

2019 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 2017

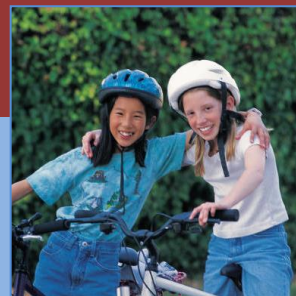


TABLE OF CONTENTS

TABLE OF CONTENTS.....	ii
ACKNOWLEDGMENTS	iv
DATA CONFIDENTIALITY	iv
EXECUTIVE SUMMARY	v
STATE CHILD FATALITY TEAM MEMBERS (2019 CHILD FATALITY REPORT).....	1
INTRODUCTION.....	2
<i>The Child Fatality Review Process in Tennessee</i>	2
Data Overview	5
<i>Summary of Child Mortality Data</i>	5
<i>Specific Causes of Death</i>	13
<i>Summary of Infant Mortality Data</i>	16
<i>Prevention Analysis</i>	18
<i>Acts of Child Abuse and Neglect</i>	20
<i>Deaths to Children with Special Circumstances</i>	23
<i>Sudden Death in the Young (SDY) Registry Project</i>	25
DETAILED REVIEW: SPECIFIC CAUSES OF DEATH	29
<i>Intentional Violence-Related Deaths</i>	29
<i>Homicide Deaths</i>	30
<i>Suicide Deaths</i>	33
<i>Weapons-Related Deaths</i>	37
<i>Sleep-Related Infant Deaths</i>	41
<i>Asphyxia Deaths</i>	47
<i>Motor Vehicle and Other Transportation Deaths</i>	50
<i>Drowning-Related Deaths</i>	53
<i>Fire/Burn Deaths</i>	56
<i>Poisoning Deaths</i>	59
<i>Fall/Crush Deaths</i>	62
<i>Prevention Recommendations for 2019</i>	64
DATA TO ACTION.....	66
<i>Statewide Activities</i>	66
<i>Local Prevention Activities</i>	70
CONCLUSION	72
APPENDICES	73
<i>Appendix A—Table and Figures</i>	73
<i>Appendix B—Glossary</i>	76
<i>Appendix C—Child Deaths by County of Residence</i>	79
<i>Appendix D—Infant Deaths by County of Residence</i>	82

Appendix E—State Level Success Stories..... 85
Appendix F—Local Success Stories..... 88
Appendix G—Local Child Fatality Review Team Members and Staff..... 91

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 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, Tennessee Hospital Association, law enforcement, 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

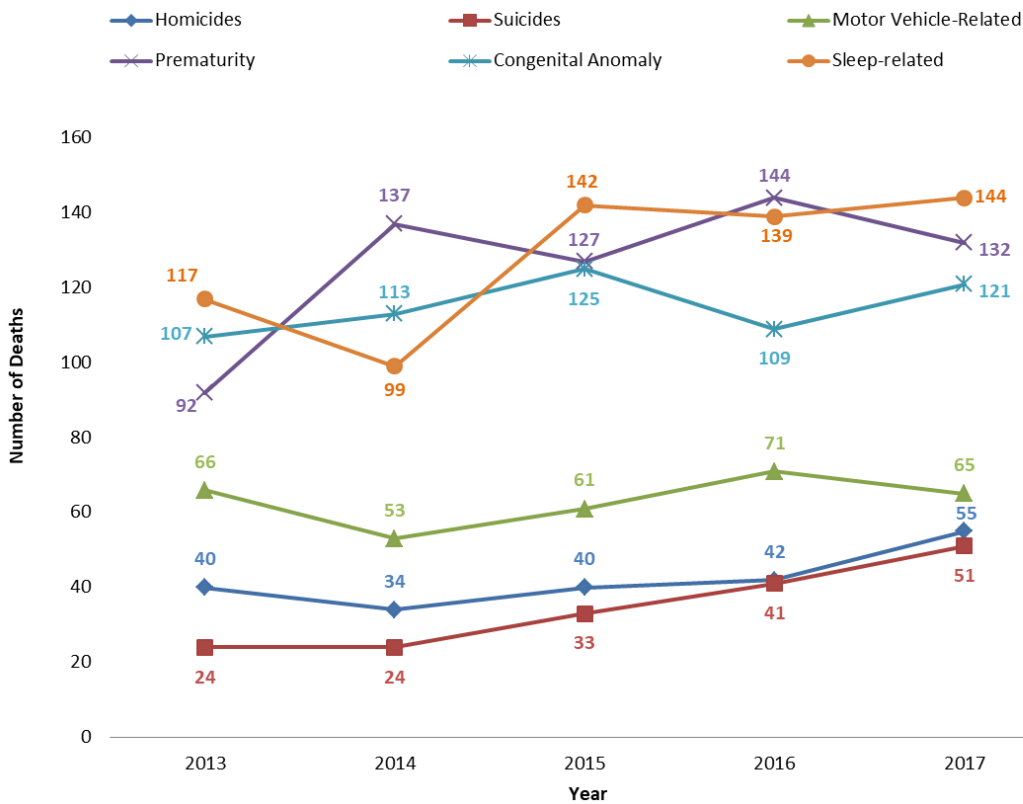
Please note: Portions of the information and data contained in this report were compiled from records that are confidential and contain information which is protected from disclosure to the public, pursuant to Tennessee Code Annotated 68-142-108.

EXECUTIVE SUMMARY

The data contained in this report primarily represent review of deaths occurring in children under the age of 18 years during the calendar year of 2017. Local teams across the state reviewed all eligible 2017 deaths during 2017 and 2018.* Given that only eligible child deaths are reviewed, this report also includes some of the latest mortality statistics for all child deaths occurring in Tennessee. There were a total of 980 child deaths in 2017, of which 896 were reviewed by local teams. The state child fatality review team developed the following report and recommendations based on these reviews.

Figure 1 provides comparisons of child fatalities for selected causes of death. The graph specifically highlights causes that have increasing numbers of deaths or have shown very little improvement in the number of deaths over the past 5 years.

Figure 1. Summary of Year-to-Year Trends for Selected Causes of Deaths Reviewed Tennessee, 2013-2017*



*Causes are not mutually exclusive

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

* 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. Therefore, this number may differ from that published in other Departmental reports.

Key Findings Overview:

- In 2017, 980 deaths occurred in children under age 18 years in Tennessee. Tennessee's 2017 child mortality rate (65.3 per 100,000) is statistically unchanged from the 2016 rate (64.7 per 100,000) and continues to exceed the 2016 national rate (50.9 per 100,000), which is the most recent rate available for the United States. **There has been a significant increase of 11 percent in Tennessee's child mortality rate since 2013 (58.6 per 100,000).**
- In 2017, 597 deaths occurred in children under age 1 year—the same number of deaths that occurred in 2016. The infant mortality rate of 7.4 per 1,000 live births for 2017 was identical to that of 2016.
- Racial disparity continues to exist 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 2017, black children were twice as likely to die than white children.
- Prematurity is the leading cause of death among Tennessee infants (132 infant deaths, 15 percent of reviewed deaths), followed by congenital anomaly (121 infant deaths, 13 percent of reviewed deaths) in 2017.
- There were 144 sleep-related infant deaths in 2017 (28 percent of reviewed infant deaths). This compares to 139 deaths in 2016. The rate of sleep-related infant deaths was 1.8 per 1,000 live births in 2017, which is statistically unchanged from the 2016 rate (1.7 per 1,000 live births).
- Tennessee's male children accounted for a disproportionate percentage of reviewed child fatalities compared to females (59% vs. 41%, respectively). For the past five years, male children have had a higher mortality rate than females.
- Fifty-five deaths of children in 2017 (6% of all reviewed deaths) were the result of homicide. There were 42 child homicide deaths in 2016. The greatest percentage of homicide deaths occurred in the child's home (45%, which is the same as 2016 and 5 percent higher than 2013). Firearms accounted for 64 percent of child homicide deaths.
- Fifty-one young people died by suicide in 2017 (6% of all reviewed deaths). There were 41 child suicide deaths in 2016. Firearms accounted for 59 percent of suicide deaths. The greatest percentage of suicide deaths occurred in the child's home (63%). More children ages 10-17 died by suicide than in motor vehicle crashes in 2017.
- The rate of motor vehicle deaths is statistically unchanged since 2013.

The number of preventable deaths in children 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.

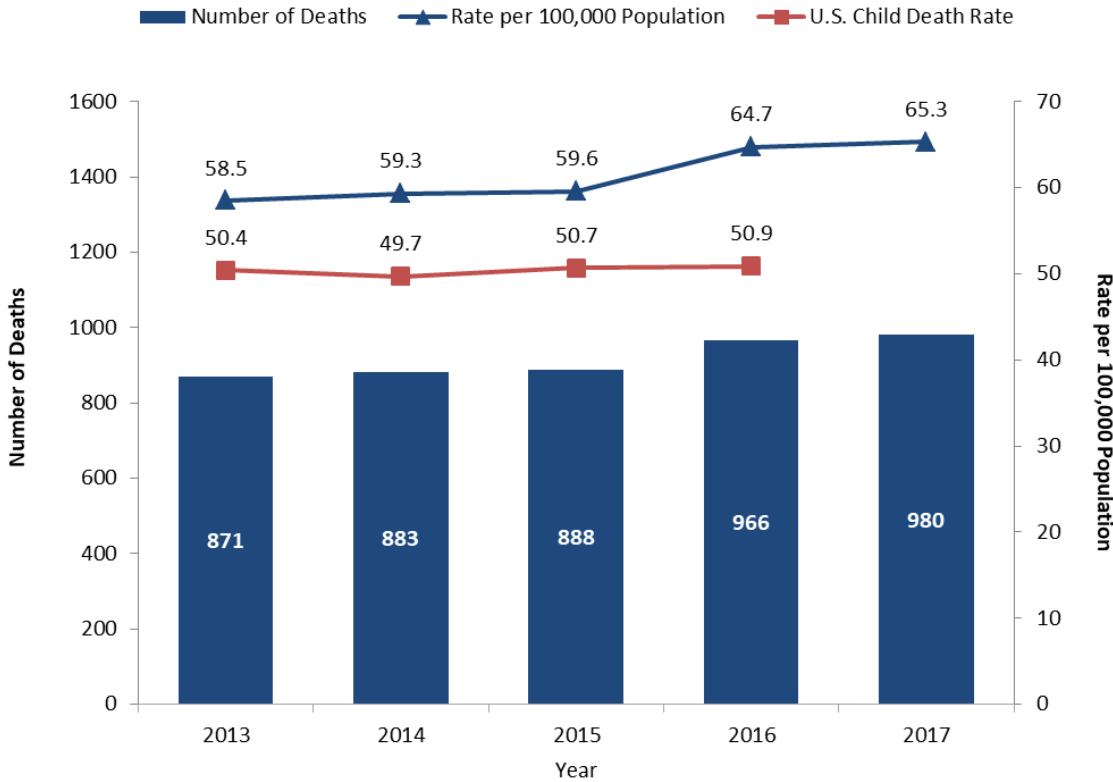
Summary of 2019 recommendations:

1. **Suicide-** Implement a Tennessee Department of Health (TDH) suicide prevention program with a focus on understanding causes of the escalating trend in violence and implementing prevention programming. In addition, collaborate with partners to better understand the impact of early traumatic experiences in childhood, media exposure, access to lethal means, and other factors upon teen suicide trends.
2. **Teen Motor Vehicle Crashes-** Increase evidence-based motor vehicle crash (MVC) prevention programs, such as Checkpoints™, in counties with the highest MVC-related child death rates.
3. **Safe Sleep-** Expand efforts to improve the safety of infant sleep environments by increasing the number of community agencies implementing safe sleep education. In addition, partner with multiple state agencies to provide safe sleep education and portable cribs to families.
4. **Racial Disparities-** Expand strategies to impact those causes/manners of death with large racial and ethnic disparities, such as sleep-related deaths and homicides.
5. **Medical-** Increase access to medical services, such as family planning, 17-hydroxyprogesterone (17-OHP) and nicotine replacement therapy (NRT) to help promote healthy pregnancy and interconception care.

General

The overall 2017 child mortality rate for Tennessee was 65.3 child deaths per 100,000 children, a rate that did not change significantly compared to the 2016 rate of 64.7 per 100,000 children. However, since 2013 there has been a 12 percent increase in Tennessee’s rate, which is a statistically significant change (2013 rate was 58.5 per 100,000). Tennessee’s child mortality rate continues to exceed the national rate. Tennessee’s 2017 rate is 28% higher than the 2016 U.S. rate, the latest year for which national data are available. The number and rate of child deaths in Tennessee and the U.S. for the past five years are shown in Figure 2.

Figure 2. Number and Rate of Child Deaths for Ages 0-17 Years Tennessee, 2013-2017



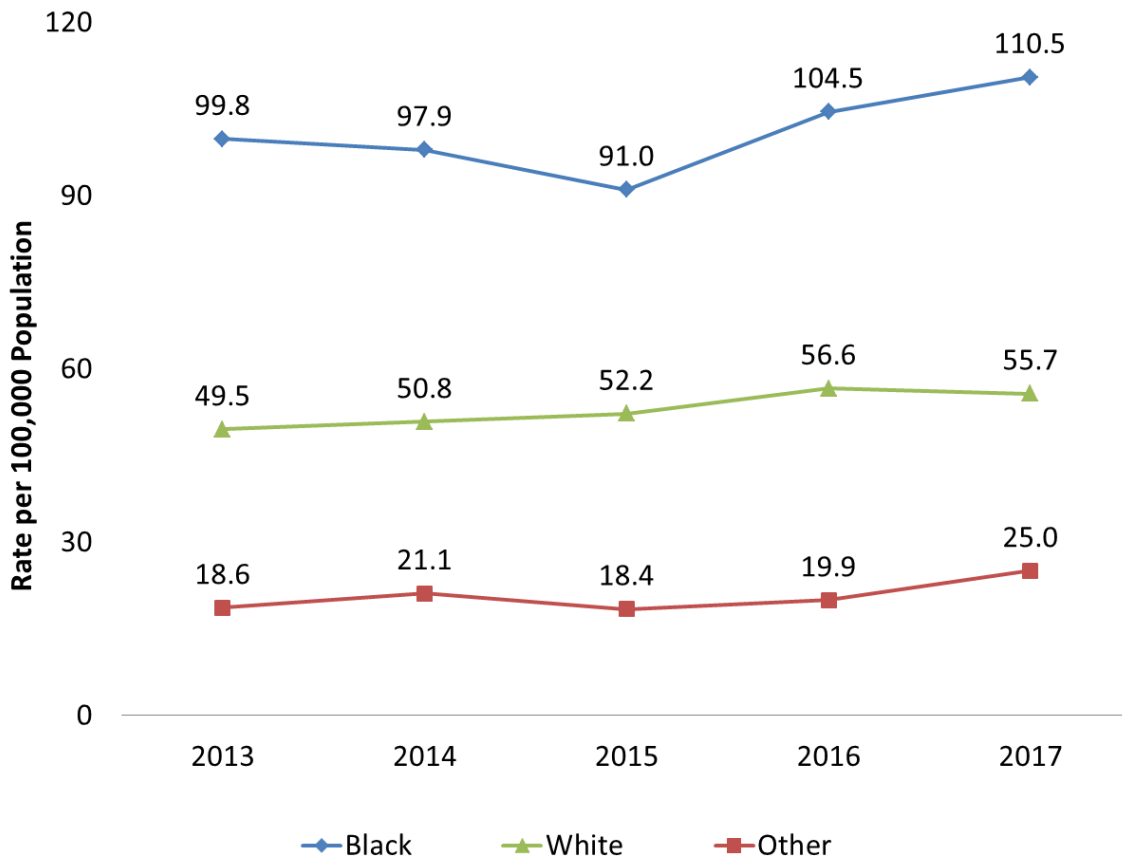
Data source: Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2013-2017. Population estimates based on interpolated data from the U.S. Census’s Annual Estimates of the Resident Population; National Rates: CDC Wonder

- The first year of life continues to be the most perilous for Tennessee’s children, accounting for 57 percent of all deaths among children less than age 18 years. Children ages 15-17 years and 1-4 years suffered the next highest percentages of deaths at 14 percent and 13 percent, respectively.
- Tennessee’s male children accounted for a disproportionate percentage of child fatalities compared to females (59% vs. 41%, respectively). The child mortality

rate for males in 2017 (75.0 per 100,000) was 1.4 times higher than that of females (55.1 per 100,000). Over the past five years, male children have had a higher mortality rate than females.

- Racial disparity continues to exist 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 3 and Table 1). In 2017, the mortality rate among black children was twice that of white children. There was no significant change in race-specific mortality rates from 2016 to 2017.

**Figure 3. Child Mortality Rate for Ages 0-17 Years by Race
Tennessee, 2013-2017***



*Other races: include 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.

Data source: Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2013-2017. Population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

**Table 1. Number and Rate of Child Deaths for Ages 0-17 Years by Race
Tennessee, 2013-2017**

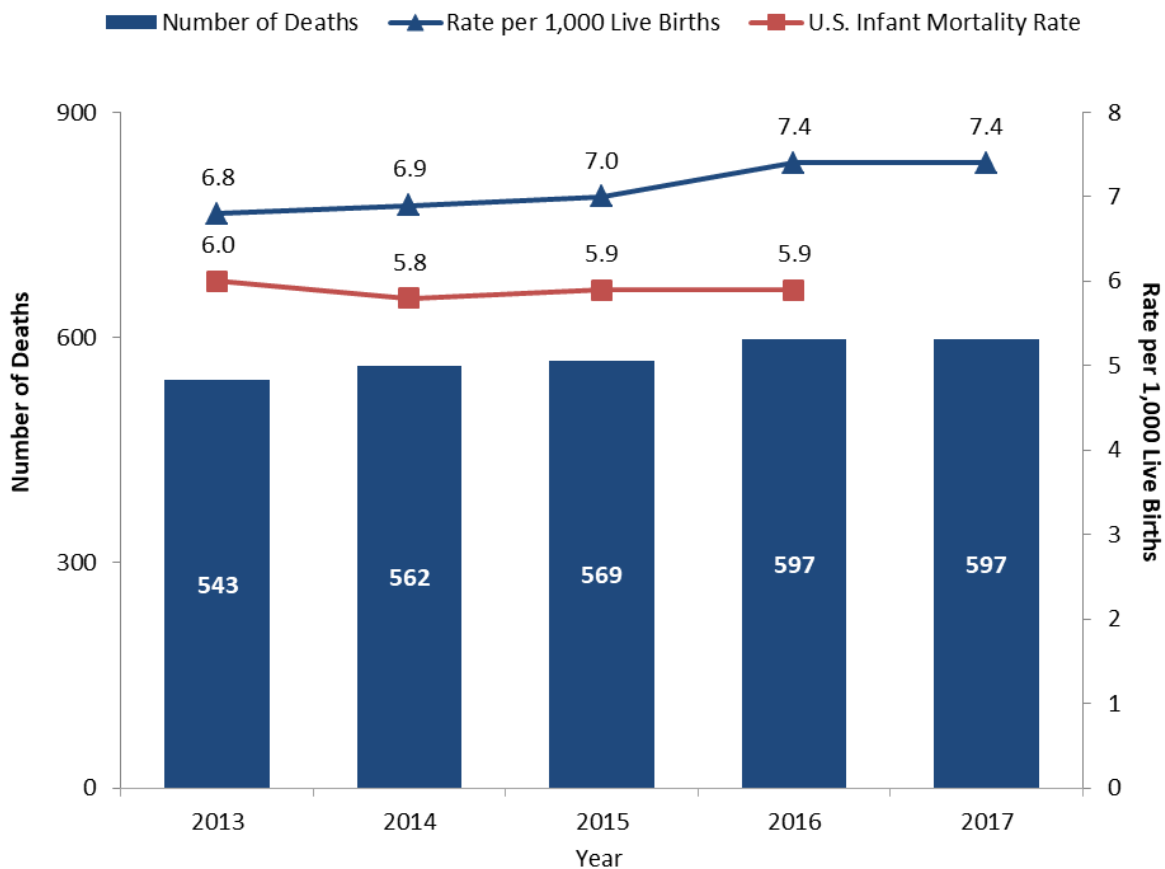
Year	Blacks			Whites			Black-White Disparity
	Number of Deaths	Child Population	Rate per 100,000 Population	Number of Deaths	Child Population	Rate per 100,000 Population	Disparity Ratio
2013	302	302,655	99.8	540	1,095,152	49.5	2.0
2014	295	301,419	97.9	555	1,092,578	50.8	1.9
2015	274	301,100	91.0	569	1,090,727	52.2	1.7
2016	313	299,487	104.5	619	1,093,476	56.6	1.8
2017	331	299,588	110.5	612	1,098,171	55.7	2.0

Data source: Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2013-2017
Population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

Infant Mortality

The overall 2017 infant mortality rate was 7.4 infant deaths per 1,000 live births--unchanged from 2016. Historically, the infant mortality rate decreased 8 percent from 2011 (7.4 per 1,000 live births) to 2013 (6.8 per 1,000 live births), then increased to 7.4 per 1,000 live births in 2016 and 2017. Similar to the overall child fatality rate, Tennessee's infant mortality rate continues to exceed the national rate. Tennessee's 2017 rate is 25% higher than the 2016 US rate, 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 five years are shown in Figure 4.

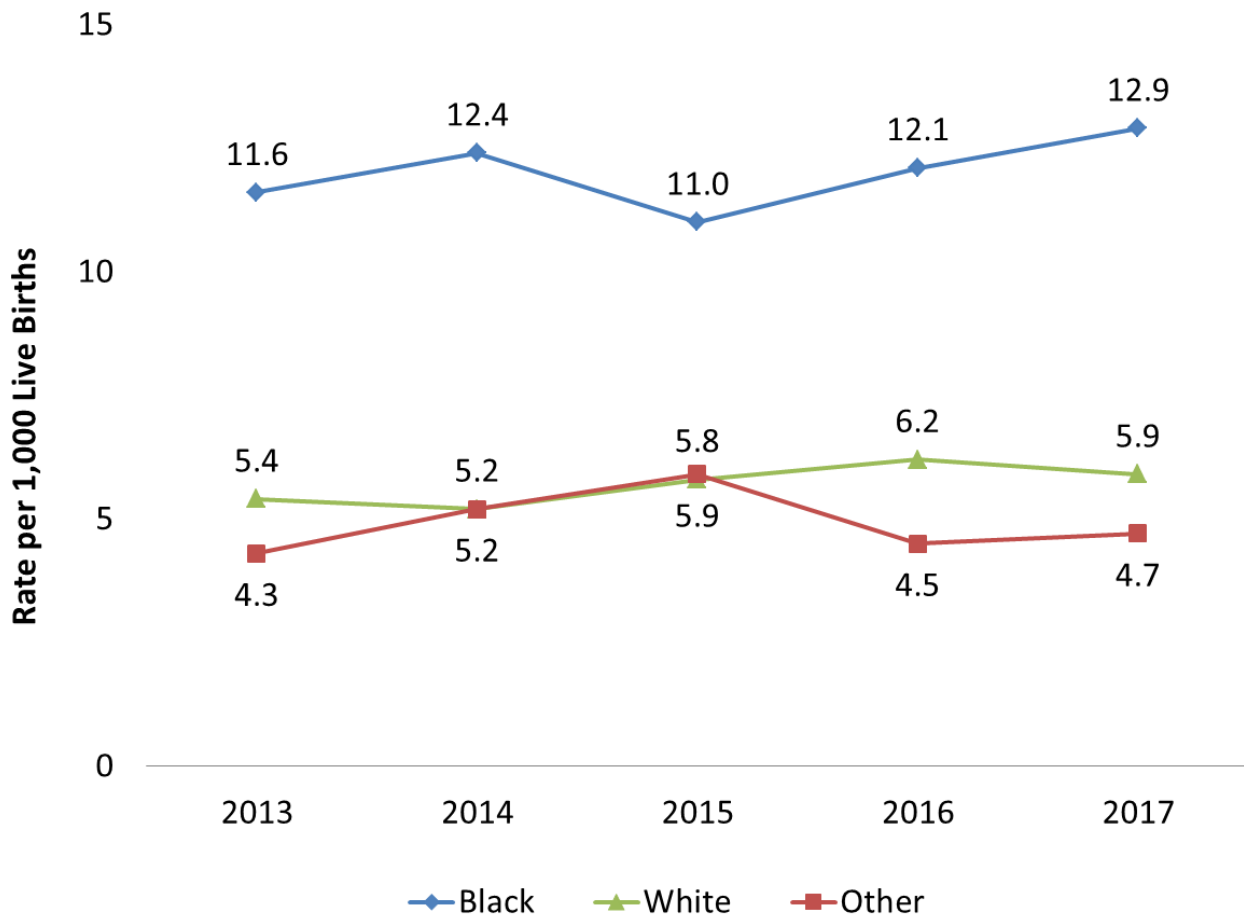
**Figure 4. Number and Rate of Infant Deaths for Ages Less than 1 Year
Tennessee, 2013-2017**



Data source: Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2013-2017.

- In 2017, 144 infants died from suffocation, strangulation, or other factors in the sleep environment. This compares to 139 in 2016.
- Racial disparity continues to exist among infants who suffer fatalities, with black infants having a mortality rate that is consistently twice that of white infants (Figure 5 and Table 2). The 2017 white and black infant mortality rates did not change significantly when compared to their respective 2013 rates.

**Figure 5. Infant Mortality Rate for Ages Less than 1 Year by Race
Tennessee, 2013-2017***



*Other races include 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.
Data source: Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2013-2017.

