kevin Stolinsky
Don Grisham, MD	Nicole Miller	Dwight Stone
Carl Hudgens	Sgt. Paul Mongold	Lt. Monty Terry
	Christina Moody	Michael Thomas, MD

JD 17 (Bedford, Lincoln, Marshall, and Moore Counties)

Tammy Anderson	Mike Clements	Shaun Noblit
Sarah Bates, RN	Danny Cupples	Elizabeth Osborne
LeeAnne Boeringer	Stephanie Dunn	Kenneth Phelps, MD
Det. Scott Braden	Angie Faulkner	**Lang Smith, MD**
Debbie Dickey	Jeremy Ezell	Kyle Spears, MD
Brian Bruce	Susan Ferencei	Megan Wakefield, RN
Stefanie Brown, RN	Vickie Groce	Richard Wright
David Brumley, DDS	Penny Hawk	
Robert J. Carter, DA	Jill Murdock, RN	

JD 18 (Sumner County)

Chief Kenny Armstrong	Chief David Hindman	Jennifer Thomas
Alison Asaro, MD	Chief Mark Jenkins	Ricky Troupe
Jay Austin	Tammy Lee	Darkis Selman
Christy Brown	Jan Lovell	Det. Jim Vaughn
Amy Burke-Salyers	Kimberly Primm, RN	Ray Whitley, JD
D.A. Robert J. Carter	Morgan Radley	Tara Wyllie, JD
Denney Coarsey	Inv. Pete Ritchie	
Cicely Dixon	Sgt. Chris Shockley	

JD 1901 (Montgomery County)

Maj. Amanda Antle	Mary Davila	Maj. Domenick Nardi
Alison Asaro, MD	John Downs, MD	Sabrina Sanford
Gregory Beebe	Menzo Faassen	Fred Smith
Eric Berg, MD	Patrice Jessie	Joey Smith
Col. David Brown, MD	Maj. Scott Leifson	Julie Webb
John Carney, JD	Kimberly Lund, JD	Sarah Wilkins
Stacey Coulter	David Mendoza, MD	Danette T. Woodcock

JD 1902 (Robertson County)

Alison Asaro, MD	Regina Duffie	Nicole Martin
Hunter Butler, MD	Det. Elizabeth Leonard	Cleatsa Pope
Rebecca Chafatelli	Det. James Kendrick	Vanessa Watkins

JD 20 (Davidson County)

D'Yuanna Allen-Robb	Emily Dennison, MD	Hayley Moran
Alison Butler	Renee Erb	Gloria Morrison
Susan Campbell	Tony Hayes	**William Paul, MD**
Amy Campbell-Pittz	Margreete Johnson, MD	Cody Penrod
Erin Carney, MD	Johanna Lee	Raquel Qualls-Hampton
Det. Ron Carter	Charlsi Legendre	Scott Ridgway
Valerie Cook	Lillian Maddox-Whitehead	Sue Ross, RNC, PNP
Elizabeth Copenhaver	Brook McKelvey	Mary Ann Smith
Monica Coverson	Tammy Meade	Toney Turner
Trevor Crowder	Michael Meadors, MD	Jennifer Weatherly, RN
Bryan Currie		

JD 2101 (Hickman, Lewis, and Perry Counties)

Jim Bates	Stacey Edmondson	Charles Pierce
LeeAnne Boeringer	Jennifer Harris	Kimberly Primm, RN
Katelyn Bojorquez	Dee Hoover, TN	Gary Rogers
Dawn L. Bradley	Zachary Hutchens, MD	Sarah Russell
David Brumley, DDS	Felicia Love, RN	**Lang Smith, MD**
Mike Clements	Brandi Mackin,RN	Jim Tanner
Danny Cupples	Vickey, Mangrum, RN	Renee Whaley, RN
DeAnna Darden-Carroll	Shaun Noblit	Tabitha Whitehead

JD 2102 (Williamson County)

Sgt. Charles Achinger	Sgt. Tommy Justus	Samuel Smith, MD
Alison Asaro, MD	Shannon Langford	Capt. Cindy Strange
Stokey Bourque	Feng Li, MD	Tamara Swinson
Det. Robert Cardan	Jeff Long	Lt. Monty Terry
Regina Duffie	Zannie Martin	Richard Westgate, RN
Robin Fairclough	Tamara Mick	Lt. John P. Wood
Alicia Hardemon	Peggy Phillips	Brittany Youngblood
Chris Holz	Det. Tameka Sanders	

JD 2201 (Giles, Lawrence, and Wayne Counties)

Pam Arnell	Susan Frencei	Shaun Noblit
Erica Barnett, RN	Joe Fite, MD	Kimberly Primm, RN
LeeAnne Boeringer	Alicia Greenfield, RN	Sherry Ray
Dawn L. Bradley	Roy Griggs	Denise Sanders
Tracy Brumit	Lisa Hardison	**Lang Smith, MD**
David Brumley, DDS	Brigitte Massey	Keith Tolar MD
Mike Clements	Janet McAlister	Devin Toms

JD 2202 (Maury County)