**Table 2. Number and Rate of Infant Deaths for Ages Less than 1 Year by Race
Tennessee, 2013-2017**

Year	Blacks			Whites			Black-White Disparity
	Number of Deaths	Live Births	Rate per 1,000 Live Births	Number of Deaths	Live Births	Rate per 1,000 Live Births	Disparity Ratio
2013	196	16,863	11.6	327	60,954	5.4	2.1
2014	212	17,061	12.4	326	62,096	5.2	2.4
2015	184	16,714	11.0	360	61,648	5.8	1.9
2016	198	16,359	12.1	377	61,046	6.2	2.0
2017	213	16,551	12.9	361	60,770	5.9	2.2

Data source: Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2013-2017.

Manner of Death

Manner of death refers to the intent of a death (natural, accident, suicide, homicide, or undetermined). Additional details are available in the “Data Overview” section of this report.

- In 2017, the manner of 519 deaths was determined to be natural (from medical causes) and 156 deaths were determined to be accidental. By comparison, there were 446 natural deaths in 2016 and 176 accidental deaths.

Cause of Death

Cause of death refers to the effect, illness, or condition leading to an individual’s death. The cause may be due to a medical condition or an external cause (injury).

- In 2017, 523 reviewed child deaths (58%) were due to a medical condition; 70 percent were infants. This compares to 473 deaths in 2016.
- Prematurity and congenital anomaly were the leading causes of death from a medical condition.
- In 2017, 273 reviewed child deaths were due to external causes, including motor vehicle crashes, weapons, asphyxia, fire/burns, poisoning or overdose, and fall/crush.
 - Sixty-five children (7% of all reviewed deaths) died in motor vehicle crashes in 2017, a decrease from the 71 vehicular deaths in 2016.
 - One hundred and two children (11% of all reviewed deaths) died from weapons-related injuries, a 29 percent increase from the 79 children who died in 2016. Fifty-two (51%) of the weapons-related fatalities were homicides, 41 (40%) were suicides, 9 (9%) were accidental, undetermined or pending.
 - Fifty children (6% of all reviewed deaths) died of unintentional asphyxia; 41 of these children died in a sleep-related environment. This represents an increase in unintentional asphyxia cases of 11 percent from 2016 (45 asphyxia deaths, 36 of which occurred in a sleep-related environment).
 - Fourteen (2% of all reviewed deaths) children died from a fire, burn or electrocution, a decrease of 15 deaths when compared to the 29 deaths in 2016.
 - Nineteen children (2% of all reviewed deaths) died by drowning, a 14 percent decrease (not statistically significant) from the 22 cases in 2016.
 - Five children (0.6% of all reviewed deaths) died from poisoning in 2017. Two of five poisoning fatalities involved prescription drugs.

STATE CHILD FATALITY TEAM MEMBERS **(2019 CHILD FATALITY REPORT)**

Chair

John J. Dreyzehner, MD MPH FACOEM
Commissioner
Tennessee Department of Health

Co-Chair

Morgan McDonald, MD, FAAP, FACP
Assistant Commissioner
Director, Division of Family Health and Wellness
Tennessee Department of Health

Members

Monique Anthony
Tennessee Department of Health

Valerie Arnold, MD
Tennessee Medical Association

Senator Richard Briggs, MD
Tennessee Senate

Howard Burley, MD
Tennessee Department Mental Health and
Substance Abuse Services

Thomas Cheetham, MD*
Tennessee Department of Intellectual and
Developmental Disabilities

Donna Scott Davenport
Tennessee Supreme Court

Michelle Fiscus, MD
Tennessee Department of Health

Julia Goodin, MD, MPA
Office of the State Chief Medical Examiner

Tiffany Goodpasture
Tennessee Department of Children's
Services

Rachel Heitmann
Tennessee Department of Health

Mike Hermann
Tennessee Department of Education

Bonnie Hommrich
Tennessee Department of Children's
Services

Senator Brian Kelsey
Tennessee Senate

Richard Kennedy
Tennessee Commission on Children and
Youth

April Kincaid
Tennessee Department of Health

Adele Lewis, MD
Office of the State Chief Medical Examiner

Linda O'Neal
Tennessee Commission on Children and
Youth

Senator Doug Overbey
Tennessee Senate

Representative Antonio Parkinson
Tennessee House of Representatives

Lori Paisley
Department of Education

Kristen Rector
Prevent Child Abuse Tennessee

Scott Ridgway
Tennessee Suicide Prevention Network

Sue Sheldon
Office of the Attorney General

Michael Warren, MD, MPH
Tennessee Department of Health

Representative Ryan Williams
Tennessee House of Representative

*Special thanks to the late Dr. Thomas Cheetham for serving on the State Child Fatality Review team for several years. The impact of his efforts to champion the needs of our state's most vulnerable children will be felt for years to come.

INTRODUCTION

The Child Fatality Review Process in Tennessee

Child deaths are often regarded as an indicator 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 aged 0-17 years die in the United States.¹ Through child death review, local multidisciplinary teams meet in communities across the country to review case information in the hopes of better understanding why children die and what actions may be taken to prevent future deaths. The National Center for Fatality Review and Prevention provides national-level leadership for state and local child fatality review teams. As of 2018, every state and the District of Columbia had a system for reviewing child deaths.²

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 by law to attend CFR team meetings, 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

¹ 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>.

² 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 in making improvements in protocols and procedures that may prevent future child deaths in Tennessee.

Review of Child Fatality Review Data

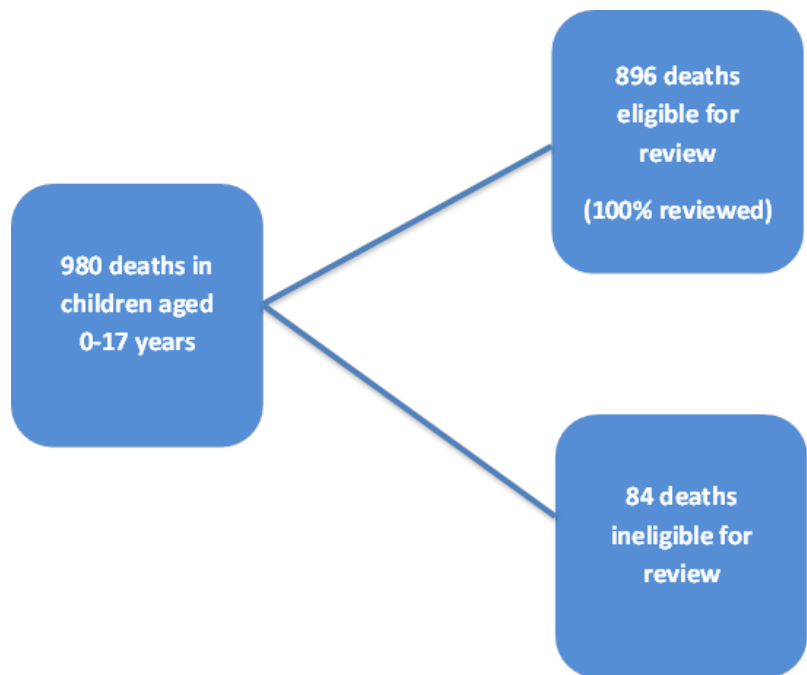
The CFR data included in this report represent thoughtful inquiry and discussion by a multi-disciplinary group of community leaders who consider all the circumstances surrounding the death of each child. These leaders provide information from a variety of agencies, documents, and areas of expertise.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

Of the 980 deaths in 2017, 91 percent (n=896) met the review criteria. Eighty-four 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. For the past five years, all child deaths were reviewed before the annual report was released. The completion of all 2017 death reviews is a reflection of the dedication of local CFR teams and partnering state agencies.

Deaths of infants less than 23 weeks gestation and less than or equal to 500 grams in weight are not reviewed, as 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 child death 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 Fatality Review and Prevention, 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's 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. Detailed case review may reveal information that results in classifications made in this report that are differ with those contained within reports from other agencies or departments.

DATA OVERVIEW

Summary of Child Mortality Data

The overall rate of child fatalities for 2017 was 65.3 per 100,000 children under 18 years of age.

In 2017, there were 980 child deaths in Tennessee, of which 896 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 57 percent of all reviewed deaths (Figure 6). Males died more frequently than females (59 and 41 percent of child fatalities, respectively) (Figure 7). Racial disparity exists among child fatalities, as well (Figure 8). While the majority of deaths were among white children, black children suffered a higher rate of mortality than whites or other races.

Figure 6. Child Deaths Reviewed by Age Group, Tennessee, 2017

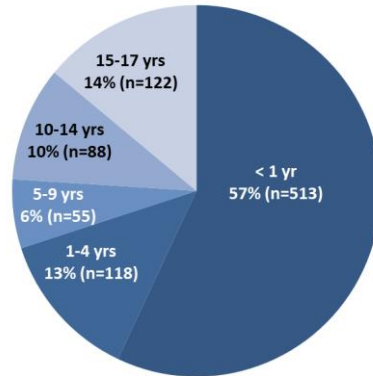


Figure 7. Child Deaths Reviewed for Ages 0-17 by Sex, Tennessee, 2017

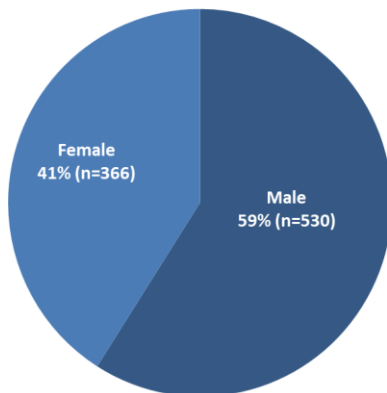
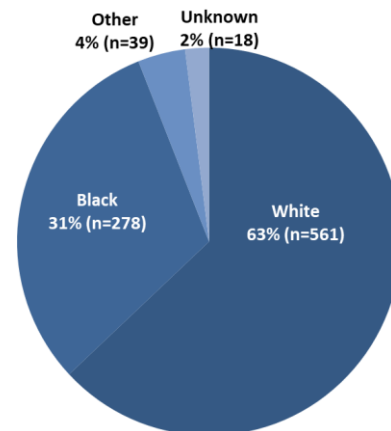


Figure 8. Child Deaths Reviewed for Ages 0-17 by Race, Tennessee, 2017*



* Other race includes all other non-White or non-Black races.

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

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 resulting from 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** (insufficient information is available to determine a manner of death, or there are two or more possible and 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 is 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. An **undetermined** case is one in which the investigation of circumstances surrounding the death fails to reveal a clear determination of cause or manner. 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. 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 896 deaths reviewed by the CFR teams in 2017:

- **Medical causes** represented 58 percent (523 cases) of deaths.
- **External (injury)** causes represented 31 percent (273 cases) of deaths.
- **Cases in which the cause of death remains “unknown” or “undetermined”**, as well as those cases that were missing information (n=1), represented 11 percent (100 total cases) of deaths. Of the cases marked as “undetermined” or “unknown”, 87 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 9 and 10 summarize the manners and causes of death for 2017 fatalities. Additionally, Figure 11 provides a breakdown of causes by age group. Note that causes of death are broad categories. Detailed information regarding specific causes of death is contained later in the report.

Figure 9. Manner of Death Summary, Children Ages 0-17 Years, Tennessee, 2017

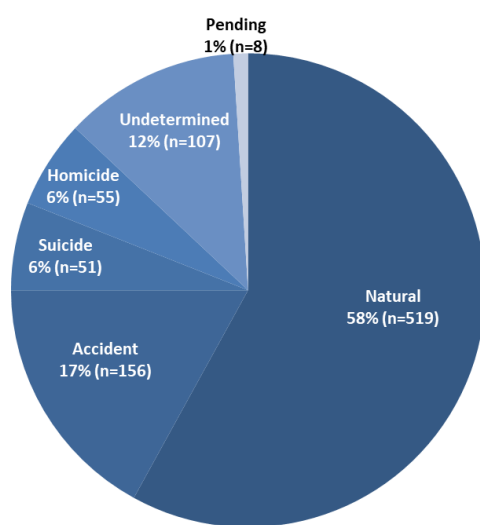
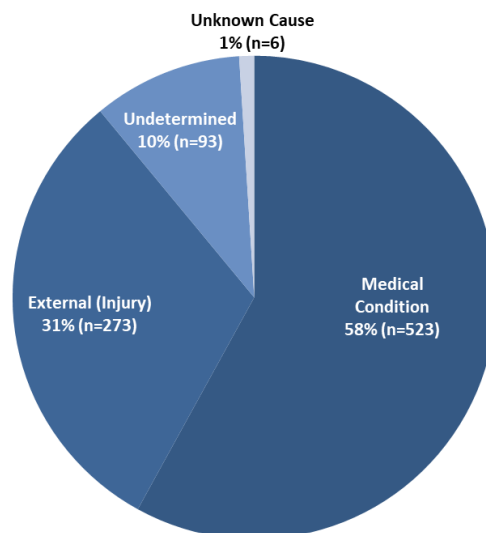


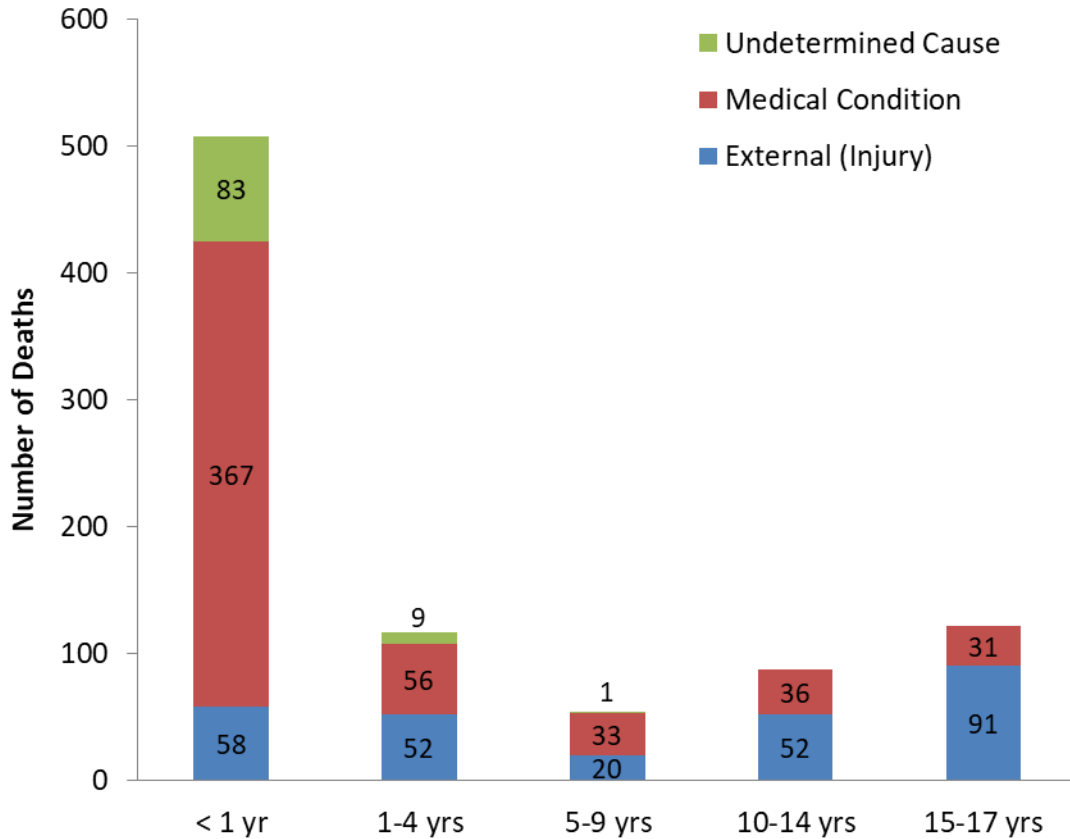
Figure 10. Cause of Death Summary, Children Ages 0-17 Years, Tennessee, 2017*



*Data for one case was missing cause of death and is not shown in Figure 10.

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

Figure 11. Medical and External Causes of Death for Children Ages 0-17 Years by Age Group Tennessee, 2017



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

In order to better understand cause and manner of death, it is important to examine 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 3, where the causes of death are stratified by manner. Table 4 and Table 5 provide demographic information for cause and manner of deaths, respectively.

**Table 3. Medical and External Causes of Death by Manner for Children Ages 0-17 Years
Tennessee, 2017**

Cause of Death	Manner of Death					
	Natural	Accident	Suicide	Homicide	Undetermined	Pending
External (Injury)	3	152	51	54	12	1
Medical condition	514	3	0	1	4	1
Undetermined Cause	1	1	0	0	91	0
Unknown	0	0	0	0	0	6
Total	518	156	51	55	107	8

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

**Table 4. Medical and External Causes of Death, Summary for Children Ages 0-17 Years
Tennessee, 2017**

	Cause of Death				Total
	External (Injury)	Medical Condition	Undetermined Cause	Unknown	
Total	273	523	93	6	895*
Age Group					
<1 yr	58	367	83	4	512
1-4 yrs	52	56	9	1	118
5-9 yrs	20	33	1	1	55
10-14 yrs	52	36	0	0	88
15-17 yrs	91	31	0	0	122
Race					
Black	82	155	38	3	278
White	178	331	48	3	560
Other	10	22	7	0	39
Unknown	3	15	0	0	18
Sex					
Male	181	299	45	4	529
Female	92	224	48	2	366

*One case was missing cause of death information and is not shown in Table 4.

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

**Table 5. Manner of Death, Summary for Children Ages 0-17 Years
Tennessee, 2017**

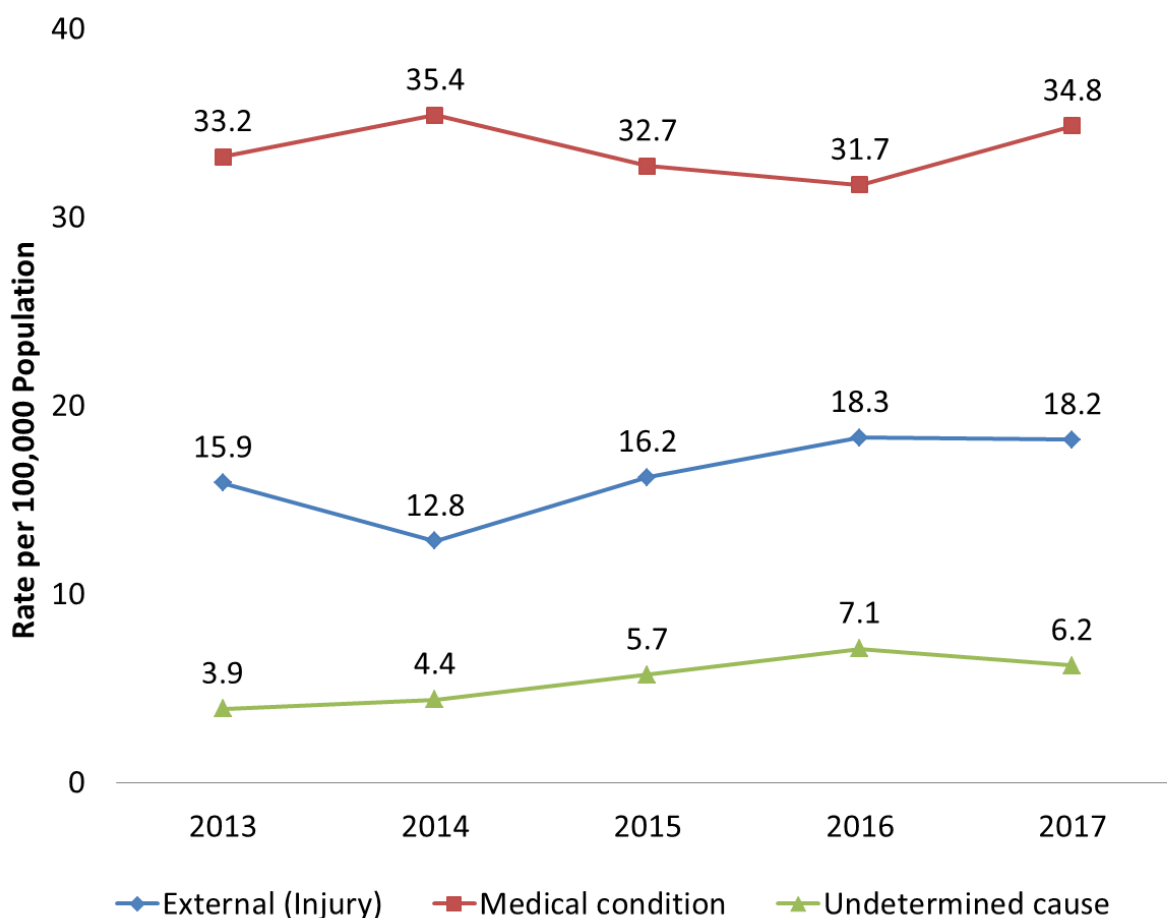
Manner of Death							
	Natural	Accident	Suicide	Homicide	Undetermined	Pending	Total
Total	519	156	51	55	107	8	896
Age Group							
<1 yr	362	45	0	10	90	6	513
1-4 yrs	57	38	0	10	12	1	118
5-9 yrs	33	18	0	2	1	1	55
10-14 yrs	36	25	14	9	4	0	88
15-17 yrs	31	30	37	24	0	0	122
Race							
Black	156	32	6	37	44	3	278
White	326	115	43	16	56	5	561
Other	22	6	2	2	7	0	39
Unknown	15	3	0	0	0	0	18
Sex							
Male	296	98	43	34	54	5	530
Female	223	58	8	21	53	3	366

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

Medical conditions were responsible for the highest rates of child fatalities when compared to rates of external and undetermined causes between 2013 and 2017 (Figure 12). Deaths due to medical conditions were nearly two times higher than external causes. When compared to their respective 2016 rates, 2017 rates for external, medical, and undetermined causes did not differ statistically.

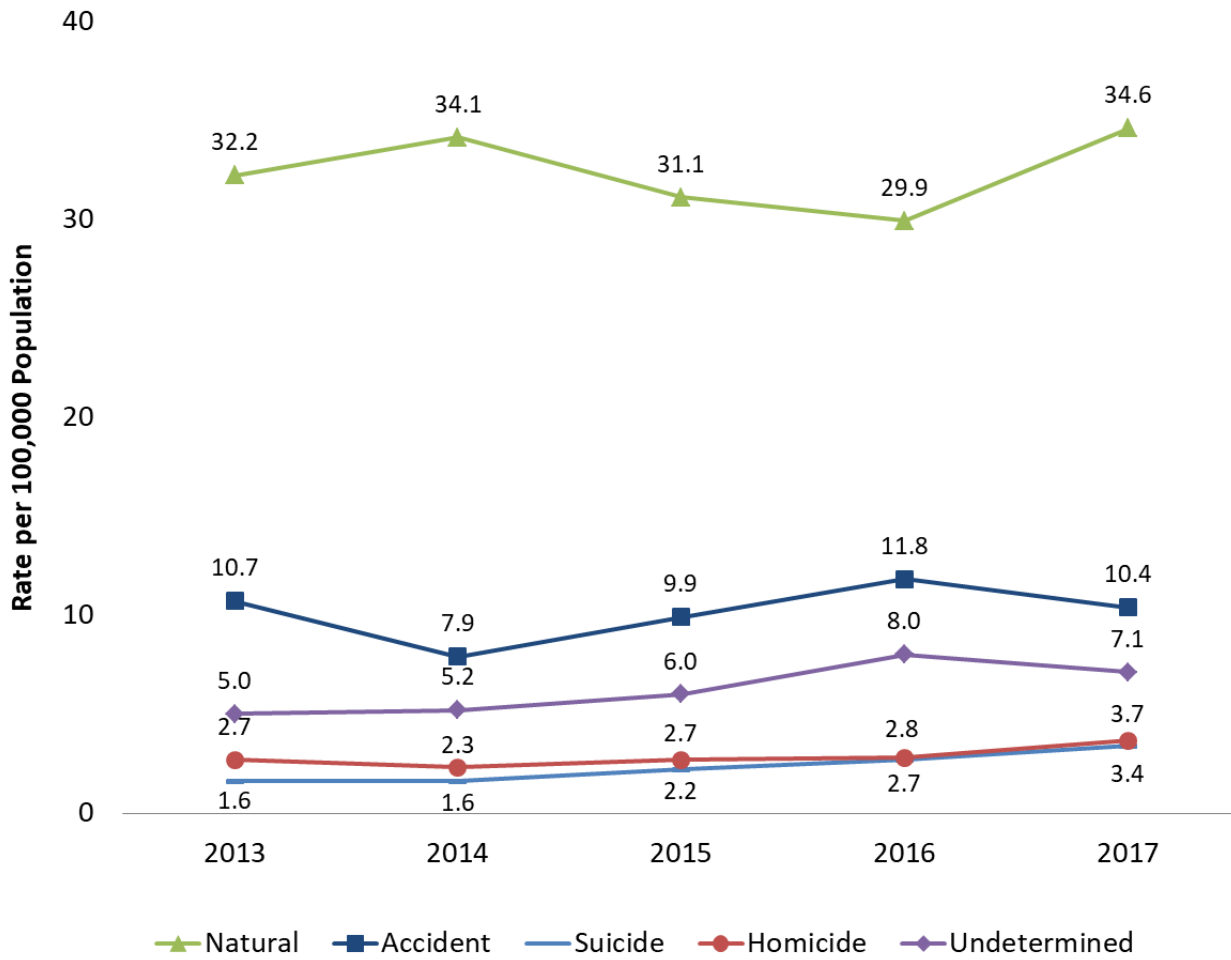
Trends in death rates based on the manner of death are shown in Figure 13. Rates were highest for natural manner of death, followed by accidents, undetermined, homicides, and suicides. For each manner of death, the 2017 rates did not differ statistically when compared to their respective 2016 rates.

Figure 12. Rate of Child Mortality Ages 0-17 Years by Cause of Death Tennessee, 2013-2017



Data source: Tennessee Department of Health, Child Fatality Review Database System.
Population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

**Figure 13. Rate of Child Mortality Ages 0-17 Years by Manner of Death
Tennessee, 2013-2017**



Data source: Tennessee Department of Health, Child Fatality Review Database System.
Population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

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. Table 6 provides a list of all external causes of death, as well as and the number of deaths represented by each classification, the classification's percentage of all reviewed deaths, and the number of deaths by classification and age group.

Of the 896 reviewed child deaths in 2017, 31 percent (273 deaths) were classified as having been due to external causes, including motor vehicle crashes, weapons, asphyxia, fire/burns, poisoning or overdose, and fall/crush. This is statistically unchanged when compared to the 274 deaths due to external causes in 2016. Detailed analysis for each specific injury death is provided in later sections of this report.

Table 6. External Cause of Death (Injury Causes) for Children Ages 0-17 Years by Age Group Tennessee, 2017*

Injuries	Total	Percent of Reviewed Deaths	Age Group				
			<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
Assault, weapon, or person's body part	102	11.4%	9	11	1	26	55
Motor vehicle or other transport	65	7.3%	2	18	6	14	25
Unintentional Asphyxia	51	5.7%	43	4	3	1	0
Drowning	19	2.1%	0	10	3	4	2
Fire, burn, or electrocution	14	1.6%	0	5	5	2	2
Other	14	1.6%	2	3	2	3	4
Poisoning, overdose or acute intoxication	5	0.6%	1	1	0	1	2
Fall or crush	3	0.3%	1	0	0	1	1
Undetermined	0	0.0%	0	0	0	0	0
Total	273	31%	58	52	20	52	91

External causes listed as "Other" include animal bites or attacks and exposures (migrated).
Data source: Tennessee Department of Health, Child Fatality Review Database System.

Within the medical classification, causes are further specified by particular conditions or disease entities. In 2017, **523 deaths (58%) 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 (28%). Other causes include infections, neurological conditions including seizures, and childhood cancers. In 2017, 58 percent of reviewed deaths were attributed to medical causes. Increases were observed in cardiovascular (17 cases in 2016 compared to 41 in 2017) and congenital anomaly (108 cases in 2016 compared to 121 in 2017). Medical causes of death are

outlined in Table 7. It is important to note that when SIDS and/or a Sudden Unexplained Infant Death (SUID) are identified on a death certificate, the cause is classified as “Medical” or “Undetermined.”

**Table 7. Medical Cause of Death for Children Ages 0-17 Years by Age Groups
Tennessee, 2017**

Medical Cause	Total	Percent of Reviewed Deaths	Age Group				
			<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
Prematurity	132	15%	132	0	0	0	0
Congenital anomaly	121	14%	107	10	1	1	2
Other medical condition*	85	9%	40	18	10	13	4
Cardiovascular	41	5%	18	6	7	3	7
Cancer	33	4%	1	8	10	6	8
Other infection	31	3%	21	6	2	1	1
Other perinatal condition	16	2%	15	1	0	0	0
Pneumonia	16	2%	7	5	2	1	1
Neurological/seizure disorder	12	1%	3	1	0	4	4
Asthma/Respiratory	11	1%	4	1	1	3	2
SIDS	5	1%	5	0	0	0	0
Influenza	2	0%	0	0	0	2	0
Diabetes	2	0%	0	0	0	2	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
Medical cause not listed	13	2%	11	0	0	0	2
Total	523	58%	367	56	33	36	31

*Other medical condition includes all other conditions that fall under a different category than those listed above, e.g. myocarditis or intestinal infarction.

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

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



Prevention opportunities include:

- Immunizing infants and children against vaccine-preventable 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 risk factors for premature delivery are identified.
- Avoidance of tobacco exposure to children, infants, and pregnant women.
- Promoting 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 about, 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 Federally Qualified Health Centers (FQHCs) to help women with presumptive Medicaid eligibility sign up for coverage on HealthCare.gov.
- TDH funds smoking cessation programs including the Tennessee Quit Line, a help line which offers smoking cessation services to anyone, and BABY & ME —Tobacco Free Program™, which provides support and incentives which encourage pregnant women who smoke to stop using tobacco.
- TDH promotes the “ABCs of Safe Sleep” campaign to reduce SIDS and other sleep-related deaths and continues to expand efforts with unconventional partners in order to reach all infant caregivers with the safe sleep message.
- Prevent Child Abuse Tennessee (PCAT) connected 87 percent of 399 families served by Healthy Families Tennessee (HFTN) to a medical home this fiscal year. Fifty-five percent of children enrolled in the HFTN program were up to date on immunizations by 2 years of age and 91 percent of women enrolled in the home visiting programs prenatally delivered full term infants.
- TDH family planning services provide birth control methods, including long acting reversible contraceptives, to interested women and encourage spacing between pregnancies to improve birth outcomes.
- TDH provides nicotine replacement therapies to safety net clinics via the Tennessee Primary Care Association and some local health departments.

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 as Tennessee's infant mortality rate remains above the national average. Tennessee's infant mortality rate declined from 2011 to 2013 (from 7.4 per 1,000 live births to 6.8 per 1,000 live births, respectively) but then increased from 2013 to 2017 (from 6.8 per 1,000 live births to 7.4 per 1,000 live births, respectively). Tennessee's infant mortality rate in 2017 was 25 percent higher than the 2016 national average of 5.9 per 1,000 live births (the last year for which national data are available)³. In 2017, the infant mortality rate in Tennessee was 7.4 per 1,000 live births, the 15th highest rate of any state in the United States.

In 2016, (the most recent year national data by cause of death 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 accounted for 67.5 percent of all infant deaths. By rank, the ten leading causes were:

1. Congenital malformations
2. Low birth weight
3. Sudden infant death syndrome (SIDS)
4. Maternal complications
5. Unintentional injuries
6. Cord and placental complications
7. Bacterial sepsis of newborn
8. Respiratory distress of newborn
9. Diseases of the circulatory system
10. Neonatal hemorrhage⁴

In 2017, there were 597 Tennessee infant deaths and **513 (85.9%)** were reviewed by local child fatality review teams.* Table 8 provides a list of the risk factors generally associated with infant mortality. It is important to note that, because the risk factors are not mutually exclusive, their total exceeds that of the 513 deaths.

* 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.

³ CDC Wonder.

⁴ <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm>;

National Vital Statistics Reports; vol 6564 no 49. Hyattsville, MD: National Center for Health Statistics.2016.

Table 8. Risk Factors Associated with Infant Deaths Reviewed by Tennessee CFR Teams, 2017*

Risk Factor	Total	Percent of Reviewed Infant Deaths	Manner of Death				
			Natural	Accident	Homicide	Undetermined	Pending
Premature	301	61%	256	12	4	27	2
Low Birth Weight	290	60%	252	9	3	24	2
Known Intrauterine Smoke Exposure	145	28%	80	23	5	34	3
Late (>6 months) or No Prenatal Care	58	14%	40	8	1	8	1
Known Intrauterine Drug Exposure	46	9%	19	12	2	13	0
Known Intrauterine Alcohol Exposure	3	1%	2	0	1	0	0

*Multiple risk factors may have been for any given death. As a result, the total risk factor occurrence exceeds the total number of deaths reviewed.

Data source: Tennessee Department of Health, Child Fatality Review Database System.*Data are not mutually exclusive.

As indicated in Table 8 prematurity and low birth weight were factors associated with many infant deaths. This is consistent with other analyses that indicate prematurity and low birth weight are major contributors to Tennessee’s infant mortality rate. Additionally, 28 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’ gestation; whereas, Appendix D includes infant deaths of all live-born children, regardless of weight or gestational age.

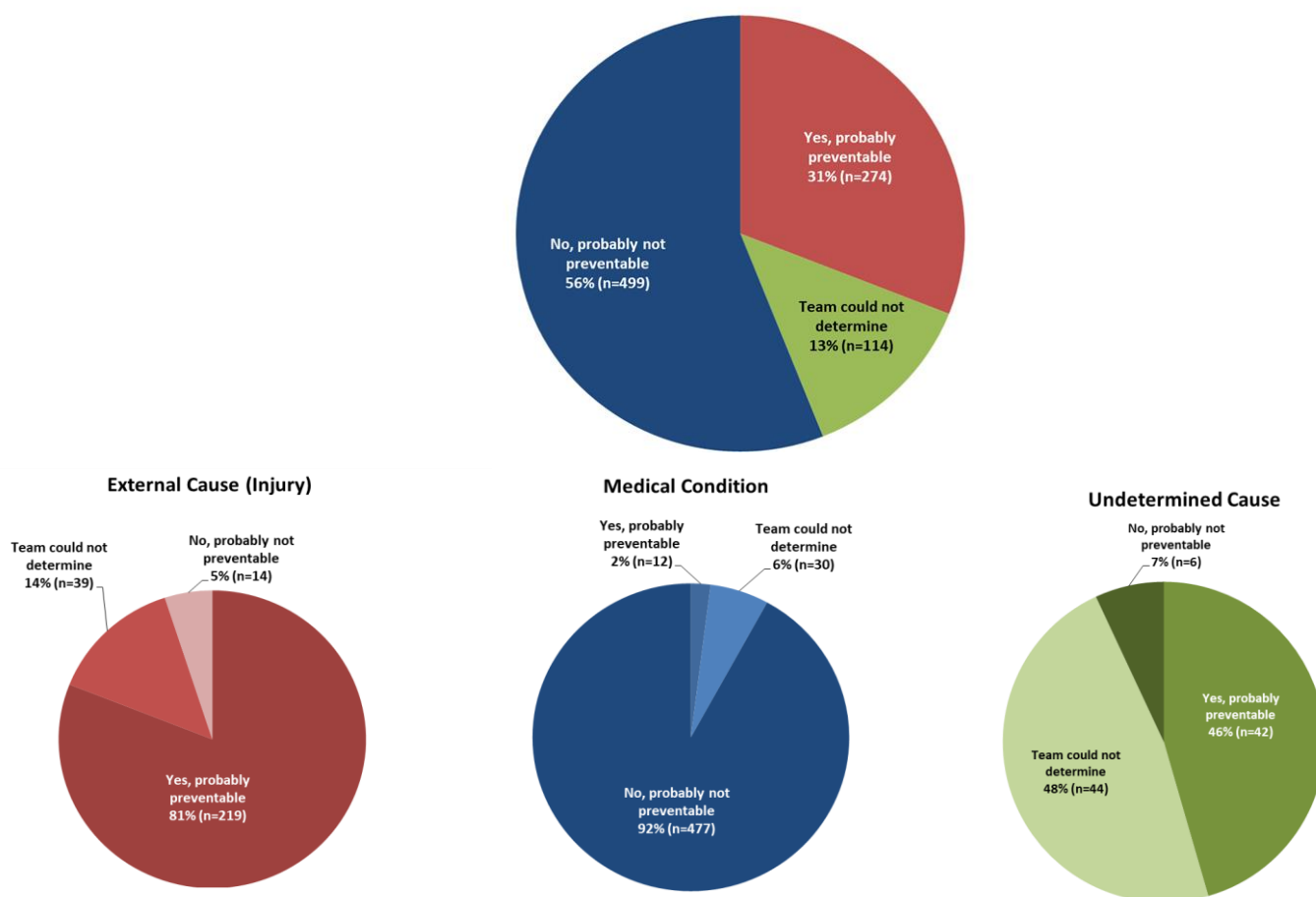
Prevention Analysis

The overarching goal of the Child Fatality Review Program is to craft and adopt recommendations for actions which may 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 **274 deaths (31%) were probably preventable**, as shown in Figure 14. The majority of preventable deaths are caused by external causes of injury (219 cases) versus medical causes (12 cases).

Figure 14. Preventability of Child Deaths Ages 0-17 Years by Cause of Death Tennessee, 2017



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

Prevention of future child deaths is the primary goal of Child Fatality Review. Spread throughout this report are highlighted boxes labeled “Focusing on Prevention.”

FOCUSING ON PREVENTION: SPECIFIC CAUSES OF DEATH

Prevention opportunities include:

- Immunizing infants and children against vaccine-preventable 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 risk factors for premature delivery are identified.
- Avoidance of tobacco exposure to children, infants, and pregnant women.
- Promoting 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 about, 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 Federally Qualified Health Centers (FQHCs) to help women with presumptive Medicaid eligibility sign up for coverage on HealthCare.gov.
- TDH funds smoking cessation programs including the Tennessee QuitLine, a help line which offers smoking cessation services to anyone, and BABY & ME—Tobacco Free Program™, which provides support and incentives which encourage pregnant women who smoke to stop using tobacco.
- TDH promotes the “ABCs of Safe Sleep” campaign to reduce SIDS and other sleep-related deaths and continues to expand efforts with unconventional partners in order to reach all infant caregivers with the safe sleep message.
- Prevent Child Abuse Tennessee (PCAT) connected 87 percent of 399 families served by Healthy Families Tennessee (HFTN) to a medical home this fiscal year. Fifty-five percent of children enrolled in the HFTN program were up to date on immunizations by 2 years of age and 91 percent of women enrolled in the home visiting programs prenatally delivered full term infants.
- TDH family planning services provide birth control methods, including long acting reversible contraceptives, to interested women and encourage spacing between pregnancies to improve birth outcomes.
- TDH provides nicotine replacement therapies to safety net clinics via the Tennessee Primary Care Association and some local health departments.

FOCUSING ON PREVENTION: SPECIFIC CAUSES OF DEATH

Prevention opportunities include:

- Immunizing infants and children against vaccine-preventable 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 risk factors for premature delivery are identified.
- Avoidance of tobacco exposure to children, infants, and pregnant women.
- Promoting 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 about, 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 Federally Qualified Health Centers (FQHCs) to help women with presumptive Medicaid eligibility sign up for coverage on HealthCare.gov.
- TDH funds smoking cessation programs including the Tennessee QuitLine, a help line which offers smoking cessation services to anyone, and BABY & ME—Tobacco Free Program™, which provides support and incentives which encourage pregnant women who smoke to stop using tobacco.
- TDH promotes the “ABCs of Safe Sleep” campaign to reduce SIDS and other sleep-related deaths and continues to expand efforts with unconventional partners in order to reach all infant caregivers with the safe sleep message.
- Prevent Child Abuse Tennessee (PCAT) connected 87 percent of 399 families served by Healthy Families Tennessee (HFTN) to a medical home this fiscal year. Fifty-five percent of children enrolled in the HFTN program were up to date on immunizations by 2 years of age and 91 percent of women enrolled in the home visiting programs prenatally delivered full term infants.
- TDH family planning services provide birth control methods, including long acting reversible contraceptives, to interested women and encourage spacing between pregnancies to improve birth outcomes.
- TDH provides nicotine replacement therapies to safety net clinics via the Tennessee Primary Care Association and some local health departments.

Acts of Child Abuse and Neglect

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 and neglect in the U.S. Approximately 1,670 of those children died as a result of their maltreatment. 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.^{5,6}

According to the Children's Bureau's Administration on Children, Youth, and Families, in Tennessee, 9,665 (6.4 per 1,000) children were determined to have been victims of child abuse in 2016.⁷ Of the children who were victims of child abuse in 2016, 26 percent experienced neglect, 27 percent experienced sexual abuse and 61 percent experienced physical abuse. Among child abuse victims, 45 percent were children ages 0-5 years.⁷

A portion of preventable deaths are either directly or indirectly related to the lack of quality care or supervision provided by 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. CFR statistics on deaths due to abuse and neglect 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 includes 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.

⁵ U.S. Department of Health and Human Services, Administration on Children and Families, Administration for Children, Youth and Families, Children's Bureau. (2017). Child maltreatment 2015. Available from: <http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment>

⁶ Centers for Disease Control and Prevention, National Center for Injury Prevention and Control: Division of Violence Prevention. Available at: 615-253-2950

⁷ Child Maltreatment 2016; Children's Bureau (Administration on Children, Youth and Families, Administration for Children and Families) of the U.S. Department of Health and Human Services.

Table 9 below describes the cases in which review teams determined there was poor or absent supervision or the presence of child abuse, child neglect, or other negligence.

Table 9. Acts of Child Abuse and Neglect among Reviewed Deaths for Children Ages 0-17 Years Tennessee, 2017*

Age Group	Acts of Child Abuse and Neglect				Total
	Poor/absent supervision	Child abuse	Child neglect	Other negligence	
<1 yr	7	9	8	64	88
1-17 yrs	23	13	7	10	53
Total	30	22	15	74	141

*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.

FOCUSING ON PREVENTION: ACTS OF CHILD ABUSE AND NEGLECT



Prevention opportunities include:

- Increasing child abuse awareness and recognition training in schools and childcare environments.
- Educational and family support programs for at-risk families which 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 its 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, providing 52 trainings for 948 adult attendees.

Continued on next page

- 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.
- 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) handled 133,692 calls in 2017 resulting in 133,139 referrals. 27,840 were web referrals.
- In calendar year 2017, 134 deaths and near deaths were reviewed by DCS. This included 117 children not in DCS custody and 17 deaths of children in DCS custody. During this review period, 23 near death cases were also reviewed. None of the near-deaths involved children who were in DCS custody.

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 2017 involved children known to have suffered from a disability or chronic illness (Table 10). Of those 264 children, 23 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 36 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 (Table 11).*

Table 10. Children with Disability for Reviewed Deaths of Children Ages 0-17 Years by Age Group Tennessee, 2017*

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

*Because more than one disability or chronic illness may be present in a child, the sum of the occurrences of disabilities and chronic illnesses exceeds the total number of child deaths.

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

Table 11. Children with Special Circumstances for Reviewed Deaths of Children Ages 0-17 Years Tennessee, 2017*

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	23	36

*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.

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

FOCUSING ON PREVENTION: CHILDREN WITH SPECIAL CIRCUMSTANCES



Prevention opportunities include:

- Providing 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 one of eleven states and jurisdictions awarded a four year grant from the Centers for Disease Control and Prevention (CDC) to help establish the Sudden Death in the Young (SDY) Registry. Tennessee's funding has been renewed and will continue through September, 2023.

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 years are considered for inclusion in the registry, with the following exceptions:

Death due to:

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

To accomplish these goals, 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 its 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. Bio-specimens are collected on consented cases for further research and genetic testing to understand sudden child death. In 2017, there were 62 signed consents from the regional forensic centers with 60 bio-specimens sent to the biorepository. The local CFR teams are responsible for reviewing SUID/SDY deaths within 90 days of notification.

In cases of sudden 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. For infant deaths occurring in 2017, the local teams reviewed circumstances surrounding SUID events, including autopsy and death scene investigation reports, to categorize these deaths into one of the seven categories shown

in Table 12. The “excluded” category includes SUID cases in which the cause of death is ultimately not sleep related, such as those due to illness, trauma, or cardiac causes. Each SUID category is not a cause of death, but categorizes the SUID based on what unsafe sleep factors were present, and if they seemingly contributed to the infant death. The category with the largest number of infant deaths was “Unexplained: Unsafe sleep factors” with 69 deaths.

**Table 12. Categorization for SUID Case Registry for Infants Less than 1 Year
Tennessee, 2017**

Categorization for SUID Case Registry	Number of Infant Deaths
Unexplained: Unsafe sleep factors	69
Explained Suffocation: Unsafe sleep factors	32
Unexplained: Possible suffocation with unsafe sleep factors	17
Excluded	13
Unexplained: Incomplete case information	12
Unexplained: No unsafe sleep factors	4
Unexplained: No autopsy or death scene investigation	0
Total	147

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

There must be strong evidence of the presence of factors contributing to the suffocation death of an infant 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 13 summarizes the primary mechanisms explaining the suffocation, or possible suffocation, as detailed in the autopsy and/or death scene investigation reports that are reviewed by local teams.

**Table 13. Unsafe Sleep Factors for Infants Less than 1 Year
Tennessee, 2017**

Unsafe Sleep Factors	Number of Infant Deaths
Soft bedding	41
Overlay	10
Wedging	4
Other	1

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

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 to have 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 a death into one of the following seven categories: explained cardiac, explained neurological, possible cardiac, possible SUDEP, possible cardiac and SUDEP, unexplained death at or over one year of age or unexplained death under age one. Table 14 summarizes how the teams have categorized the 2017 SDY cases.

**Table 14. Categorization for SDY Case Registry for Children Ages 0-17 Years
Tennessee, 2017**

Categorization for SDY Case Registry	Age Group		Total
	<1 yr	1-17 yrs	
Unexplained infant death	85	0	85
Explained infant suffocation	30	0	30
Explained other	9	44	53
Incomplete case information	8	4	12
Unexplained, possible cardiac	4	3	7
Unexplained, SUDEP	0	2	2
Unexplained child death (age 1+)	0	11	11
Explained cardiac	2	4	6
Unexplained, possible cardiac and SUDEP	0	3	3
Explained neurological	0	2	2
Total	138*	73	211

*This total differs from the Table 14 SUID Categorization total because all 2017 deaths have not been categorized by the SDY Advanced Review team as of December 2018. The SUID categorization is completed by the local CFR teams, and the SDY categorization is completed by the SDY Advanced Review Teams.

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

Registry Prevention and Review Work

This year, funds from the SDY Registry project were allocated to improve upon prevention work and understanding of the SDY process. This included the purchase of portable cribs, automated external defibrillators (AEDs) and safe sleep materials. The AEDs are being used as a part of the “Safe Stars” youth sports league initiative to ensure that youth sports leagues in Tennessee have an AED on hand at all practices and games. Site visits were all conducted with all of the participating regional forensic centers to discuss barriers to attempting and obtaining consent for the SDY Registry.

Among 2017 deaths, 237 SDY cases were identified and reviewed by the local teams. Of those cases, 181 were investigated by the Advanced Clinical Review Team. From January 2018 to date, 849 cases have been identified as potential SDY, 666 cases

have been closed by local CFR teams, and 472 cases have been referred and closed with the Advanced Clinical Review Team.

DETAILED REVIEW: SPECIFIC CAUSES OF DEATH

Intentional Violence-Related Deaths

Homicide and suicide deaths are forms of intentional violence and are indicated by the 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.

Intentional violence-related deaths accounted for 12 percent of all child fatalities in Tennessee in 2017.

In 2017, there were 55 (3.7/100,000) homicide deaths and 51 (3.4/100,000) suicide deaths in children ages 0 to 17 years, accounting for 12 percent of all reviewable deaths in Tennessee. 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.