LeeAnne Boeringer	Sgt. Jeff Duncan	Micheal Kash
Katelyn Bojoquez	Susan Ferencei	Andrew Kenney
David Brumley, DDS	Tommy Goetz	Gayle Martin
Mike Clements	Jason Griggs	Shaun Noblit
Brent Cooper, DA	Barbara Heier, RN	Jennifer Owens, RN
Danny Cupples	E. Ann Ingram	**Lang Smith, MD**
Det. Terry Dial	Andy Jackson	Lisa Williamson

JD 23 (Cheatham, Dickson, Houston, Humphreys, and Stewart Counties)

Karen Anderson	Larina Corlew	Lawrence Jackson, MD
Alison Asaro, MD	Bryan DeRose	Venk Mani, MD
Det. Mark Bausell	Regina Duffie	Kay Marshock
Sgt. J.D. Blackwell	Christy Espey	Nicole Martin
Sharrie Booker	Maggie Filson	Inv. Ken Miller
Jo Brashers	Claudette Fizer	Capt. Randy Starkey
Comm. Eddie Breeden	Lt. Shannon Heflin	Timothy Stavely
Alana Carmical	James Hutcherson	Kevin Suggs

JD 24 (Benton, Carroll, Decatur, Hardin, and Henry Counties)

Pansey Davis, MD	Diane Oman	Johnny Wilson
Phillip Christopher	Kathy Smith	Representative from
Christy Espey	Danny Tucker	local D.A.'s office
Lt. Johnny Hill	Becky Butler White	

JD 25 (Fayette, Hardeman, Lauderdale, McNairy, and Tipton Counties)

Falen Chandler	Ginny Jaco	Kathy Smith
Shavetta Conner, MD	Linda F. Moss	Det. Sheri Wassel
Det. Scottie DeLashmit	Rives Seay	Inv. David Webb
Richard Griggs	James Shelton	Tracy Worlds

JD 26 (Chester, Henderson, and Madison Counties)

Corie Currie	Donna Heatherington	**Shanna Shearon, MPH**
Inv. David Dowdy	Sgt. Danielle Jones	Leighann Sutton
Bradley Crouse	Rodger Jowers	Blair Weaver
Harlin Fesmire	Sgt. T.J. King	Lt. Brad Wilbanks
Kesha Harris	Atty. Stuart Mills	
Tammy Hardee	Lisa Piercey, MD	

JD 27 (Obion and Weakley Counties)

Shavetta Conner, MD	Keith Jones	Tommy Thomas
Christy Espey	Marty Plunk	Drew Vernon
Lt. Phillip A. Gibson	Laura Toney	Chief Randall Walker
James Robert Halter	Kathy Smith	Rick Workman

JD 28 (Crockett, Gibson, and Haywood Counties)

Gary Brown, JD	Inv. Dennis Mitchell	Kathy Smith
Shavetta Conner, MD	Elashia Ramsey	Det. Andrew Whitehead
John Copeland	Tony Rankin	Selina Williams
Christy Espey	Maigon Shanklin	
Chief Roger Jenkins	David Smith	

JD 29 (Dyer and Lake Counties)

Jerry Ballhagen	Jack Mauldin	Lisa Stanley, RN
Phil Bivens, JD	Terry McCreight	Stephen Sutton
John Cummings, MD	James Melding	Tim Ware
Christy Espey	Chad Sipes	Capt. Billy Williams
Jessica Lamkin	Brad Smith	
Calvin Johnson	Kathy Smith	

JD 30 (Shelby County)

Patricia Bafford, Ed.D.	Dep. Chief Jim Harvey	Vanessa Roberts
Jamila Batts, RN	Susan Helms, RN	Col. Mike Ryall
Lee Branch	Gannon Hill	Andrea Sebastian
Sgt. D. Brunson	Ginny Hood	James Sewell
Mark Bugnitz, MD	Paula Humphrey	Carrie Shelton
Karen Chancellor, MD	Pamela Kiestler	Sam Sheppard
Eric Christensen, JD	Karen Lakin, MD	Ajay Talati, MD
Ronald Collins	Jim Logan	Michelle Taylor
Joshua Corman	Jason Martin	Det. Jason Valentine
Meg Harmeier	Katie McKinnie	Denise Webb
DeShawn Harris	**Helen Morrow, MD**	Brandi Willis
Sgt. Paula Harris	Jennifer Nichols, JD	
Chief Andrew Hart	Tully Reed	

JD 31 (Van Buren and Warren County)

Faye Braxton	Andrea Fox	Charles Morgan, MD
Alicia Cantrell	Pam Gannon	Kristi Paling
Eddie Carter	Don Grisham, MD	James Payne
Bobby Clark	Kellie Harmon	Jacquelin Powell
Jean Coffee	Brian Madewell	RosseAnn Riddle
Tina Davis, RN	Jackie Mathney	Lisa Zavogiannis, JD
Preston Denney	Thomas Miner	
Mindy Doyle	Lynn Mitchell	

Statement of Compliance with 2012 Tenn. Pub. Acts, ch. 1061 (the "Eligibility Verification for Entitlements Act") as required by Tenn. Code Ann. § 4-57-106(b)
None of the department's activities relative to the Child Fatality Review Teams involve the provision of services to individuals who are subject to the SAVE Act.