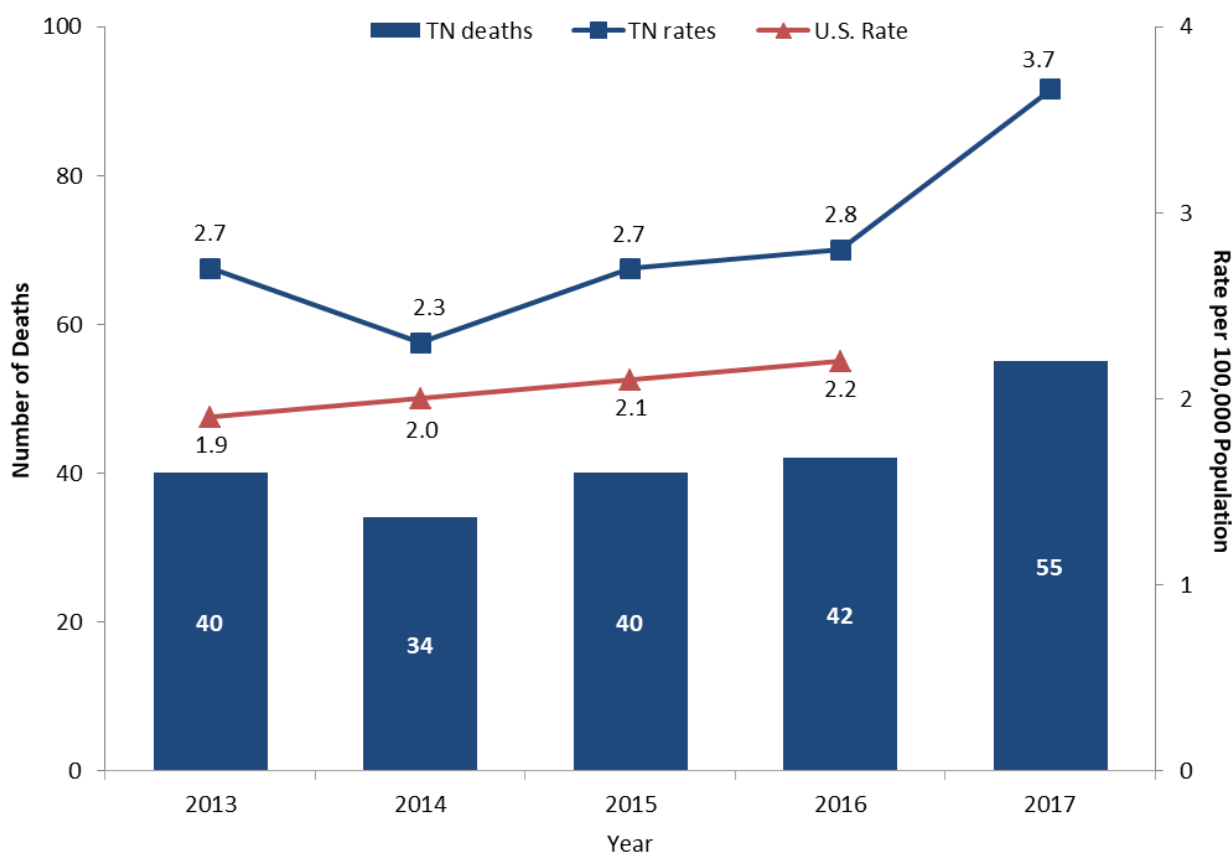
Although many of the risk factors for homicide and suicide are similar (including race, gender, mood or mental health disorder, access to weapons or firearms, the general tendency for reckless behavior, and family history of violence or suicide), there are several unique indicators of risk. Homicide indicators of risk include gang involvement, drug use, low family socioeconomic status, antisocial family behaviors, minimal parental involvement, increased neighborhood crime, family abuse, and substance abuse. Additional suicide risk factors include 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 stressful or traumatic events occurring in childhood that, in the absence of strong social and emotional support, may have negative, lasting effects on health and well-being. These experiences range from physical, emotional or sexual abuse to parental divorce or the incarceration of a parent or guardian. As such, ACEs are an important public health issue. Recognition and mitigation of 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 2016, over 17,000 people nationwide were homicide victims, of which 1,598 were children under 18 years of age. 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) experienced the highest homicide rates in 2016.⁸

Figure 15. Homicide Deaths and Rates per 100,000 Population Ages 0-17 Years Tennessee and US, 2013-2017



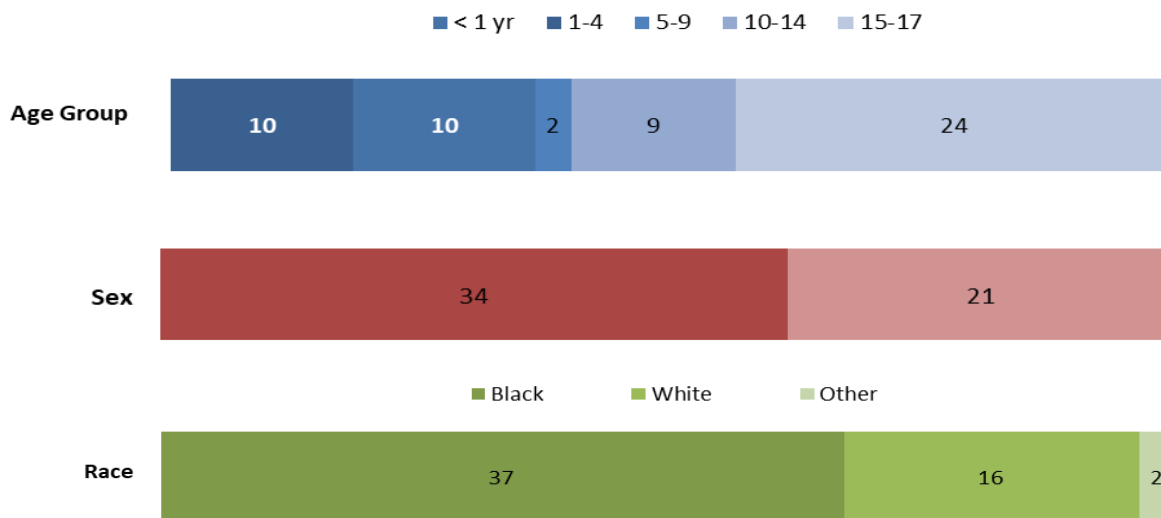
Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

Tennessee's child homicide rate has remained consistently above the national rate (Figure 15). In 2017, **55 children died of homicide in Tennessee**, an increase from the 42 deaths in 2016. This number represents **six percent of all reviewed child deaths**. Thirty-four homicide victims were males; 21 were females. More than two-thirds

⁸ 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

of the victims (37 deaths) were black children (Figure 16). Older teenagers (age 15-17 years) suffered the highest percentage of fatalities at 44 percent. However, over one-third were children less than 5 years old. **Sixty-four percent of all homicides involved firearms** (Figure 17) and **45 percent occurred in the child's home** (Figure 18).

Figure 16. Demographic Distribution of Homicide Deaths for Children Ages 0-17 Years Tennessee, 2017



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

Figure 17. Weapon Type used in Homicide Deaths for Children Ages 0-17 Years Tennessee, 2017

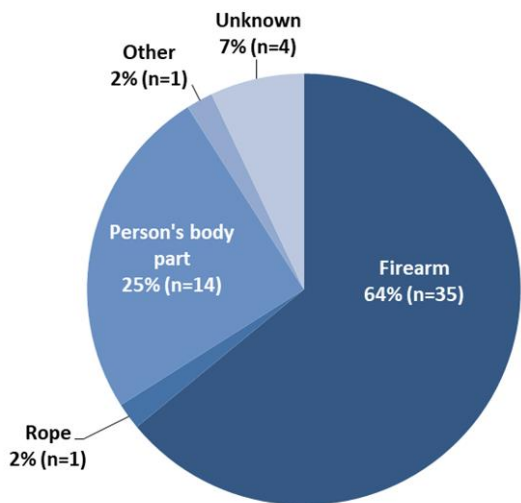
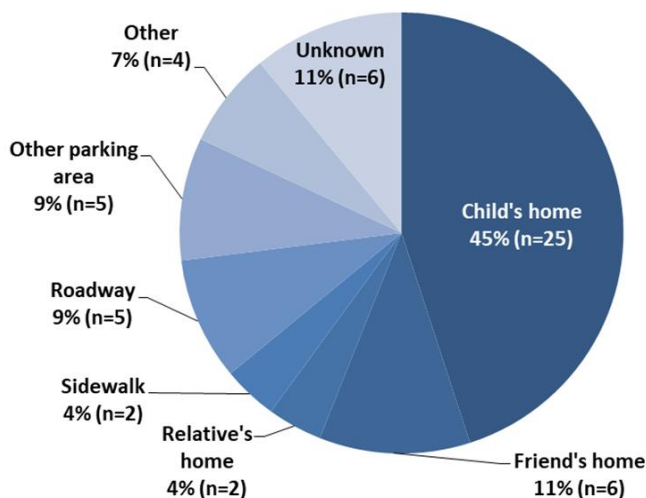


Figure 18. Homicide Deaths for Children Ages 0-17 Years by Victim's Location Tennessee, 2017



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

FOCUSING ON PREVENTION: HOMICIDE DEATHS



Prevention opportunities include:

- Targeted activities, including enhanced police presence, neighborhood watch and after school recreation programs, in neighborhoods with high homicide rates.
- Increasing engagement of high-risk parents in intensive early intervention services.
- Practicing gun safety and safe storage of weapons.
- Raising public awareness around ACEs and their impact upon the risk of intentional injury.

Current prevention efforts in Tennessee include:

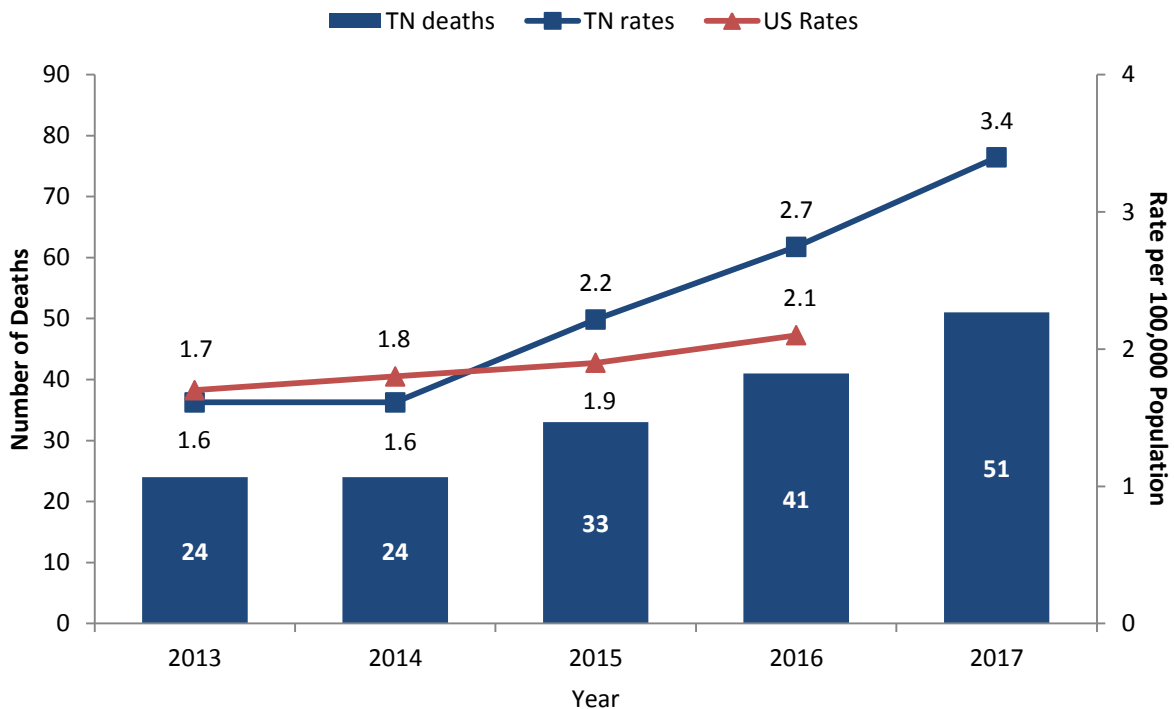
- Prevent Child Abuse Tennessee's Shaken Baby/Abusive Head Trauma Prevention project materials are disseminated statewide to every birthing hospital in Tennessee. In FY2019, PCAT distributed over 90,000 materials (in English and Spanish) to 100 percent of birthing hospitals to educate parents about abusive 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 interventions to at-risk youth and 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 counseling programs and programs which encourage parental involvement, character education, and drug and violence prevention.

Suicide Deaths

In 2016, 1,528 children between ages 10-17 years died from suicide (4.6 per 100,000) throughout the United States, making suicide the second leading manner of death for children in this age group. White (vs. black) children and males (vs. females) had higher rates of suicide nationally in 2016.⁹

More children in Tennessee ages 10-17 died by suicide than motor vehicle crashes in 2017.

Figure 19. Suicides and Suicide Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017

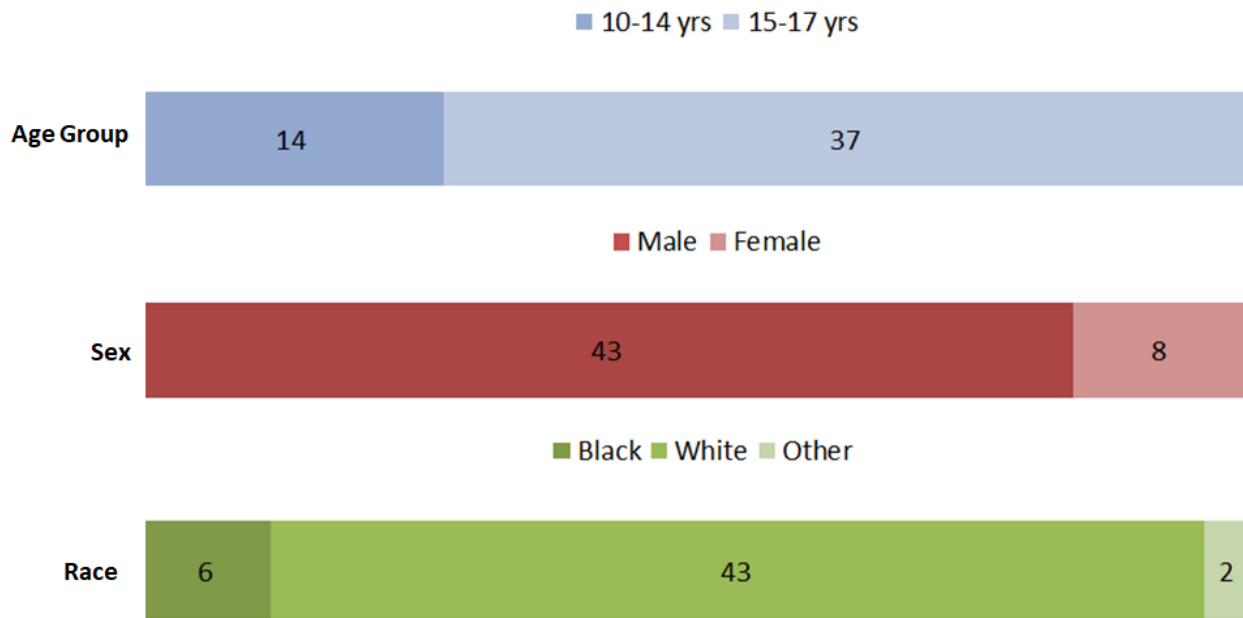


Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

In Tennessee, fifty-one young people took their own lives during 2017, representing six percent of all reviewed deaths (Figure 19). Figure demonstrates that suicides were more frequent among males (n=43) than females (n=8), and among whites (n=43) than blacks (n=6). More than half (59%) of all suicide cases involved a firearm (Figure 21). Firearms were the most common suicide method reported for 10-14 year olds and 15-17 year olds (Table 15). The majority of the cases (63%) occurred in the child's home.

⁹ 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 20. Demographic Distribution of Suicides for Children Ages 0-17 Years Tennessee 2017



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

Figure 21. Method of Suicides for Children Ages 0-17 Years, Tennessee, 2017*

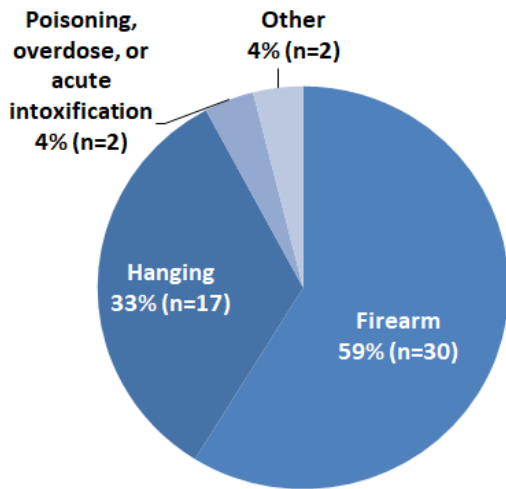
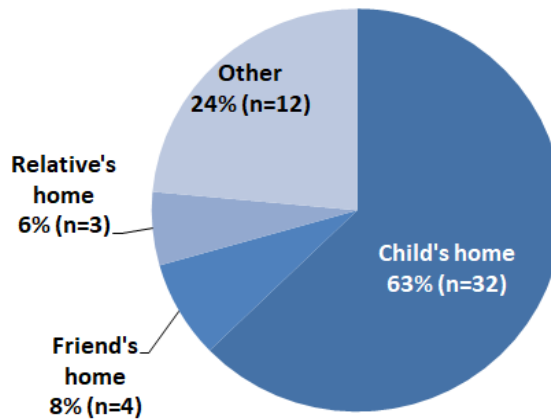


Figure 22. Location of Suicides for Children Ages 0-17 Years, Tennessee, 2017**



*Both cases classified as 'Other' method were fatally hit by trains.

**Includes jail/detention facility, roadway, driveway, recreational area, mental health facility, field, and other locations.
Data source: Tennessee Department of Health, Child Fatality Review Database System.

Table 15. Suicides for Children Ages 0-17 Years by Victim Age Groups and Method Tennessee, 2017

Method of Suicide	10-14 yrs	15-17 yrs	Total
Firearm	9	21	30
Hanging	4	13	17
Poisoning, overdose or acute intoxication	1	1	2
Other	0	2	2
Total	14	37	51

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

FOCUSING ON PREVENTION: SUICIDE DEATHS



Prevention opportunities include:

- Increasing access to educational programs that teach teens to recognize the warning signs of suicide.
- Increasing opportunities to train school staff to identify and refer students at-risk for suicide, as well as how to appropriately respond to suicide and other crises in the school.
- Messaging the importance of safe storage of firearms to prevent their use as a lethal means of suicide.

Current prevention efforts in Tennessee include:

- In collaboration with the Jason Foundation and Tennessee Department of Mental Health and Substance Abuse Services, 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 to all schools to help teach teens to recognize warning signs of suicide.
- TDH, in collaboration with the Tennessee Suicide Prevention Network, convened a youth suicide data working group to identify more timely suicide data sources and opportunities to use that data to predict and prevent suicide. TDH developed a means of surveilling suicide attempts through ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics), a database designed for syndromic surveillance, and now monitors suicide attempt trends on a weekly basis. This monitoring allows for the identification of geographic or demographic populations that are experiencing increased numbers of suicide attempts and provides opportunities for real-time coordinated prevention efforts which target those populations.

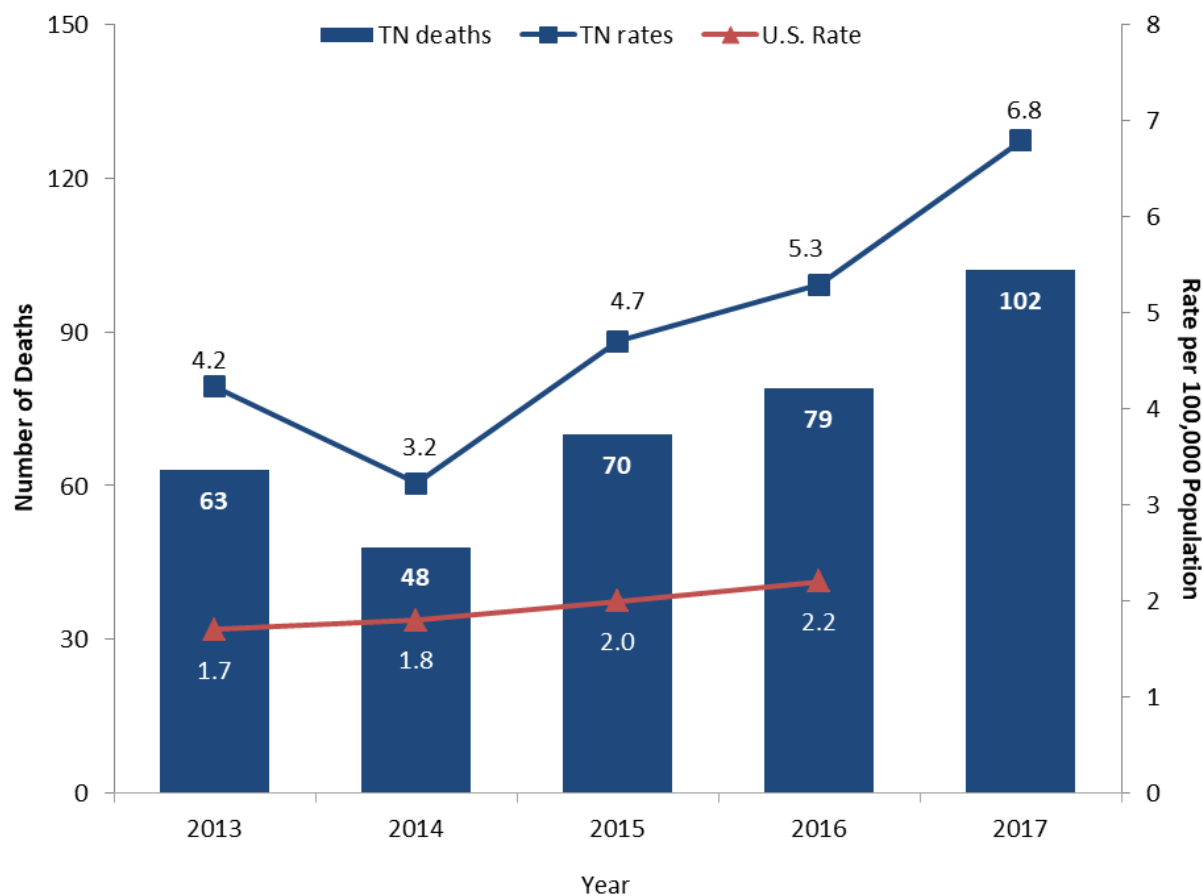
Continued on next page

- TDH encourages all employees to participate in select primary prevention activities. TDH has made the participation in suicide prevention training one of the primary prevention initiatives in which employees may choose to participate
- The Tennessee Suicide Prevention Network has a number of efforts aimed at reducing suicide and supporting survivors, including:
 - Distribution of resources on suicide grief across the state. These include the pamphlet *Survivors of Suicide* and regional resource directories, among others.
 - Provision of guidelines in best practices regarding postvention activities to schools affected by the suicide death of a teacher or student.
 - Connecting families who have recently experienced a suicide death with other survivors of suicide loss who can guide them through the grief and recovery process.
 - Provision of educational and support materials that funeral home staff may share with 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 home directors published by the U.S. Department of Health and Human Services.
 - Provision of technical assistance and no-cost training sessions to schools implementing policies to address suicide prevention and postvention as 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 2016, firearms accounted for 1,637 deaths (2.2 per 100,000) of children ages 0 to 17 years, nationally. An additional 1,638 children (2.2 per 100,000) died from violence involving weapons other than firearms, such as body parts, knives or other objects.¹⁰ For classification purposes, body parts are included as weapons.

Figure 23. Weapons-Related Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017*



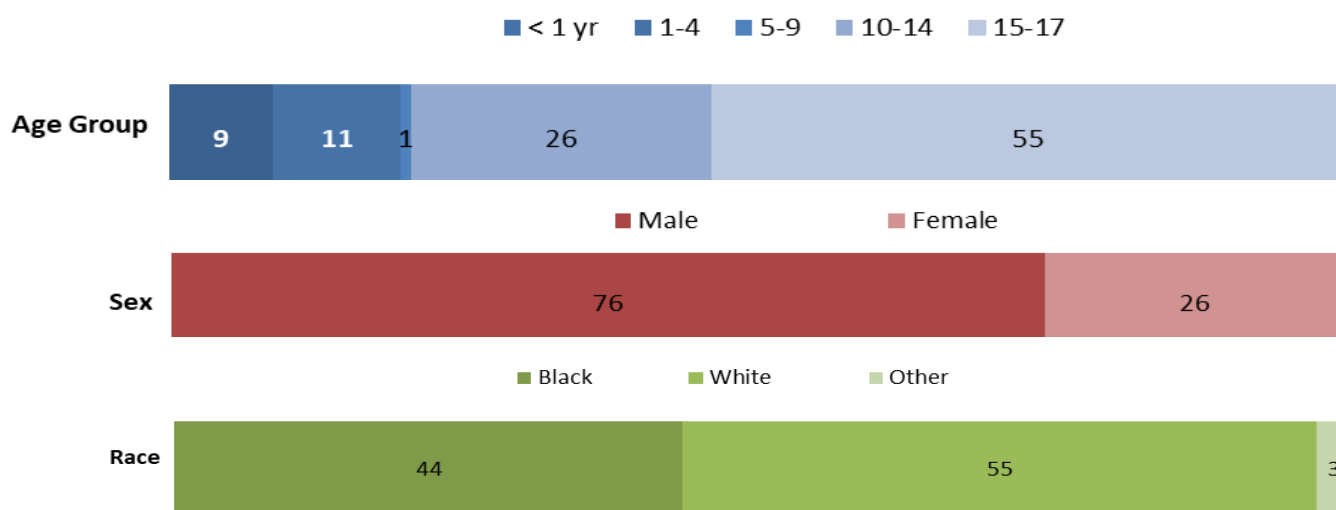
*As of 2017, weapons-related deaths also include assaults per the definition used in the Child Fatality Review Database System. As a result, data in this report have been updated for prior years (2012-2016) to reflect this change. Data points for this measure are now higher than those previously presented and should not be compared with previously published Child Fatality Annual Reports. Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

¹⁰ 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, 102 children died as a result of weapons injuries in 2017. This number represents 11 percent of all reviewed deaths (Figure 24). Of the 102 deaths, 76 were males and 26 were females (Figure 24). 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 (Table 16).

Sixty-nine percent (n=70) of all weapon fatalities in children were the result of firearms (Figure 25). Of the 70 deaths involving firearms, 56 were due to handguns, seven were due to shotguns, one was due to a hunting rifle, and the remaining six involved an unknown gun type. The majority of weapons-related deaths (51%) were due to homicide (Figure 26).

Figure 24. Demographic Distribution of Weapons-Related Deaths for Children Ages 0-17 Years Tennessee, 2017



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

Table 16. Weapons-Related Deaths for Children Ages 0-17 Years by Manner of Death and Age Group, Tennessee, 2017

Manner of Death	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Accident	0	1	0	2	1	4
Suicide	0	0	0	11	30	41
Homicide	9	9	1	9	24	52
Undetermined	0	1	0	4	0	5
Total	9	11	1	26	55	102

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

Figure 25. Weapons-Related Deaths for Children Ages 0-17 Years by Weapon Type, Tennessee 2017*

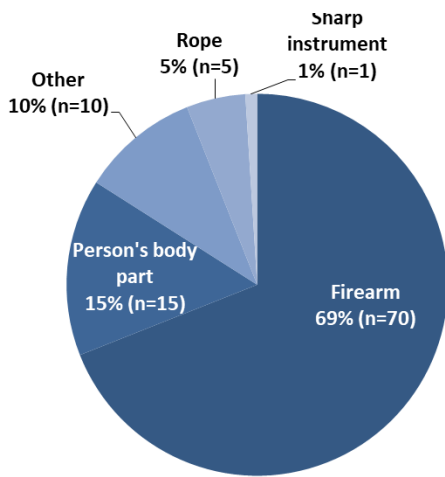
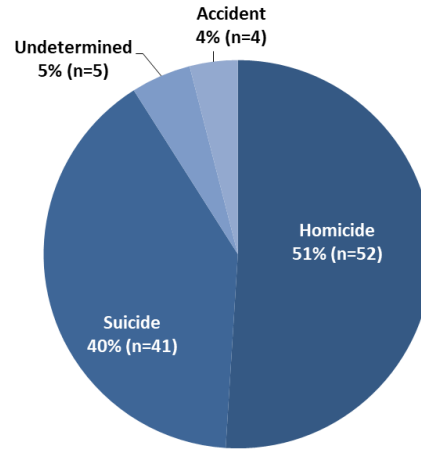


Figure 26. Weapons-Related Deaths for Children Ages 0-17 Years by Manner of Death, Tennessee, 2017**



*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.

**Weapons-related suicides include all firearm suicides and cases for which the reviewing committee determined that a weapon was involved (includes hanging deaths using rope). Because not all hanging suicides were determined to be weapon-related, numbers do not align with suicide methods data presented in Figure 26.

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

Fifty percent (n=35) of all weapon fatalities involving firearms were homicides and forty-three percent (n=30) were suicides. The owner of the firearm was listed as “unknown” for 40 percent of homicide and suicide deaths caused by firearms, (Table 17). For homicide fatalities in which the owner was known, “friend, acquaintance, child’s boyfriend/girlfriend” (n=9) and “other (rival gang member, stranger, law enforcement, or neighbor)” (n=9) were the most common owners listed. For suicides, parents were listed most often as the owner of the firearm (n=11).

Table 17. Homicide and Suicide Deaths due to Firearms for Children 0-17 Years by Owner of Firearm, Tennessee, 2017

Owner of Firearm	Homicides	Suicides	Total
Parent (biological, stepparent, adoptive)	1	11	12
Other family member (grandparent, sibling)	0	3	3
Friend, acquaintance, child’s boyfriend/girlfriend	9	1	10
Other (rival gang member, stranger, law enforcement, neighbor)	9	2	11
Weapon stolen/found (owner is unknown)	3	0	3
Unknown	13	13	26
Total	35	30	65

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

FOCUSING ON PREVENTION: WEAPONS RELATED DEATHS



Prevention opportunities include:

- Increasing awareness and promotion of safe firearm handling and storage practices to eliminate child access to firearms.
- Promoting safety programs which encourage parental supervision and prevent unsafe child-weapon interactions.

Current prevention efforts in Tennessee include:

- 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.

Sleep-Related Infant Deaths

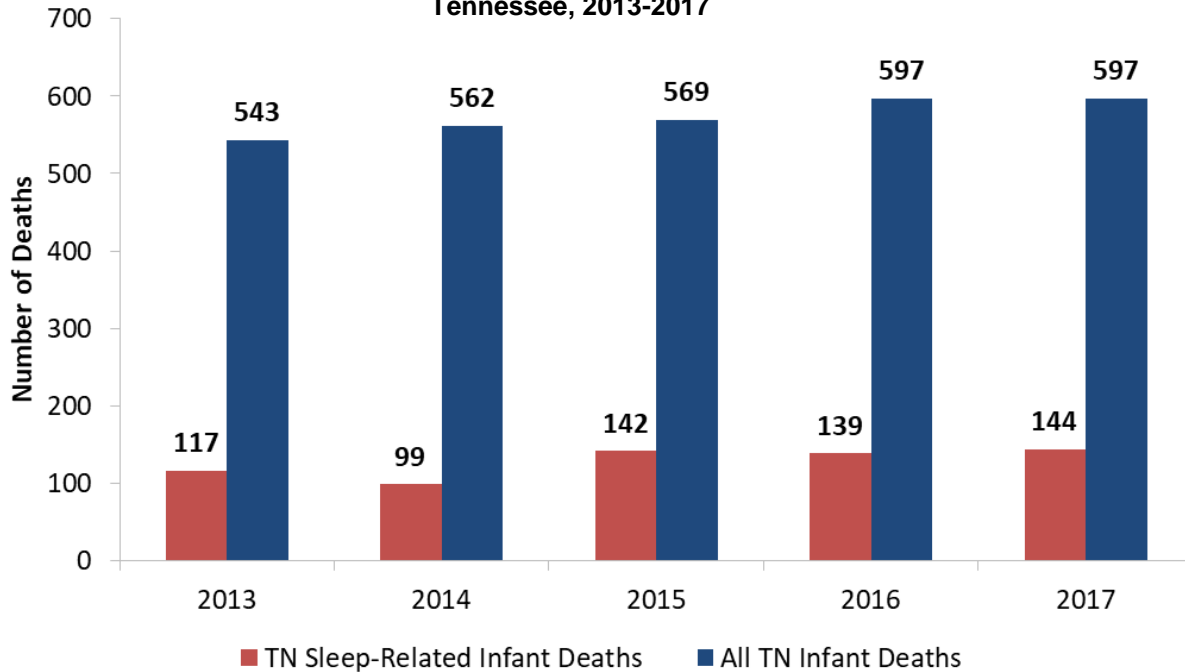
Sleep-related infant deaths are identified when a baby is found deceased in a sleeping environment and is found with his or her head pressed into the mattress or pillow, is in the presence of a person, found wedged against an object, or when an infant is found in other circumstances that may have contributed 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 less than 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 as a sub-category of 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 as the result of an undiagnosed childhood malady. The exact cause of death may be difficult, if not impossible, to determine. In 2017, the cause of death in 86 reviewed fatalities (17%) 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.

Figure 27 displays the number of sleep-related infant deaths and total number of infant deaths in Tennessee from 2013 through 2017. During this time period, sleep-related deaths accounted for 22 percent of all infant fatalities in Tennessee. There was no significant change in the rate of sleep-related infant deaths from 2016 to 2017.

*In 2017, there were **144** infant deaths that resulted from, or were associated with an unsafe sleep environment.*

**Figure 27. Number of Sleep-Related Infant Deaths
Tennessee, 2013-2017**



Data sources: Sleep-related infant death counts from Tennessee Department of Health, Child Fatality Review Database System. Total infant deaths from Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2013-2017.

Of the 144 sleep-related deaths in 2017, 41 were confirmed as asphyxia in the sleep environment. The remaining 103 deaths occurred in the presence of unsafe sleep factors, but could not be confirmed as asphyxia. In many cases, family members or others who find a deceased baby may not be able to provide a detailed history of what transpired. When investigators arrive on the scene, they often find that the baby has been moved and, therefore, accurately recreating the death scene may not be possible. Thus, despite autopsies and the efforts of Child Fatality Review teams, the exact cause of many infant sleep-related deaths will never be understood.

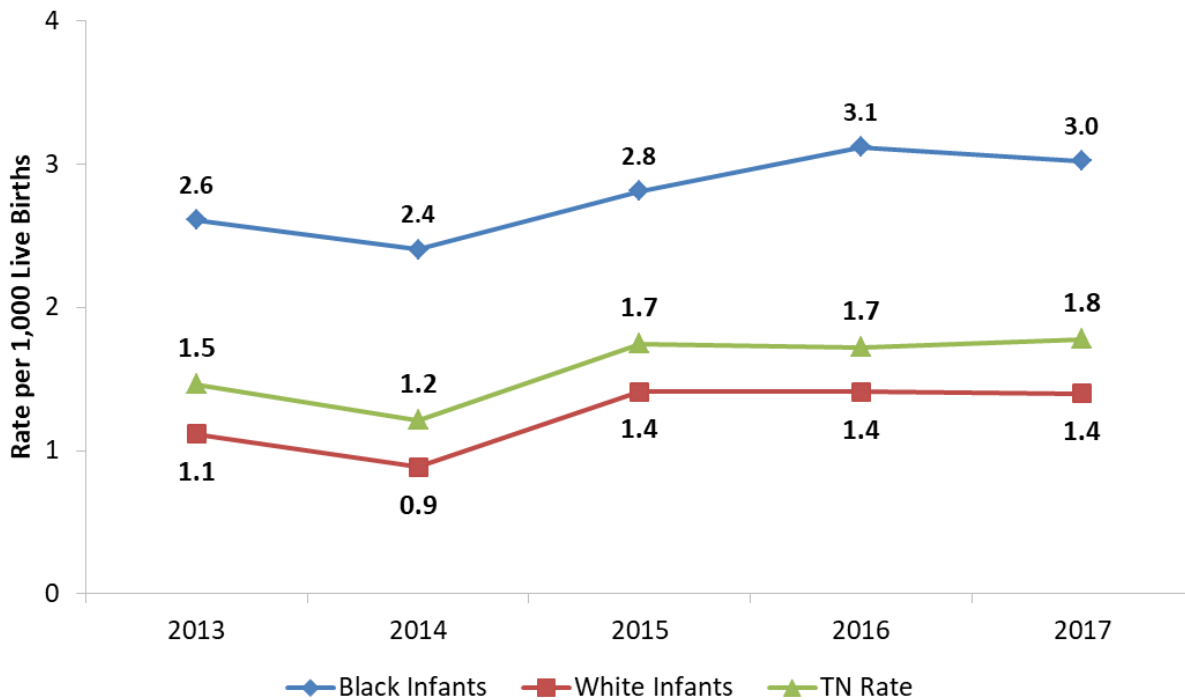
There is significant and longstanding racial disparity among sleep-related infant deaths. While white infants make up the majority of sleep-related infant deaths in Tennessee, black infants are 2.1 times more likely to suffer a sleep-related fatality as white infants, as shown in Table 18. The reasons for this persistent disparity are not completely understood and may include socioeconomic factors (e.g., access to prenatal care), difference in prevalence of known risk behaviors (e.g., non-supine infant sleep position, bed-sharing), biological factors (e.g., genetic polymorphisms, metabolic disorders) and other factors (e.g. breastfeeding patterns, exposure to alcohol or tobacco). Disparity is also seen between males (53%) and females (47%).

Table 18. Number of Sleep-Related Infant Deaths and Rates by Race, Tennessee, 2013-2017

Year	Blacks		Whites		TN
	Number of Sleep-Related Infant Deaths	Rate per 1,000 Live Births	Number of Sleep-Related Infant Deaths	Rate per 1,000 Live Births	Rate per 1,000 Live Births
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
2017	50	3.0	85	1.4	1.8

Data source: Sleep-related infant death counts from Tennessee Department of Health, Child Fatality Review Database System. Birth data from Tennessee Department of Health, Office of Vital Records and Health Statistics, Birth Statistical File, 2013-2017.

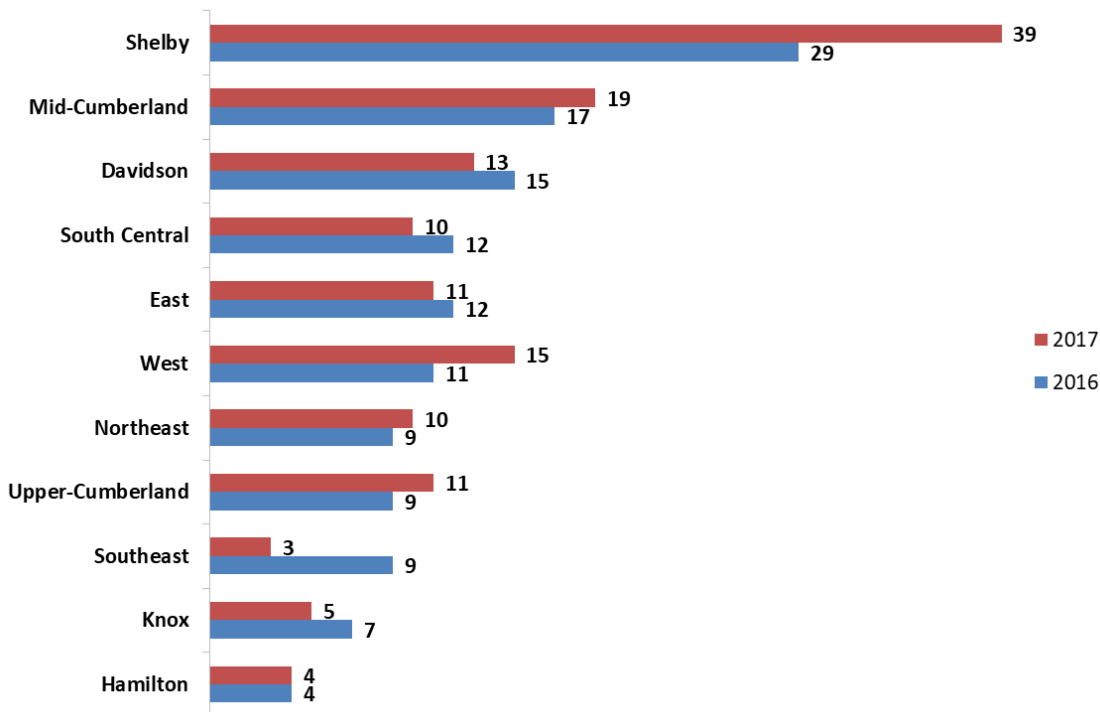
Figure 28. Sleep-Related Death Rates by Race, Tennessee, 2013-2017



Data source: Sleep-related infant death counts from Tennessee Department of Health, Child Fatality Review Database System. Birth data from Tennessee Department of Health, Office of Vital Records and Health Statistics, Birth Statistical File, 2013-2017.

Additionally, a regional distribution of sleep-related infant deaths is provided in Figure 29. In 2017, the region with the highest number of sleep-related infant deaths was Shelby County with 39 cases (27% of all sleep related deaths), followed by the Mid-Cumberland region with 19 cases (13%) and the West region with 15 cases (10%).

Figure 29. Number of Sleep-Related Infant Deaths in Tennessee by Region, 2016 vs 2017



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

Table 19. Contributing Factors in Sleep-Related Infant Deaths Tennessee, 2013-2017*

Circumstance						2017 Percent of Sleep-Related Infant Deaths
	2013	2014	2015	2016	2017	
Unsafe bedding or toys in sleeping area**	69	70	123	126	121	84%
Infant found not sleeping in crib or bassinette	87	79	114	107	103	72%
Infant sleeping with other people	67	65	88	76	82	57%
Infant found not sleeping on back	68	40	71	65	70	49%
Infant sleeping with obese adult	13	7	21	18	14	10%
Drug impaired adult sleeping with infant	8	12	4	16	11	8%
Alcohol impaired adult sleeping with infant	2	3	3	4	6	4%
Adult fell asleep while breast feeding infant	3	1	6	3	5	3%
Adult fell asleep while bottle feeding infant	3	3	1	1	3	2%

* Because more than one factor may have contributed to a single death, the total number of contributing factors exceeds the number of sleep-related deaths.

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

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

As indicated in Table 19, four main contributing factors are consistently present in sleep-related infant deaths: unsafe bedding or toys in sleeping area (84% of sleep-related infant deaths), infant not sleeping in a crib or bassinette (72% of sleep-related infant deaths), infant not sleeping alone (57% of sleep-related infant deaths), and infant not sleeping on the back (49% of sleep-related infant deaths). These risk factors are key points for education in the Tennessee

Department of Health's "ABCs of Safe Sleep" campaign--Babies should sleep **A**lone, on their **B**ack, and in a **C**rib.

FOCUSING ON PREVENTION: SAFE SLEEP



Prevention opportunities include:

- Widespread messaging campaigns, particularly those targeted at parents and caregivers of infants.
- Providing portable cribs to families with limited resources.
- Modeling of correct safe sleep practices by trusted professionals, such as physicians and nurses.
- Directing safe sleep messaging to parents and communities of infants at greatest risk of sleep-related death.

Current prevention efforts in Tennessee include:

- TDH continues to partner with all Tennessee birthing hospitals and five non-birthing hospitals across Tennessee. All of these partner hospitals have developed and implemented safe sleep policies that include modeling of safe sleep behavior in the hospital and education for staff, parents and caregivers. In addition, hospitals are responsible for completing crib audits and submitting annual reports as part of the *Safe Sleep Policy Project's* ongoing monitoring to ensure compliance with safe sleep policies. TDH continues to provide safe sleep materials and *Sleep Baby Safe and Snug* board books to every newborn in Tennessee.
- Hospitals are encouraged to apply for national *Safe Sleep Certification* through the Cribs for Kids organization. Currently 26 hospitals have earned certification: 11 bronze, 2 silver, and 13 gold. Each level represents additional tasks required to educate and promote safe sleep to parents.
- TDH expanded the number of languages in which safe sleep materials are available to include English, Spanish, Arabic, Kurdish, Somali, and Burmese.
- 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 which includes 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 *ABCs of Safe Sleep*. Since the start of the program in 2015, 1928 safe sleep kits and 122 portable cribs have been distributed.
- 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, childcare centers and health departments.

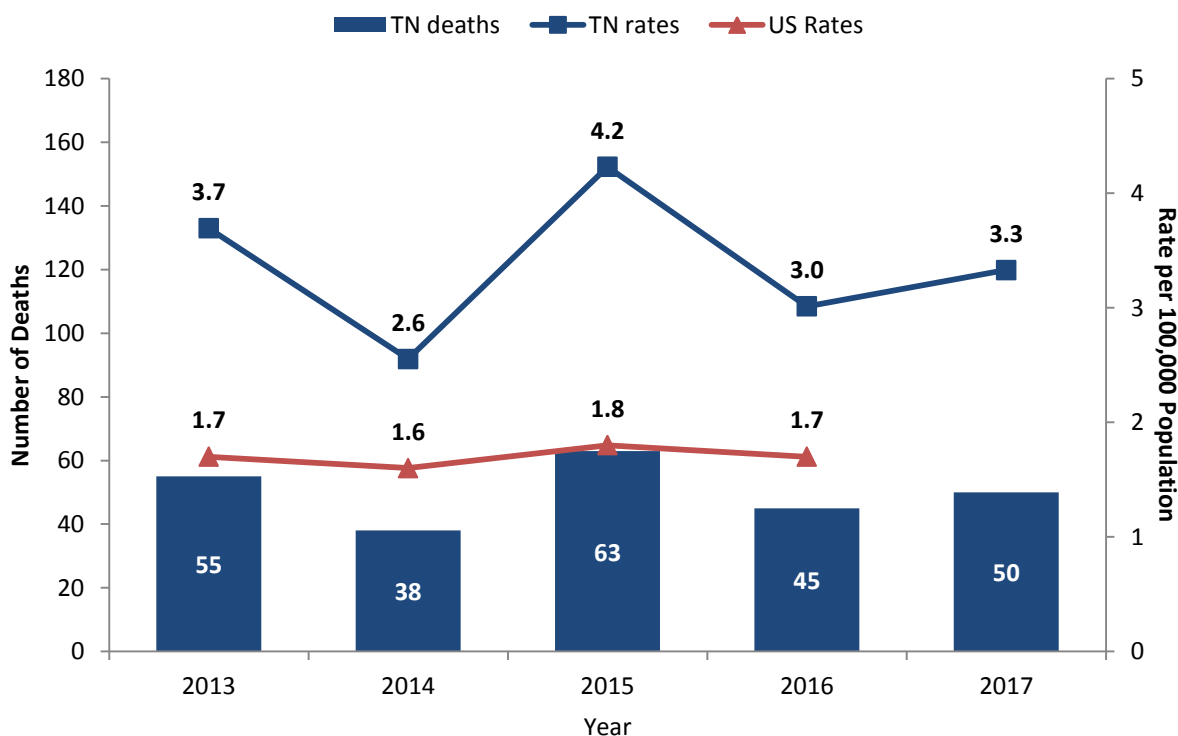
Continued on next page

- In 2018 TDH trained maintenance workers from five housing authorities to educate families on safe sleep and provide materials and a portable crib, if needed.
- In 2015, Tennessee Department of Health launched an online safe sleep educational module for WIC participants. 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 behaviors.
- 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, with 23 birthing hospitals currently using the cards.
- 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 assess for safe sleeping environments, educate parents and caregivers on the importance of safe sleep and ensure each infant has a safe sleeping environment. DCS also provides portable cribs to families that are fostering an infant or families that need a safe sleep 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 through voluntary home visitation, receive education on safe sleep and are provided with a portable crib. During the last fiscal year, 586 families were served through these important programs.
- 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 national 2017 KIDS COUNT Data Book (<https://www.tn.gov/content/dam/tn/tccy/documents/kc/kc-soc/kcsoc17.pdf>).

Asphyxia Deaths

Unintentional asphyxia is the leading cause of injury 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 1984.¹¹ Nationally, male infants (vs. females) and black infants (vs. white) have higher rates of death due to asphyxia. While infant asphyxia deaths are closely linked to unsafe sleep environment factors, deaths of older children are more likely to be related to choking on food or toys.

Figure 30. Unintentional Asphyxia Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017*



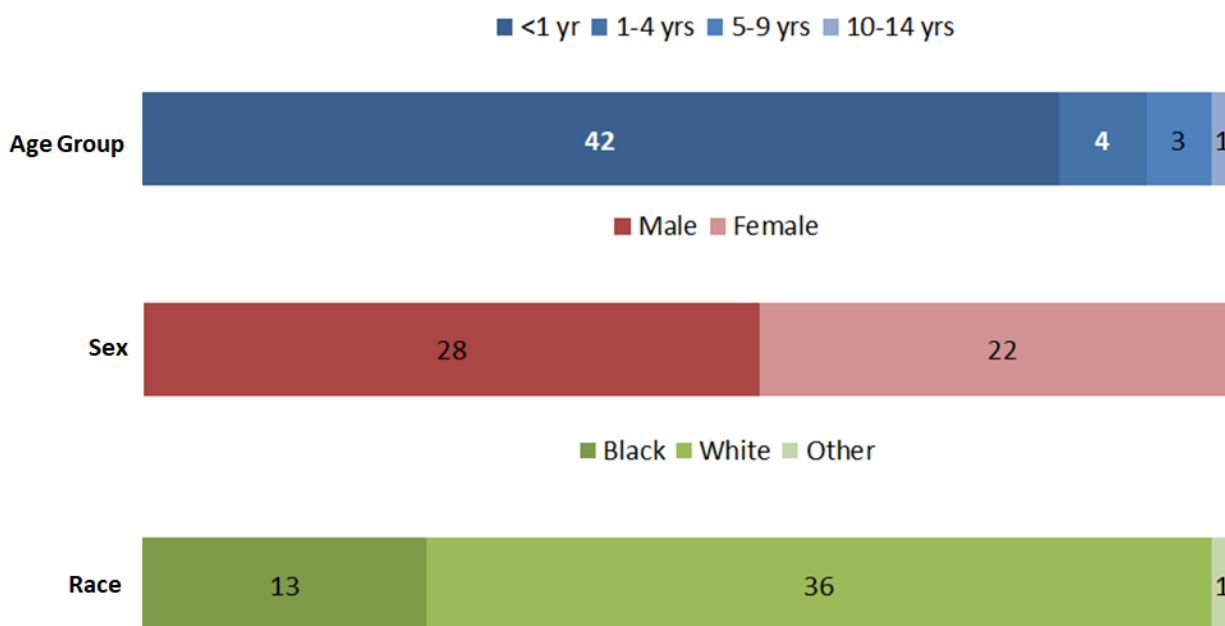
*Previous reports include intentional and unintentional asphyxia.

Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

Figure 30 demonstrates the annual count and rate of unintentional asphyxia child death for 2013-2017. In 2017, **50** children died of unintentional asphyxia. This number represents **six percent of all reviewed deaths**. Asphyxia cases may be related to suffocation, strangulation, or choking. 31 demonstrates the demographic distribution of unintentional asphyxia fatality by age, sex, and race. As shown in Table 20, **the majority (82%) of asphyxia cases in 2017 were infants under the age of one year who died due to an unsafe sleep environment.**

¹¹ 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 31. Demographic Distribution of Asphyxia Deaths for Children Ages 0-17 Years Tennessee, 2017



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

Table 20. Asphyxia Cause of Death for Children Ages 0-17 Years by Age Groups Tennessee, 2017

Cause of Asphyxia	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Sleep-related (strangulation, suffocation)	41	0	0	0	0	41
Suffocation (not sleep-related)	0	1	1	1	0	3
Strangulation (not sleep-related)	1	1	1	0	0	3
Choking	0	1	1	0	0	2
Other	0	0	0	0	0	0
Unknown	0	1	0	0	0	1
Total	42	4	3	1	0	50

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

FOCUSING ON PREVENTION: ASPHYXIA DEATHS



Prevention opportunities include:

- Expanding the reach of education regarding the importance of infant safe sleep environments.
- Providing education to parents and other child caregivers around safe meal preparation and playtime (i.e. importance of monitoring toddlers during meal and playtime).
- Providing basic first aid and CPR education to child care professionals and parents, including skills needed to safely remove airway obstructions.
- Educating parents of young children to properly child-proof the home.

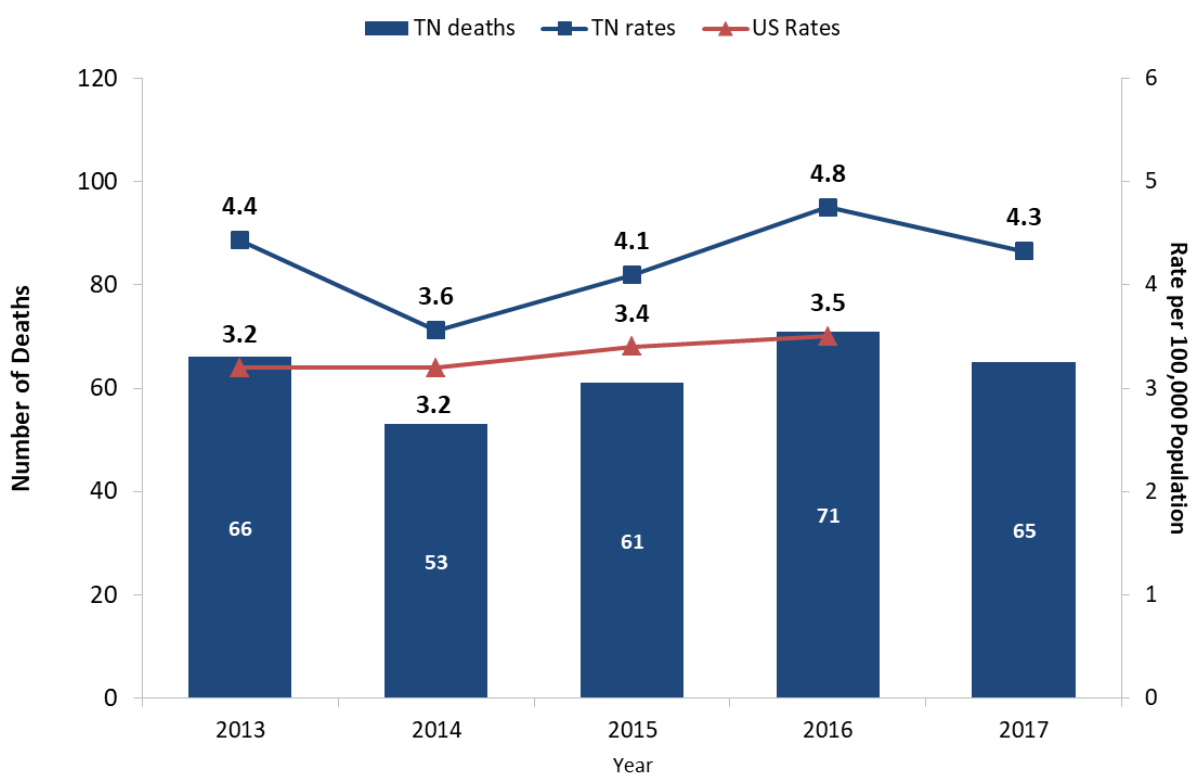
Current prevention efforts in Tennessee include:

- The Tennessee Department of Health’s “ABCs of Safe Sleep” campaign educates parents and other caregivers on the how to prevent 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.

Motor Vehicle and Other Transportation Deaths

Motor vehicle crashes are the leading cause of child deaths in the U.S.¹² In 2016, the most recent year for which national data is available, 2,606 children (age 0-17 years) were killed in motor vehicle crashes (as either occupants or drivers). Nationally, teenagers (age 15-17) and males make up the majority (44% and 59%, respectively) of child motor vehicle fatalities.¹³ Teens are more likely than older drivers to underestimate dangerous driving situations. In addition, teens have the lowest rate of seat belt use compared to that of other age groups.

Figure 32. Motor Vehicle-Related Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017



Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

In Tennessee, deaths from motor vehicle-related accidents represented the second greatest number of fatalities among all external causes of death. Figure 32 demonstrates the annual count and rate of motor vehicle-related child deaths for 2013-2017. In 2017, **65 deaths** were related to motor vehicles or transportation modalities, representing

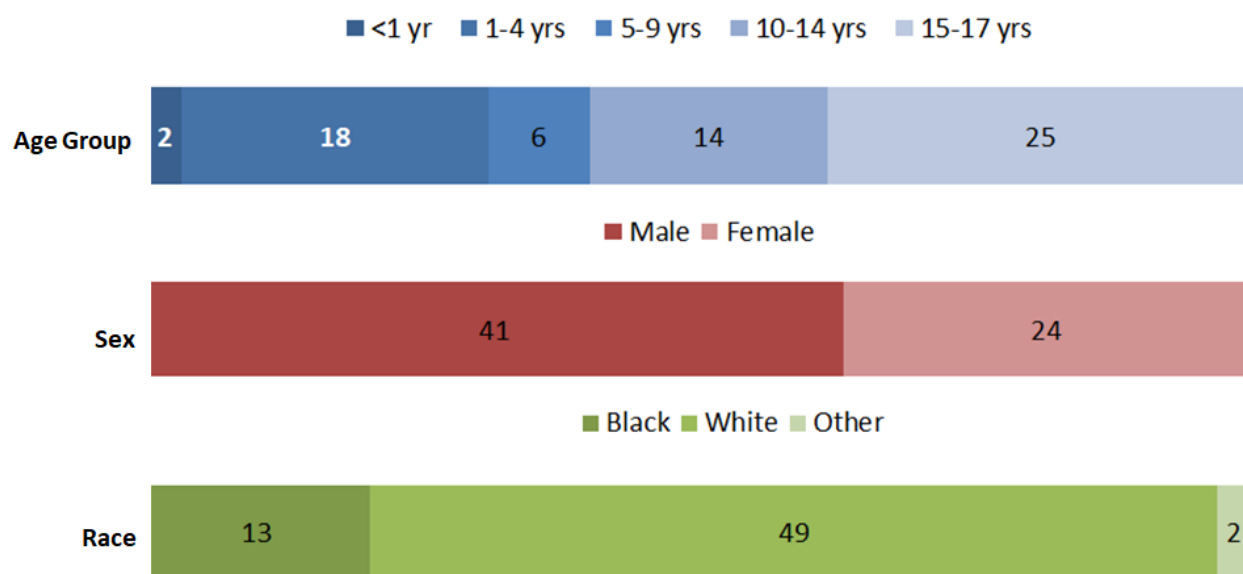
¹² Centers for Disease Control and Prevention: Leading Causes of Death Reports, 1999-2015, for National, Regional, and States (Restricted). Accessed at <http://webappa.cdc.gov/cgi-bin/broker.exe>

¹³ 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 percent of all reviewed child fatalities. This rate has not changed significantly from that of 2016. Figure 33 demonstrates the demographic distribution of motor vehicle fatality by age, sex, and race. Fatalities occurred more frequently among males (n=41) than females (n=24), and among whites (n=49) than blacks (n=13).

Motor vehicle-related deaths occurred among every age category although, predictably, those of driving age (within the 15-17 year age cohort) were affected most frequently. Of the 25 fatalities in that cohort, 44 percent (11 cases) were driving at the time of the accident. Table 21 summarizes the position of the children relative to the vehicle at the time of the accident. Among motor vehicle deaths where the child’s position could be determined, 84 percent (n=51) were drivers or passengers in a motor vehicle at the time of the incident. An additional ten motor vehicle-related deaths were pedestrians. As shown in Table 21, 20 child fatalities (39%) were drivers or passengers of a motor vehicle at the time of their death and confirmed to not be using recommended protective equipment, such as a seat belt, helmet or child/booster seat.

Figure 33. Demographic Distribution of Motor Vehicle Fatalities for Children Ages 0-17 Years Tennessee, 2017*



* Race was unknown for one death and is not shown in the figure.
Data source: Tennessee Department of Health, Child Fatality Review Database System.

Table 21. Motor Vehicle/Other Transport Fatalities for Children Ages 0-17 Years by Age Groups and Position with Respect to Vehicle, Tennessee, 2017

Victim Position	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Driver	0	0	0	3	11	14
Passenger	2	12	4	11	8	37
Pedestrian	0	5	2	0	3	10
Total	2	17	6	14	22	61*

*Child's position with respect to vehicle was unknown for four cases.
 Data source: Tennessee Department of Health, Child Fatality Review Database System.

Table 22. Motor Vehicle Deaths among Children Ages 0-17 Years by Vehicle Type and Protective Measure, Tennessee, 2017*

Vehicle Type	Protection Not Used	Protection Used	Unknown	Total Deaths
Car, Truck, Sport Utility Vehicle (SUV), Van	18	13	11	42
All-Terrain Vehicle, Motorcycle, Other*	2	2	5	9
Total	20	15	16	51**

*Includes three deaths by plane crash.
 **Total deaths by vehicle type shown are lower than total motor vehicle deaths because pedestrian deaths are excluded.
 Data source: Tennessee Department of Health, Child Fatality Review Database System.

FOCUSING ON PREVENTION: MOTOR VEHICLE DEATHS



Prevention opportunities include:

- Imposing stricter nighttime driving restrictions for teen drivers.
- Promoting of the importance of infant and child car seats and booster seats for infants, toddlers and young children.
- Enforcing laws which prohibit texting and driving.
- Encouraging school participation in teen driver safety programs such as “Battle of the Belt” or “Checkpoints™”.

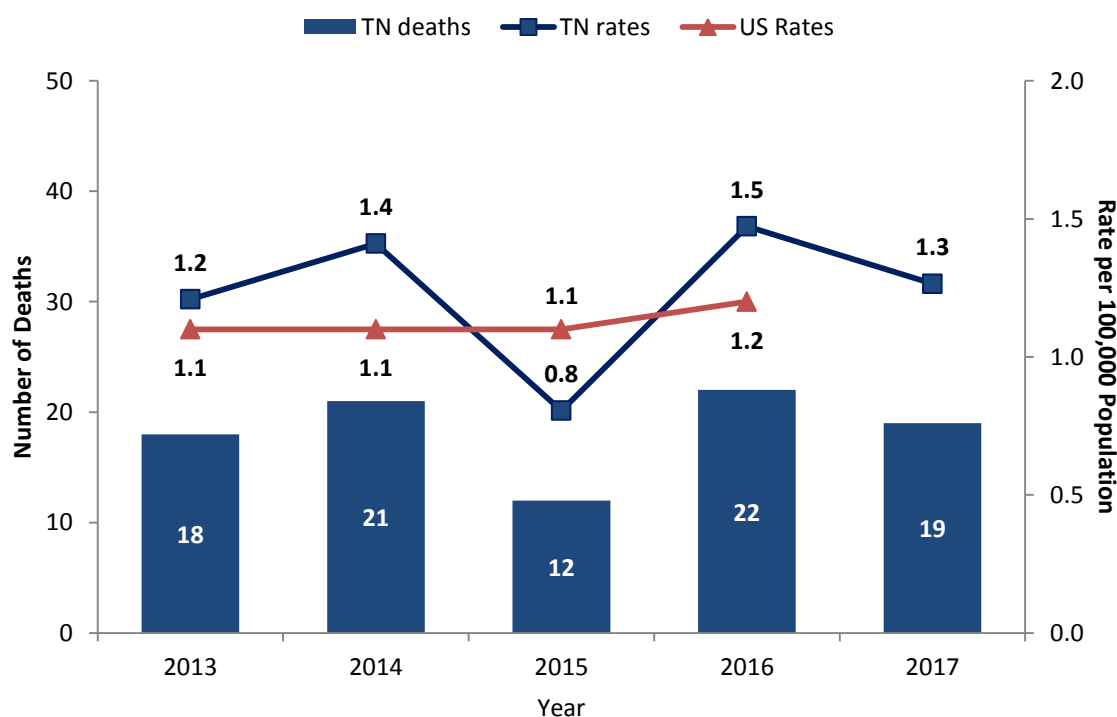
Current prevention efforts in Tennessee include:

- The Tennessee General Assembly passed a Graduated Driver’s License (GDL) law in 2001. TDH has created educational programming for parents and teens to raise awareness of, and compliance with, the GDL law.
- TDH, in conjunction with the regional trauma centers, sponsors “Battle of the Belt” and “Checkpoints™” programs to reduce teen motor vehicle-related injuries and fatalities.
- 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.
- TDH provided funding to 20 agencies through the end of FY2018 to purchase and distribute child safety seats and booster seats to families that could not afford them.
- Safe Kids provides car seat checks in the community through their “Buckle Up” program.

Drowning-Related Deaths

For all ages, drowning ranks fifth among the causes of unintentional injury death in the United States.¹⁴ Between 2012 and 2016, an average of 847 fatal drownings of children ages 0 to 17 years occurred annually in the United States. During this time period, drowning was the leading cause of death from unintentional injury for children ages 1 to 4 years and occurred most often in swimming pools.¹⁵ Nationwide, infant drownings occurred most often in bathtubs.¹⁶

Figure 34. Drowning Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017



Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

Figure 34 demonstrates the annual count and rate of child deaths due to drowning for 2013-2017 in Tennessee and the US. In Tennessee, **19** children died by drowning in 2017. This number represents approximately **two percent of all reviewed deaths**. As

¹⁴ 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>

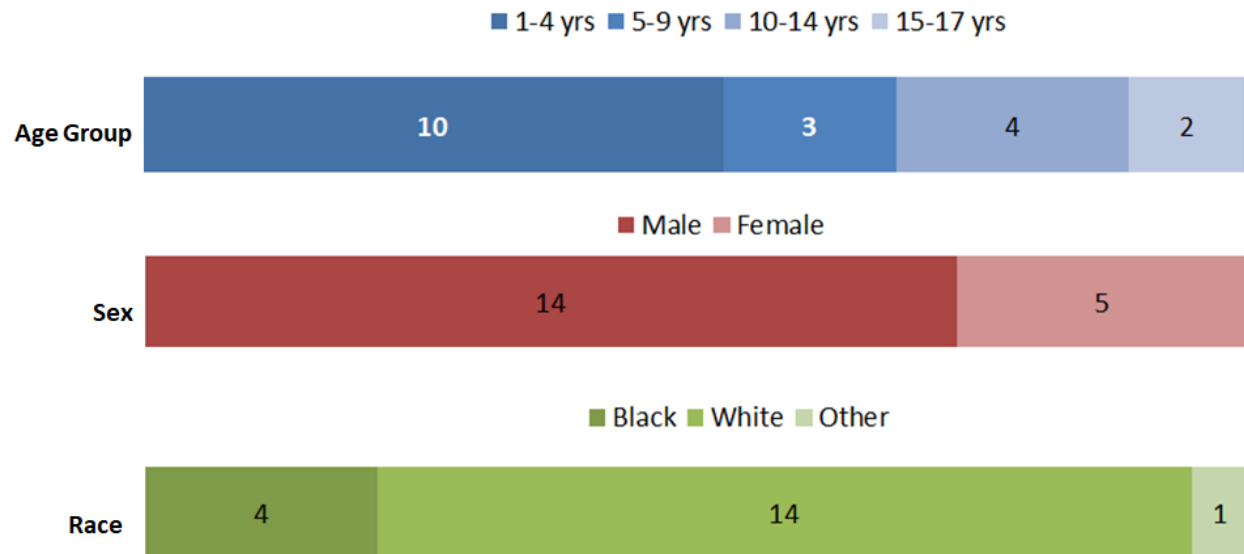
¹⁵ Centers for Disease Control and Prevention: National Center for Injury Prevention and Control. Injury Prevention Web-based Injury Statistics Query System (WISQARS). 2017. Accessed at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html

¹⁶ 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>

shown in Figure 35, drowning deaths were more frequent in males (n=14) and whites (n=14) than females (n=5) and blacks (n=4). Of the 19 drowning case reports, there was only one case with definitive knowledge that the child was able to swim.

Children were most commonly playing in a swimming pool (n=10), as shown in Table 23 and Figure 6. Of the 10 drowning deaths that occurred in a pool, only two had evidence of a barrier or protection around the pool.

Figure 35. Demographic Distribution of Drowning Deaths for Children Ages 0-17 Years Tennessee 2017



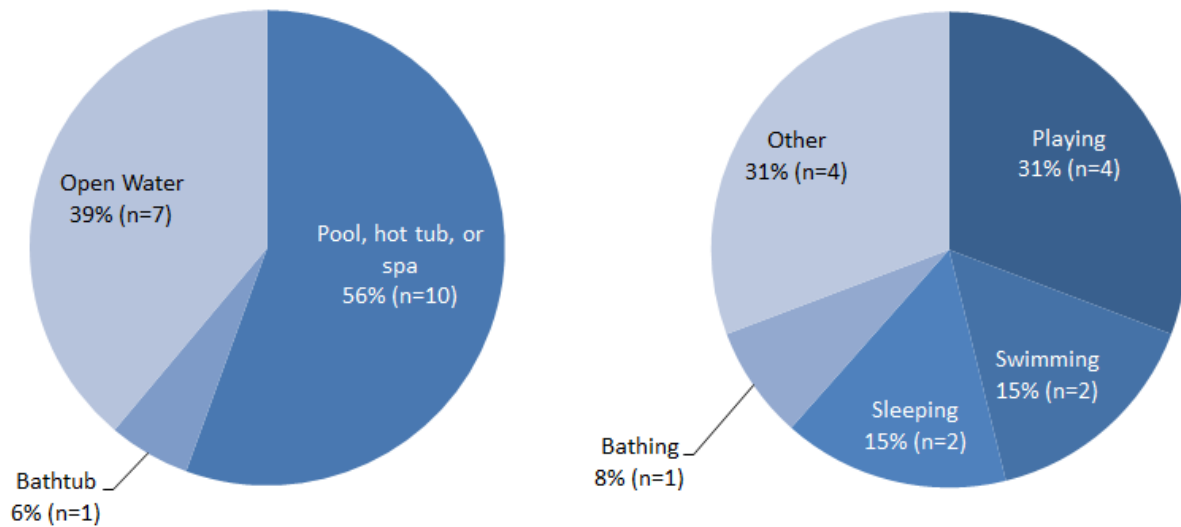
Data source: Tennessee Department of Health, Child Fatality Review Database System.

Table 23. Drowning Deaths for Children Ages 0-17 Years by Location and Age Groups Tennessee, 2017

Location of Accident	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Open Water	0	2	1	2	2	7
Pool, hot tub, spa	0	7	2	1	0	10
Bathtub	0	1	0	0	0	1
Unknown	0	0	0	1	0	1
Total	0	10	3	4	2	19

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

Figure 36. Drowning Deaths for Children Ages 0-17 Years, by Location and Activity at the Time of Death, Tennessee, 2017*



* The last known or observed activity of child before incident leading to drowning
 Note: Location of drowning was unknown for one case; last known activity was unknown for six cases.
 Data source: Tennessee Department of Health, Child Fatality Review Database System.

FOCUSING ON PREVENTION: DROWNING DEATHS



Prevention opportunities include:

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

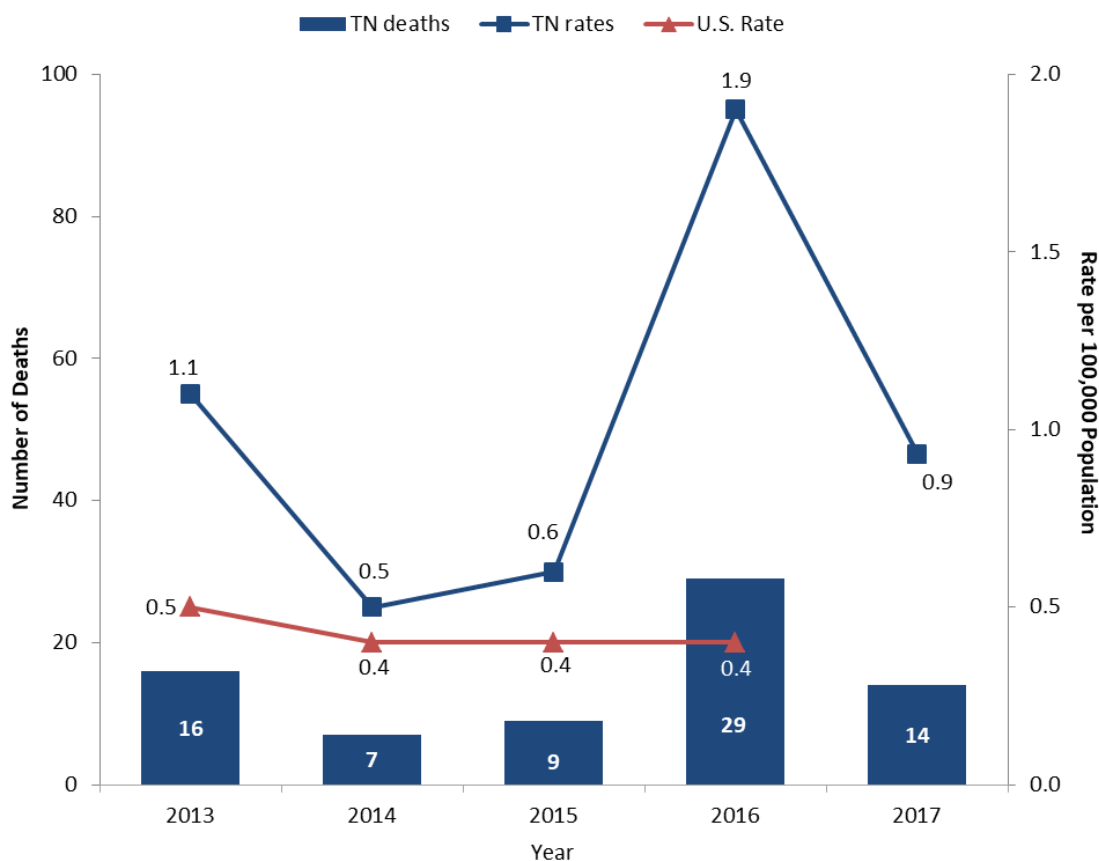
Current prevention efforts in Tennessee include:

- Safe Kids collaborates with community agencies throughout the spring and summer to provide water safety education to children and caregivers, including proper supervision of children in and around water, swimming with a friend, and use of properly-fitting and approved 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.¹⁷ In 2016, 269 children ages 0 to 17 years (0.37 per 100,000) died from unintentional fires nationally, of which 149 occurred in residential structures.¹⁸ Children ages 0 to 4 years have higher fire death rates compared to children 5 to 17 years.¹⁹ Rates for fire/burn deaths are also higher among black (vs. white) children nationally. Cooking is the leading cause of residential fires overall; however, most fatal fires are caused by smoking in the home.

Figure 37. Fire/Burn Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017



Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

¹⁷ 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

¹⁸ 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

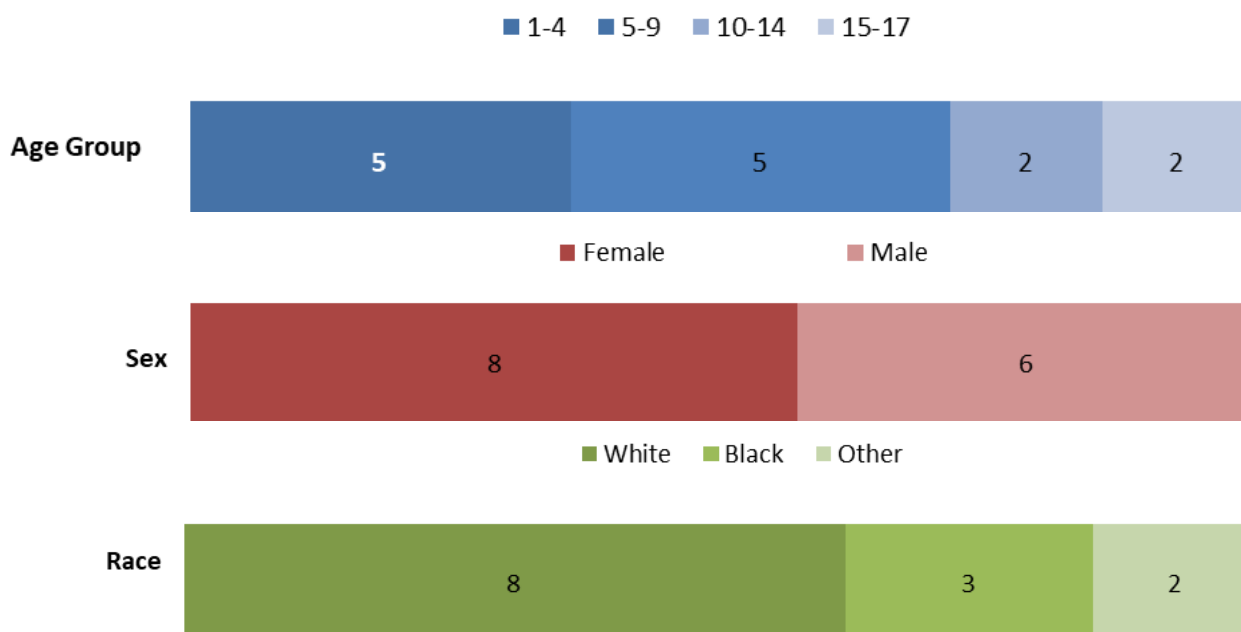
¹⁹ Federal Emergency Management Agency: U.S. Fire Administration. Child Fire Death Rates and Relative Risk 2002-2011. Accessed at https://www.usfa.fema.gov/data/statistics/fire_death_rates.html

Tennessee experienced a gradual increase in fire/burn deaths from 2014 to 2015, followed by an unusually high number of fire-related child fatalities (n=29) in 2016 (Figure 37). Seven house fires involving two or more children accounted for 21 of the 29 deaths in 2016. In 2017, there were 14 fire-related child deaths.

The majority of fire/burn-related deaths occurred among children who were 1-9 years old, female, and white (Figure 38).

The common sources of fire/burn deaths were cooking and heating stoves (Figure 39). Half of fire/burn deaths were in single family homes, followed by trailer/mobile homes, and apartments (Figure 40).

Figure 38. Demographic Distribution of Fire/Burn Deaths for Children Ages 0-17 Years Tennessee, 2017*



* Race was missing for one death and is not shown in the figure.
 Data source: Tennessee Department of Health, Child Fatality Review Database System.

Figure 39. Fire/Burn Deaths for Children Ages 0-17 Years by Fire Source Tennessee, 2017*

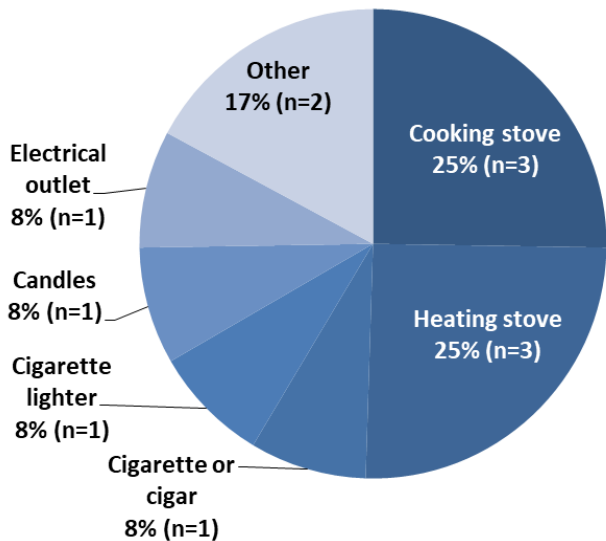
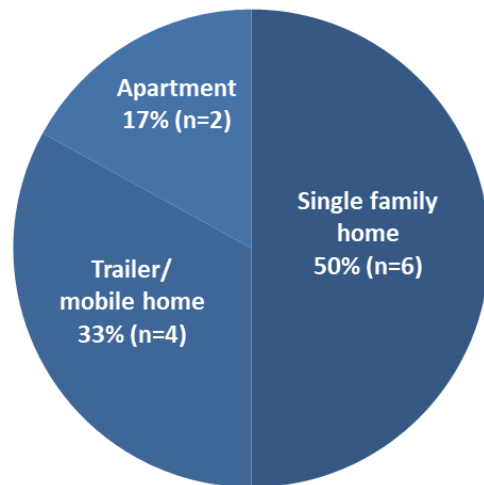


Figure 40. Fire/Burn Deaths for Children Ages 0-17 Years by Structure Type Tennessee, 2017



*Other includes: one child who was pouring gasoline on a backyard fire and one child who experienced electrical shock caused by a microwave capacitor.

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

FOCUSING ON PREVENTION: FIRE/BURN DEATHS



Prevention opportunities include:

- Expanding the reach of education to create awareness of fire safety and the cost of fires.
- Incorporating fire-safe features into high-risk appliances and devices (e.g., stoves, lighters).
- Distributing smoke alarms to low income families.

Current prevention efforts in Tennessee include:

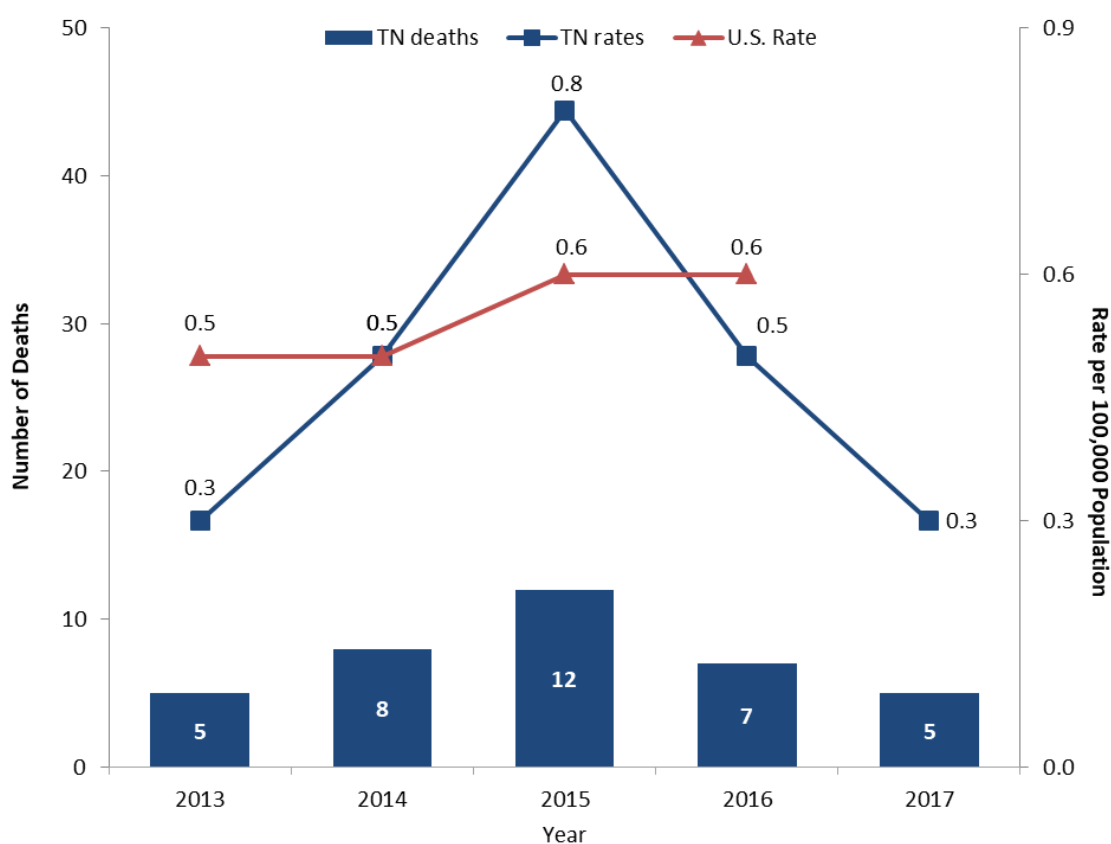
- "Get Alarmed, TN!" is a grant-funded fire safety education and smoke alarm installation program administered by the Tennessee Department of Commerce and Insurance's State Fire Marshall's Office (SFMO). The program provides fire safety education materials and smoke alarms to participating fire departments. The fire departments then deliver the education and install smoke alarms in at-risk homes across the state.
- The 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 Fire Prevention and State Fire Marshal's Office held a video contest which encouraged Tennesseans to convey crucial fire safety messages to their fellow residents. To view last year's winners, please visit <https://tn.gov/commerce/article/SFMO-Video-Contest>
- The "Sound Off with Home Fire Safety" Patrol was implemented in six rural counties in Tennessee to provide fire safety education in elementary school classrooms.

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. In 2016, 439 children ages 0 to 17 died by poisoning. This reflects a rate of 0.6 per 100,000 children in this age group. Sixty percent of poisoning deaths among children were unintentional. Males (vs. females) and teens (vs. other age groups) are more likely to die from unintentional poisoning.²⁰

In 2017, five children died from poisoning in Tennessee, representing 0.8 percent of all reviewed child fatalities. Figure 41 demonstrates the number and rate of poisoning deaths in Tennessee and the US from 2013 to 2017. **Opioid analgesic pain relievers are the most frequently involved substance in drug poisoning deaths in the United States.**

Figure 41. Poisoning Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017

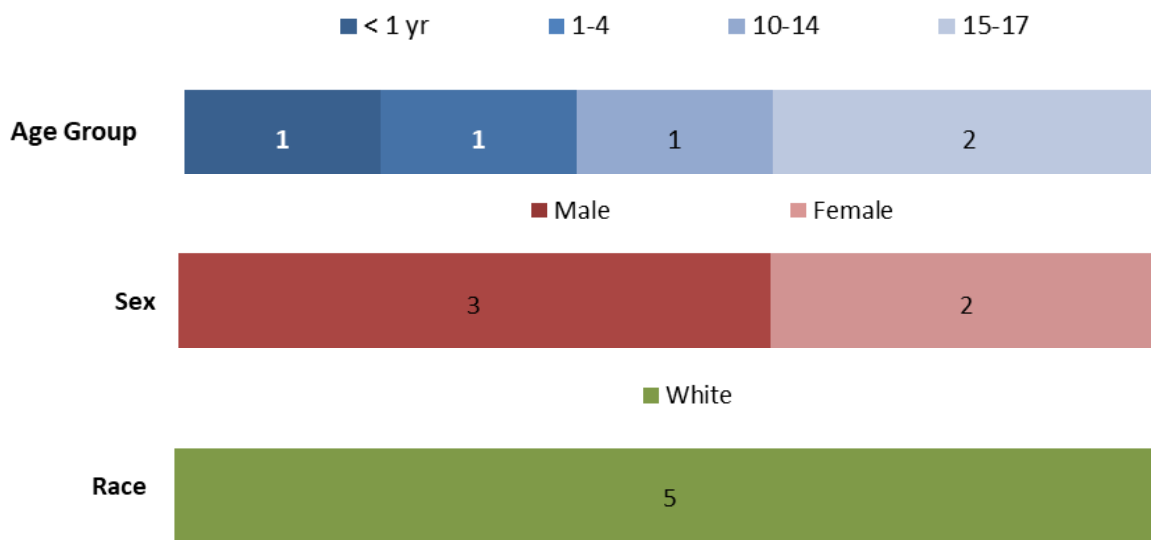


Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

²⁰ 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

Most of the cases occurred among teens ages 15-17 years (Figure 42). Three of the deaths were males, two were females, and all five were white children. A clear explanation for this racial disparity is not understood. **Two of five poisoning fatalities in Tennessee involved prescription drugs (Table 24).**

Figure 42. Demographic Distribution of Poison-Related Deaths for Children Ages 0-17 Years Tennessee, 2017



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

Table 24. Poison-Related Deaths among Children Ages 0-17 Years by Substance and Age Groups Tennessee, 2017*

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

*Other substances includes alcohol, carbon monoxide, other fumes/gas/vapors, bleach, drain cleaner, alkaline based cleaners, plants, pesticides, antifreeze, other chemicals or herbal substances.

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

FOCUSING ON PREVENTION: POISONING DEATHS



Prevention opportunities include:

- Expanding the reach of educational campaigns regarding prevention of prescription drug abuse and proper disposal of unused and expired medications.
- Increasing 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 for intervention and referral to appropriate treatment resources.

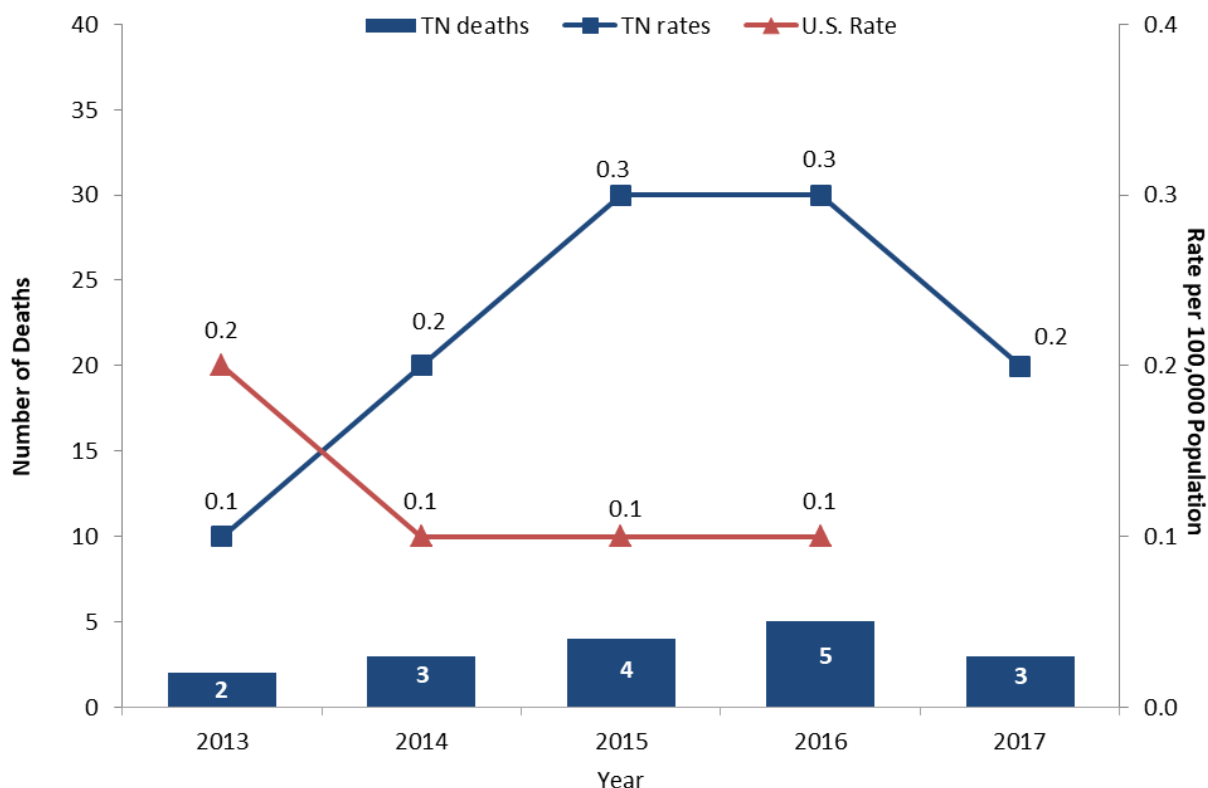
Current prevention efforts in Tennessee include:

- Tennessee 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 331 medication drop boxes in all 95 counties in Tennessee. Pharmacies house 92 of the boxes and 239 are at local law enforcement offices. As of September, 2018, 341,106 pounds of medications have been collected since the start of the program.
- The Department of Health partnered with the Prevention Alliance of Tennessee and the Department of Mental Health and Substance Abuse Services to promote the *Count It! Lock It! Drop It!*[™] program to substance abuse coalitions, county health councils, and other community groups. *Count It, Lock It, Drop It*[™] is a program used to educate and encourage the community to count medications, lock them up, and dispose of medications properly once expired or no longer needed. As of November 19, 2018, 93 of 95 counties have implemented the *Count It, Lock It, Drop It*[™] program and the remaining two counties have made verbal commitments to implement the program.
- The Tennessee General Assembly passed Tenn. Code Ann. § 53-11-308 to limit prescription opioid use by limiting supply, limiting strength and requiring all pharmacies to log prescriptions into a database.
- From August 2017 through September 2018, TDH posted social media messages regarding poisoning prevention, including messages shared during National Poison Prevention Week.

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 years.²¹ Nationally, approximately 2.3 million children are treated in emergency rooms for fall-related injuries. In 2016, 73 children ages 0 to 17 years died of unintentional fall injuries (0.10 per 100,000) nationally. Males 0 to 17 years have higher rates of fall-related deaths than females of the same age range.²²

Figure 43. Fall/Crush Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017*



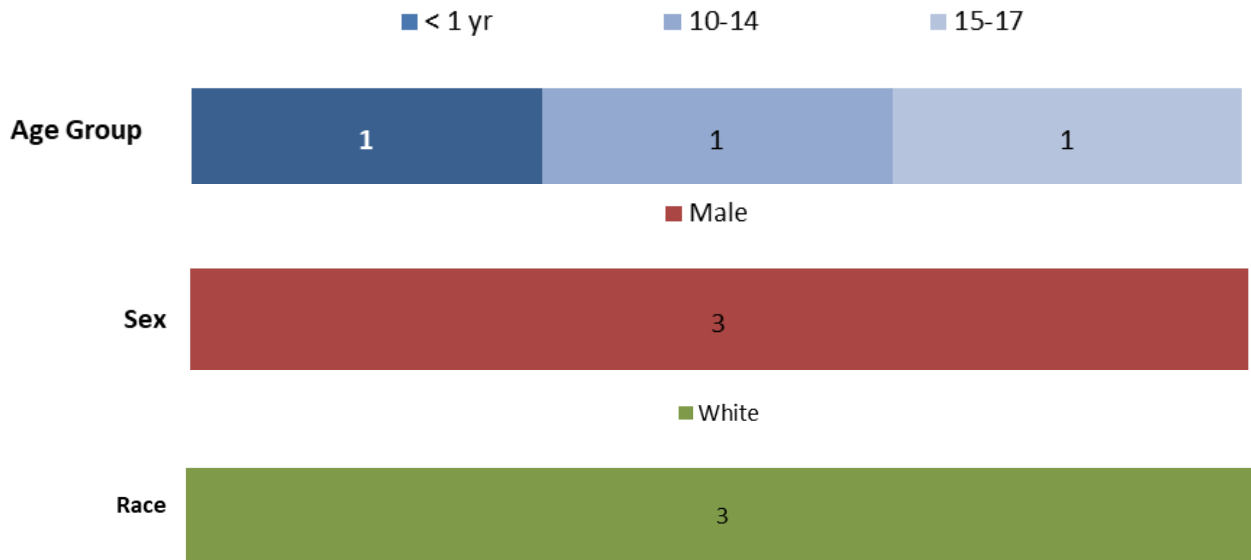
*Rates based on counts of less than 20 deaths are considered unstable and should be interpreted with caution. Data source: Tennessee Department of Health, Child Fatality Review Database System and population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

In Tennessee, three children died as the result of a fall or crush injury in 2017. Figure 43 demonstrates the number and rate of deaths due to fall or crush in Tennessee and the US from 2013 to 2017. All were white males (Figure 44). **These three deaths represent 0.3 percent of all reviewed child fatalities.**

²¹ 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>

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

Figure 44. Demographic Distribution of Fall/Crush Deaths for Children Ages 0-17 Years Tennessee, 2017



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

FOCUSING ON PREVENTION: FALL/CRUSH DEATHS



Prevention opportunities include:

- Implementing safety checks on playgrounds to ensure that playground equipment is safe and well-maintained.
- Encouraging child safety features, such as window guards, stair gates and guard rails, to prevent accidental falls in homes.
- Increasing awareness regarding the importance of supervision of children in home and outdoor settings.

Current prevention efforts in Tennessee include:

- Safe Kids provides education for parents and the community around home safety, including furniture safety (such as prevention of television and furniture tip overs) and child-proofing the home.
- Safe Kids publishes media reports about fall/crush injuries, including product safety recalls.
- Evidence-based Home Visiting programs provide child safety education to participants with young children.

Suicide

Implement a Tennessee Department of Health (TDH) suicide prevention program with a focus on understanding causes of the escalating trend in violence and implementing prevention programming.

This program will convene a key stakeholder group each quarter, synthesize available literature, analyze data from multiple sources, and create prevention recommendations for local and statewide implementation. Emergency department (ED) visits will be monitored through ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics), a database designed for syndromic surveillance which allows for the identification of geographic or demographic populations that are experiencing increased numbers of suicide attempts and provides opportunities for real-time coordinated prevention efforts which target those populations. The stakeholder group will evaluate the literature and determine evidence-based theories to explain the rise in youth suicide. TDH will collaborate with partners to better understand the impact of early traumatic experiences in childhood, media exposure, access to lethal means, and other factors on teen suicide trends.

TDH will collaborate with Tennessee Suicide Prevention Network, Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS) and Tennessee Department of Education (TDE) to identify high risk communities and populations and implement prevention efforts in identified areas. TDH will work with the TDE to encourage adoption and training on model suicide prevention programs, including prevention of suicide outbreaks in schools throughout Tennessee. Prevention education will include safe firearm storage and recognition of signs of suicidal ideation, along with efforts to increase the utilization of the suicide prevention checklist in schools. TDH will invite school safety officers and Department of Safety to be involved with school violence prevention activities. TDH will also explore opportunities to work with media outlets on best practices for reporting on suicide.

Teen Motor Vehicle Crashes

Increase evidence-based motor vehicle crash (MVC) prevention programs, such as Checkpoints™, in counties with the highest MVC - related child death rates.

TDH will collaborate with the Tennessee Highway Safety Office and Tennessee Department of Education to engage school systems in high-risk counties in adopting evidence-based or evidence-informed practices to reduce teen motor vehicle crash-related 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. TDH will provide training to schools to implement the Checkpoints™ program. TDH will collect data from the participating schools to determine the effectiveness of the program.

Safe Sleep

Expand efforts to improve the safety of infant sleep environments by increasing the number of community agencies implementing safe sleep education.

TDH will continue to work with all hospitals to encourage them to achieve the National Cribs for Kids certification and ensure that hospitals are teaching and modeling safe sleep behavior. TDH will explore a partnership with Tennessee Housing Development Authority to expand safe sleep education in housing developments. TDH will work closely with communities that are experiencing the greatest numbers of sleep-related deaths and will develop messages that resonate with affected populations. 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), hospitals, the WIC program and evidence-based home visiting programs to provide safe sleep education and portable cribs to families. TDH will collaborate with the Tennessee Commission on Aging to provide multi-generational safe sleep education.

Racial Disparities

Expand strategies to impact those causes/manners of death with large racial and ethnic disparities, such as sleep-related deaths and homicides.

TDH will collaborate with Department of Children’s Services, Tennessee Suicide Prevention Network, Tennessee Department of Education and TDH’s Office of Minority Health and Disparities Elimination to expand strategies targeting racial and ethnic disparities including the development of safe sleep campaign materials for specific caregivers, increased outreach to local housing authorities as partners in infant safe sleep education, increased teen-directed gun safety education and increased outreach to coaches to encourage the implementation of violence prevention programs such as Coaching Boys into Men™. TDH will also collaborate with the TDMHSAS to provide education on youth violence reduction within the juvenile justice system.

Medical

Increase access to medical services, such as family planning, 17-hydroxyprogesterone (17-OHP), and nicotine replacement therapy (NRT), to help promote healthy pregnancy and interconception care.

TDH will expand efforts to increase utilization of effective contraception to assist women of child-bearing age in avoiding unintended pregnancy by funding provider training statewide, minimizing barriers to long acting reversible contraception, and by expanding family planning services to substance treatment facilities. TDH will also partner with payers, providers, and March of Dimes to promote the appropriate use of 17-OHP to prevent preterm births. Tennessee has made significant improvements in prenatal smoking rates and additional focus will be on improving access to Baby and Me Tobacco Free and other tobacco prevention services. TDH will continue to focus on primary prevention via local health department and statewide efforts to increase physical activity to prevent chronic disease and unhealthy behaviors before pregnancy. Additional analysis of birth defects will be conducted to determine prevention opportunities.

TDH will collaborate with the Tennessee Initiative for Perinatal Quality Care (TIPQC), Tennessee Hospital Association (THA), Tennessee Primary Care Association, and TennCare Managed Care Organizations to implement medical recommendations. TDH will also increase Supportive Pregnancy group prenatal care participation through collaboration with the March of Dimes.

DATA TO ACTION

Statewide Activities

In December 2017, the State Child Fatality Review Team met to review aggregate child death data from the 2016 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 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 2018 report:

- 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).
- Increase the number of schools implementing evidence-based motor vehicle crash (MVC) prevention programs, such as *Checkpoints*[™], from 24 in 2017 to 40 in 2018, with emphasis in counties with the highest MVC child death rates. In addition, promote the availability and correct usage of child safety seats.
- 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 in 2017 to 12 in 2018. In addition, provide safe sleep education and portable cribs to families in need.
- Identify and implement a minimum of three strategies to target racial and ethnic disparities. In addition, expand strategies already in place.
- 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.

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:

Suicide

- Eighty-three hospitals are currently reporting emergency department data to the ESSENCE system, allowing for real time surveillance of suicide attempts and identification of areas in need of suicide prevention training and other resources.
- ACEs continue to be a focus of training for Tennessee state and local education staff. This training now includes a component that addresses the importance of building resilience.

Motor Vehicle

- TDH continues to collaborate with the Department of Education and the State's trauma centers to promote involvement in the *Battle of the Belt* seat belt program to high schools. Direct mail and emails were sent to all Tennessee public high schools. These communications shared teen crash data and invited schools to conduct seat belt use education. In 2018, the program website was updated and online tools were created to increase the efficiency of the program. Currently, there are twelve schools registered for Battle of the Belt.
- TDH has implemented a pilot of the **Checkpoints™** program in Williamson County schools which has resulted in more than 3,000 parent-teen driving agreements. 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. This program also facilitates the creation and implementation of a parent-teen driving agreement and informs parents of what they can do to help their teens become safer drivers. In 2018, the *Checkpoints™* curriculum was updated to include the most recent teen crash data and to include information regarding drowsy driving. An electronic tool was created to collect data on *Checkpoints™* to streamline the data collection process.
- A teen driving task force, with representation from the Department of Health, Department of Education, Governor's Highway Safety Office, Mothers Against Drunk Driving, Tennessee Highway Patrol, Vanderbilt Trauma Center and UT Trauma Center continued to meet. The goal of this task force is to increase teen motor vehicle crash prevention education in schools. This year, the task force held talking sessions with students and community leaders in each Grand Region to learn what students felt would help prevent crashes.
- The Governor's Highway Safety Office's website promotes teen driving prevention activities within high schools. www.reducetncrashes.org allows anyone to click on a county and view a list of available motor vehicle prevention activities. Participating schools may also input prevention activities in which they are participating. During the 2017-2018 school year, 58 schools participated in the

program, choosing from 52 separate activities, including *CheckpointsTM* and *Battle of the Belt*.

- TDH continued to fund community agencies to purchase and distribute child safety seats. TDH collaborated with the Governor's Highway Safety Office in 2018 to promote the use of car seats during Child Passenger Safety Week.

Safe Sleep

- Birthing hospitals continue to abide by the safe sleep policies that were developed in 2014. As part of the Safe Sleep Policy project, another 84,000 *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 2018, TDH, along with the Tennessee Hospital Association, continued 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, four 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 which includes 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 *ABCs of Safe Sleep*. Over the past year, four new first responder agencies implemented the D.O.S.E. program, increasing the total number of actively participating departments to sixteen. Since implementation, agencies have distributed 1,928 safe sleep kits and 122 portable cribs.
- TDH implemented the ***Safe Sleep Floor Talker*** project in 2014 and continued to place floor talkers across the state in 2018. The floor talkers are large vinyl decals designed to be placed on the floors of businesses, daycare centers, clinics and other agencies. To date, 1,494 floor talkers have been distributed and placed.
- Over 1,700 portable cribs and 800 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 399 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.
- Safe Sleep materials were translated into four additional languages-- Somali, Nepali, Burmese and Swahili-- and are available for download from the safe sleep website (safesleep.tn.gov).
- TDH provided training to new community partners on infant safe sleep, including multiple housing authorities in Washington, Carter, Hamilton, and Knox Counties.

Health Disparities

- TDH provided funding for family planning clinics and Federally Qualified Health Centers to provide Voluntary Reversible Long Acting Contraceptives (VRLACs) to interested and eligible women.
- TDH provided funding to the March of Dimes for the development and implementation of group prenatal care in partnership with healthcare providers across the state.
- TDH expanded safe sleep partnerships to include more Kappa Alpha Psi fraternity chapters, housing developments and faith based organizations.
- TDH provided funding to the Primary Care Association for nicotine replacement therapy for women of child bearing age.

Medical

- TDH provides support for the education of incarcerated women on topics such as VRLACs, Neonatal Abstinence Syndrome, and reducing unwanted pregnancies.
- The Birth Defects Committee reconvened and a new Birth Defects Report was completed in 2018.

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
 - continued to educate female inmates about Neonatal Abstinence Syndrome (NAS) and family planning services, and provided contraceptives to interested inmates
 - local hospital provided families with portable cribs
- Judicial District 2
 - local team member (a registered nurse) visited clinics to educate providers and clients on NAS
 - continued to educate female inmates about Neonatal Abstinence Syndrome (NAS) and family planning services, and provided contraceptives to interested inmates
- Judicial District 3
 - collaborated with stakeholders to educate the community on infant safe sleep practices
 - implemented the *Journey* program curriculum through the juvenile court system, targeting local high schools and educating students about how substance use can inhibit the ability to care for a child
 - Department of Children’s Services provides infant safe sleep education to any family in need
 - Local District Attorney follows-up with juvenile judge on any family court referrals to ensure DCS is aware of situations involving children
- Judicial District 4
 - started an “Anti-vaping Campaign” in local high schools
 - worked with a local coffee shop to show a screening of the film, *Resilience* to increase awareness of the impact of ACEs and the importance of building resilience
 - collaborated with TSPN to provide gun safety information to the community

- distributed infant safe sleep church bulletin inserts to local faith organizations and at community baby showers and provided portable cribs to families in need
- implemented suicide prevention activities throughout the community to raise awareness on youth suicide prevention and educate the community on available resources. Education included impact on mental health and overall wellness
- Judicial District 6
 - collaborated with Tennessee Adolescent Pregnancy Prevention Program (TAPPP) to provide suicide prevention messaging at local high school football games
 - distributed portable cribs to families in need and provided infant safe sleep education
 - continued education and meetings around suicide prevention in the community
- Judicial District 7
 - Family Drug Court is developing a new program in collaboration with local schools to identify children and families at risk for substance misuse and facilitate completion of the program
 - Child Advocacy Center provides child safety seat checks and collaborates with TDH to distribute portable cribs to families in need
- Judicial District 8
 - local DCS trains all staff members to recognize and appropriately address child abuse situations
 - Regional Health Office delivers infant safe sleep education to prenatal classes and in pediatricians' offices Judicial District 9 collaborated with Kids First Child Advocacy Center to provide bicycle helmet education
- Judicial District 10
 - provides infant safe sleep education through their care coordination services, home visiting agencies, and local health departments
- Judicial District 12
 - continued to provide infant safe sleep education in their local health departments
- Judicial District 20
 - streamlined their home visiting agency referral program to improve access to resources for families in need

- trained more than 20 housing authority maintenance workers on the D.O.S.E. model to assess for unsafe sleep environments, provide families with infant safe sleep education and improve upon safe sleep practices
- collaborated with local pharmacies to distribute infant safe sleep education to caregivers
- presented information about disparities in breastfeeding within the African American community and how to utilize peer advocacy to increase breastfeeding rates
- developed a small workgroup to increase timely communication and coordination between DCS and other agencies when a child death occurs
- Judicial district 24
 - provided information on the importance of smoke detectors within the community
- Judicial District 26
 - hosted a booth to provide safe sleep information at the first annual Safe Kids Day at Jackson State Community College

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 2017 child mortality rate for Tennessee was 65.3 child deaths per 100,000 child population, a significant (12 percent) increase from the rate of 58.5 in 2013. Tennessee's 2017 child fatality rate is 28 percent above the 2016 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.

APPENDICES

Appendix A—Table and Figures

Tables

1. Number and Rate of Child Deaths for Ages 0-17 Years by Race, Tennessee, 2013-2017
2. Number and Rate of Infant Deaths for Ages Less than 1 Year by Race, Tennessee, 2013-2017
3. Medical and External Causes of Death by Manner for Children Ages 0-17 Years Tennessee, 2017
4. Medical and External Causes of Death, Summary for Children Ages 0-17 Years Tennessee, 2017
5. Manner of Death, Summary for Children Ages 0-17 Years, Tennessee, 2017
6. External Cause of Death (Injury Causes) for Children Ages 0-17 Years by Age Group Tennessee, 2017*
7. Medical Cause of Death for Children Ages 0-17 Years by Age Groups, Tennessee, 2017
8. Risk Factors Associated with Infant Deaths Reviewed by Tennessee CFR Teams, 2017*
9. Acts of Child Abuse and Neglect among Reviewed Deaths for Children Ages 0-17 Years Tennessee, 2017*
10. Children with Disability for Reviewed Deaths of Children Ages 0-17 Years by Age Group Tennessee, 2017*
11. Children with Special Circumstances for Reviewed Deaths of Children Ages 0-17 Years Tennessee, 2017*
12. Categorization for SUID Case Registry for Infants Less than 1 Year, Tennessee, 2017
13. Unsafe Sleep Factors for Infants Less than 1 Year, Tennessee, 2017
14. Categorization for SDY Case Registry for Children Ages 0-17 Years, Tennessee, 2017
15. Suicides for Children Ages 0-17 Years by Victim Age Groups and Method, Tennessee, 2017
16. Weapons-Related Deaths for Children Ages 0-17 Years by Manner of Death and Age Group, Tennessee, 2017
17. Homicide and Suicide Deaths due to Firearms for Children 0-17 Years by Owner of Firearm, Tennessee, 2017
18. Number of Sleep-Related Infant Deaths and Rates by Race Tennessee, 2013-2017
19. Contributing Factors in Sleep-Related Infant Deaths, Tennessee, 2013-2017
20. Asphyxia Cause of Death for Children Ages 0-17 Years by Age Groups, Tennessee, 2017

21. Motor Vehicle/Other Transport Fatalities for Children Ages 0-17 Years by Age Groups and Position with Respect to Vehicle, Tennessee, 2017
22. Motor Vehicle Deaths among Children Ages 0-17 Years by Vehicle Type and Protective Measure, Tennessee, 2017*
23. Drowning Deaths for Children Ages 0-17 Years by Location and Age Groups, Tennessee, 2017
24. Poison-Related Deaths among Children Ages 0-17 Years by Substance and Age Groups Tennessee, 2017*

Figures

1. Summary of Year-to-Year Trends for Selected Causes of Deaths Reviewed Tennessee, 2013 - 2017
2. Number and Rate of Child Deaths for Ages 0-17 Years Tennessee, 2013-2017
3. Child Mortality Rate for Ages 0-17 Years by Race, Tennessee, 2013-2017
4. Number and Rate of Infant Deaths for Ages Less than 1 Year, Tennessee, 2013-2017
5. Infant Mortality Rate for Ages Less than 1 Year by Race, Tennessee, 2013-2017
6. Child Deaths Reviewed by Age Group, Tennessee, 2017
7. Child Deaths Reviewed for Ages 0-17 by Sex, Tennessee, 2017
8. Child Deaths Reviewed for Ages 0-17 by Race, Tennessee, 2017*
9. Manner of Death Summary, Children Ages 0-17 Years, Tennessee, 2017
10. Cause of Death Summary, Children Ages 0-17 Years, Tennessee, 2017*
11. Medical and External Causes of Death for Children Ages 0-17 Years by Age Group Tennessee, 2017*
12. Rate of Child Mortality Ages 0-17 Years by Cause of Death, Tennessee, 2013-2017
13. Rate of Child Mortality Ages 0-17 Years by Manner of Death, Tennessee, 2013-2017
14. Preventability of Child Deaths Ages 0-17 Years by Cause of Death, Tennessee, 2017
15. Homicide Deaths and Rates per 100,000 Population Ages 0-17 Years
16. Demographic Distribution of Homicide Deaths for Children Ages 0-17 Years
17. Weapon Type used in Homicide Deaths for Children Ages 0-17 Years
18. Homicide Deaths for Children Ages 0-17 Years by Victim's Location Tennessee, 2017
19. Suicides and Suicide Rates per 100,000 Children Ages 0-17 Years
20. Demographic Distribution of Suicides for Children Ages 0-17 Years
21. Method of Suicides for Children Ages 0-17 Years, Tennessee, 2017*
22. Location of Suicides for Children Ages 0-17 Years, Tennessee, 2017**
23. Weapons-Related Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017*

24. Demographic Distribution of Weapons-Related Deaths for Children Ages 0-17 Years Tennessee, 2017
25. Weapons-Related Deaths for Children Ages 0-17 Years by Weapon Type, Tennessee 2017*
26. Weapons-Related Deaths for Children Ages 0-17 Years by Manner of Death, Tennessee, 2017**
27. Number of Sleep-Related Infant Deaths, Tennessee, 2013-2017
28. Sleep-Related Death Rates by Race Tennessee, 2013-2017
29. Number of Sleep-Related Infant Deaths in Tennessee by Region, 2016 vs 2017
30. Unintentional Asphyxia Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017*
31. Demographic Distribution of Asphyxia Deaths for Children Ages 0-17 Years
32. Motor Vehicle-Related Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017
33. Demographic Distribution of Motor Vehicle Fatalities for Children Ages 0-17 Years Tennessee, 2017*
34. Drowning Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017
35. Demographic Distribution of Drowning Deaths for Children Ages 0-17 Years Tennessee 2017
36. Drowning Deaths for Children Ages 0-17 Years, by Location and Activity at the Time of Death, Tennessee, 2017*
37. Fire/Burn Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017
38. Demographic Distribution of Fire/Burn Deaths for Children Ages 0-17 Years
39. Fire/Burn Deaths for Children Ages 0-17 Years by Fire Source Tennessee, 2017*
40. Fire/Burn Deaths for Children Ages 0-17 Years by Structure Type, Tennessee, 2017
41. Poisoning Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017
42. Demographic Distribution of Poison-Related Deaths for Children Ages 0-17 Years Tennessee, 2017
43. Fall/Crush Deaths and Rates per 100,000 Children Ages 0-17 Years Tennessee and the US, 2013-2017
44. Demographic Distribution of Fall/Crush Deaths for Children Ages 0-17 Years

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 – The effect, illness, or condition leading to an individual's death: Medical Condition or External Cause (Injury). A different classification from Manner of Death.

Child Fatality Review (CFR) Team– Tennessee's local/regional groups, comprised of representatives from such agencies as public health, law enforcement, social services, and others, that work together to 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) – Willfully endangering a child's health and welfare.

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

Contributing Factors – Actions or circumstances that may elevate the 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.

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

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.

Department of Children's Services- Social service system engaged in protecting children from maltreatment.

Exposure – Cause of death directly related to environmental factors. May also refer to death from hyper- or hypothermia from prolonged or extreme exposure to environmental temperatures.

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.

Hyperthermia – High body temperature.

Hypothermia – Low body temperature.

Infant – Child under one year of age.

Manner of Death – The intent of a death, i.e. whether or not a death was caused by an act carried out on purpose by oneself or another person(s): Natural, Accident, Suicide, Homicide, or Undetermined.

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 death indicating a medical cause, such as congenital condition, 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, 2017

County	Deaths	Population, Ages 0-17	Rates per 100,000 Population
ANDERSON	8	15,918	50.3
BEDFORD	5	12,114	41.3
BENTON	2	3,091	64.7
BLEDSON	1	2,320	43.1
BLOUNT	12	26,283	45.7
BRADLEY	12	23,309	51.5
CAMPBELL	5	8,036	62.2
CANNON	1	2,997	33.4
CARROLL	1	6,082	16.4
CARTER	5	10,510	47.6
CHEATHAM	1	9,014	11.1
CHESTER	1	3,932	25.4
CLAIBORNE	1	6,043	16.5
CLAY	1	1,532	65.3
COCKE	11	7,178	153.2
COFFEE	5	13,063	38.3
CROCKETT	3	3,427	87.5
CUMBERLAND	5	10,445	47.9
DAVIDSON	115	147,212	78.1
DECATUR	3	2,430	123.5
DEKALB	5	4,261	117.3
DICKSON	10	12,182	82.1
DYER	9	8,828	101.9
FAYETTE	4	7,726	51.8
FENTRESS	0	3,819	0.0
FRANKLIN	6	8,587	69.9
GIBSON	11	11,865	92.7
GILES	3	6,181	48.5
GRAINGER	1	4,698	21.3
GREENE	5	13,495	37.1
GRUNDY	4	2,872	139.3
HAMBLEN	6	14,667	40.9
HAMILTON	53	75,815	69.9
HANCOCK	1	1,345	74.3
HARDEMAN	6	4,917	122.0

HARDIN	3	5,269	56.9
HAWKINS	11	11,295	97.4
HAYWOOD	4	3,907	102.4
HENDERSON	3	6,278	47.8
HENRY	7	6,686	104.7
HICKMAN	2	5,199	38.5
HOUSTON	1	1,763	56.7
HUMPHREYS	4	3,983	100.4
JACKSON	1	2,108	47.4
JEFFERSON	8	10,814	74.0
JOHNSON	5	2,959	169.0
KNOX	52	98,606	52.7
LAKE	0	1,078	0.0
LAUDERDALE	8	5,934	134.8
LAWRENCE	13	10,738	121.1
LEWIS	2	2,558	78.2
LINCOLN	4	7,407	54.0
LOUDON	4	10,139	39.5
MCMINN	6	11,181	53.7
MCNAIRY	2	5,633	35.5
MACON	6	5,922	101.3
MADISON	17	22,490	75.6
MARION	2	5,989	33.4
MARSHALL	5	7,610	65.7
MAURY	15	21,433	70.0
MEIGS	0	2,503	0.0
MONROE	3	9,864	30.4
MONTGOMERY	42	53,354	78.7
MOORE	2	1,227	163.0
MORGAN	4	4,144	96.5
OBION	5	6,557	76.3
OVERTON	1	4,691	21.3
PERRY	1	1,723	58.0
PICKETT	0	912	0.0
POLK	5	3,241	154.3
PUTNAM	10	16,891	59.2
RHEA	7	7,420	94.3
ROANE	4	9,898	40.4
ROBERTSON	6	16,778	35.8
RUTHERFORD	46	78,292	58.8

SCOTT	2	5,286	37.8
SEQUATCHIE	1	3,052	32.8
SEVIER	9	20,011	45.0
SHELBY	200	232,892	85.9
SMITH	2	4,446	45.0
STEWART	1	2,736	36.5
SULLIVAN	16	30,363	52.7
SUMNER	13	43,155	30.1
TIPTON	7	15,047	46.5
TROUSDALE	2	2,021	99.0
UNICOI	4	3,299	121.2
UNION	2	4,236	47.2
VAN BUREN	1	1,079	92.7
WARREN	6	9,507	63.1
WASHINGTON	25	24,947	100.2
WAYNE	3	2,830	106.0
WEAKLEY	7	6,722	104.1
WHITE	4	5,770	69.3
WILLIAMSON	11	61,283	17.9
WILSON	21	32,216	65.2
Tennessee	980	1,501,566	65.3

Note: Rates based on counts of less than 20 deaths are considered unstable and should be interpreted with caution.

Data source: Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2017.
Population estimates based on interpolated data from the U.S. Census's Annual Estimates of the Resident Population.

Appendix D—Infant Deaths by County of Residence

Table 26. Infant Mortality (Number and Rate) by County, 2017

County	Deaths	Live Births	Infant Mortality Rate per 1,000 Live Births
ANDERSON	6	779	7.7
BEDFORD	3	671	4.5
BENTON	2	166	12.0
BLEDSON	1	114	8.8
BLOUNT	5	1,219	4.1
BRADLEY	8	1,237	6.5
CAMPBELL	2	468	4.3
CANNON	1	189	5.3
CARROLL	0	315	0.0
CARTER	2	481	4.2
CHEATHAM	0	461	0.0
CHESTER	0	190	0.0
CLAIBORNE	1	344	2.9
CLAY	1	68	14.7
COCKE	6	362	16.6
COFFEE	3	673	4.5
CROCKETT	2	149	13.4
CUMBERLAND	3	499	6.0
DAVIDSON	70	10,063	7.0
DECATUR	0	112	0.0
DEKALB	4	225	17.8
DICKSON	7	641	10.9
DYER	7	469	14.9
FAYETTE	2	427	4.7
FENTRESS	0	178	0.0
FRANKLIN	4	424	9.4
GIBSON	5	601	8.3
GILES	0	309	0.0
GRAINGER	0	219	0.0
GREENE	1	641	1.6
GRUNDY	1	169	5.9
HAMBLETON	2	758	2.6

HAMILTON	35	4,234	8.3
HANCOCK	0	64	0
HARDEMAN	5	253	19.8
HARDIN	1	245	4.1
HAWKINS	8	533	15.0
HAYWOOD	2	209	9.6
HENDERSON	1	318	3.1
HENRY	1	322	3.1
HICKMAN	1	261	3.8
HOUSTON	0	74	0
HUMPHREYS	4	218	18.3
JACKSON	1	101	9.9
JEFFERSON	3	486	6.2
JOHNSON	3	144	20.8
KNOX	30	5,206	5.8
LAKE	0	58	0
LAUDERDALE	4	309	12.9
LAWRENCE	8	580	13.8
LEWIS	1	139	7.2
LINCOLN	2	396	5.1
LOUDON	3	499	6.0
MCMINN	2	612	3.3
MCNAIRY	2	276	7.2
MACON	5	355	14.1
MADISON	10	1,231	8.1
MARION	2	335	6.0
MARSHALL	3	409	7.3
MAURY	12	1,276	9.4
MEIGS	0	137	0
MONROE	2	489	4.1
MONTGOMERY	28	3,383	8.3
MOORE	0	57	0
MORGAN	1	200	5.0
OBION	2	327	6.1
OVERTON	1	225	4.4
PERRY	1	103	9.7

PICKETT	0	39	0
POLK	1	173	5.8
PUTNAM	6	887	6.8
RHEA	5	410	12.2
ROANE	2	458	4.4
ROBERTSON	4	863	4.6
RUTHERFORD	23	4,029	5.7
SCOTT	2	265	7.5
SEQUATCHIE	0	169	0
SEVIER	4	1,060	3.8
SHELBY	132	13,176	10.0
SMITH	2	221	9.0
STEWART	1	139	7.2
SULLIVAN	13	1,539	8.4
SUMNER	7	2,194	3.2
TIPTON	6	690	8.7
TROUSDALE	1	105	9.5
UNICOI	4	165	24.2
UNION	2	196	10.2
VAN BUREN	1	72	13.9
WARREN	1	498	2.0
WASHINGTON	17	1,232	13.8
WAYNE	2	146	13.7
WEAKLEY	4	315	12.7
WHITE	2	309	6.5
WILLIAMSON	8	2,400	3.3
WILSON	14	1,567	8.9
Tennessee	597	81,002	7.4

Note: Rates based on counts of less than 20 deaths are considered unstable and should be interpreted with caution.

Data source: Tennessee Department of Health, Office of Vital Records and Health Statistics, Death Statistical File, 2017.

Expanding *Checkpoints*[™] and Reducing Teen Motor Vehicle Crashes

Teen motor vehicle crashes are one of the leading causes of preventable child deaths in Tennessee. In 2017, there were 25 deaths among teens of driving age. *Checkpoints*[™] is an evidence-based, parent-oriented teen driving intervention. The program consists of a one-hour class and is attended by new teen drivers and their parents. *Checkpoints*[™] provides parents with information about the risks teens face when driving, how to help their teens drive more safely, and how to effectively communicate with their teens about safe driving. The class also includes education on the Graduated Driver's License (GDL) system, a minimum standard used in Tennessee to reduce the risks of teen driving.



The program was piloted in Williamson County, TN, beginning in the fall of 2017. Schools required students to participate in the program in order to be able to drive to and from school and to be assigned a parking pass. In the 2017-2018 school year, 3,122 pre-tests and 2,817 post-tests were completed by program participants. Of the teens educated through this program, 62.9% had their intermediate restricted driver's license and 27.1% had their learner permit. At the end of the class, parents and teens were asked to provide feedback on the knowledge gained from the *Checkpoints*[™] program. Parents and students reported significant increases in their general knowledge of Tennessee's GDL, teen driving risks, and GDL requirements.

In the last year, this program has expanded to some of the counties with the highest teen crash rates in Tennessee. In Montgomery County, seven public schools and three private schools were trained on implementing the *Checkpoints*[™] program. At this time, three additional schools in Montgomery County have implemented the *Checkpoints*[™] program for the 2018-2019 school year. Cheatham County Schools have also trained their personnel to conduct the program in three high schools. Knox County Schools and Blount County Schools are also considering implementation of the *Checkpoints*[™] program.

Evidence-based programs such as *Checkpoints*[™] help reduce teen driving risks by providing a collaborative effort to increase knowledge of those risks and hold teens and families accountable for risky behavior. Developing safe driving habits early on can lead to the development of lifelong habits which contribute to safer driving.

Safe Sleep: Addressing the Disparity Through Community Involvement

In Tennessee, infant sleep-related deaths continue to be a leading cause of preventable infant death. A sleep-related death is 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 the baby is found wedged against two objects which may have contributed to the infant's suffocation or strangulation. In Tennessee, the rate of sleep-related deaths in black infants is 3.0 per 1,000 births, more than double the rate among white infants (1.4 per 1,000 live births). Tennessee Department of Health (TDH) has partnered with the Kappa Alpha Psi fraternities, local housing authorities and faith based communities to expand the reach of safe sleep education to include those groups with the highest disparity.

The Kappa Alpha Psi fraternity has a fatherhood initiative to educate Kappa members and build alliances within communities which assist in education and awareness around infant sleep-related deaths. The goal of the initiative is to engage men as role models who teach other men, grandfathers, uncles, brothers, and community stakeholder about ways to reduce infant sleep-related deaths. TDH has provided safe sleep trainings and materials to the alumni of the Kappa Alpha Psi fraternities, who are each tasked with going out into their communities to educate 25 other men on infant safe sleep practices.

Another partnership TDH has expanded to promote safe sleep has been with local housing authorities. Maintenance workers and office staff are asked to participate in a brief training on infant safe sleep. They are given educational materials and portable cribs to provide to families that do not have a safe sleep environment for their infants. These trainings have been provided in the East, Northeast, Southeast, Mid-Cumberland and West regions of Tennessee.

TDH has also partnered with faith-based communities to provide more than 33,100 safe sleep church bulletin inserts. Faith-based organizations are capable of reaching multigenerational and multi-racial audiences to spread the safe sleep message. The church bulletin insert includes statistics on infant sleep-related deaths and a personal story from a Tennessee mother whose child died in an unsafe sleep environment. This educational insert has the potential to reach multiple infant caregivers, including grandparents, baby sitters, and church nursery workers.

Preventing Deaths by Suicide through Surveillance



Youth suicide is a growing problem in Tennessee and is a leading cause of preventable adolescent death. In 2017, 51 children 10-17 years of age died by suicide. There has been a 24 percent increase in youth suicide from 2016 to 2017. In 2018, Tennessee Department of Health (TDH) developed a means of surveilling suicide attempts through ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics), a database designed for syndromic surveillance, and now monitors suicide attempt trends on a weekly basis. This monitoring allows for the identification of geographic or demographic populations that are experiencing increased numbers of suicide attempts and provides opportunities for real-time coordination of prevention efforts which target those populations.

As of October, 2018, there are 83 hospital emergency departments that submit information through the ESSENCE system. A data point is created when certain diagnosis codes are entered or specific terms are used in the presenting patient's chief complaint. If the number of patients presenting with complaints or diagnoses suggestive of suicide attempt exceeds that of the predictive algorithm, an alert is triggered. TDH staff monitors the system's dashboard each week to identify alerts, and notify the Tennessee Suicide Prevention Network (TSPN) when alerts occur. TSPN provides suicide prevention training to schools and other agencies in areas identified as having increased suicide attempts. In 2018, the Tennessee General Assembly approved the Suicide Prevention Act of 2018, allowing for the creation of a suicide prevention program at TDH. This legislation requires that TDH complete the following tasks by 2021: compile existing data on suicide deaths; review existing resources and programs related to suicide prevention; identify evidence-based or promising practices related to the prevention of suicide; convene relevant stakeholders to review existing data, programs and resources and identify opportunities to improve data collection and analysis and programming; and submit a report to the General Assembly no later than June 30, 2020 which includes recommendations for programs or policies to prevent suicide deaths. TDH is in the process of identifying a director for this program and looks forward to having staff who are dedicated to this important work.

Teaching Students about Safe Sleep

Education around the importance of the *ABCs of Safe Sleep* should reach beyond new parents to engage all potential infant caregivers. Upper Cumberland Region’s Child Fatality Review Team has recognized the need to educate students who might care for infants or eventually become parents. Upper Cumberland Regional Health Department has built relationships with local high schools, as well as the nursing program at Tennessee Technological University (TTU), to provide students with education regarding safe sleep.

Reaching high school students with education on infant safe sleep practices can be challenging due to an already packed high school curriculum. The staff at the Upper Cumberland Regional Health Department reached out to high schools in counties with the highest teen pregnancy rates and asked school administrators for permission to present the *ABCs of Safe Sleep* to students. Five schools agreed to host the trainings, with two of those schools asking for additional trainings. As of October 2018, 254 students had been trained, including students who had children of their own and those who had frequent interactions with infants.

Upper Cumberland Regional Health Department has also created a partnership with TTU’s nursing program in Cookeville, TN. Teachers and professors provide information on infant sleep-related deaths and the importance of the *ABCs of Safe Sleep* to their nursing students. The *ABCs of Safe Sleep* has been adopted as a regular part of the TTU nursing program curriculum. Nurses are highly trusted by the public and have the opportunity to educate patients on proper health habits and influence behavior changes.



East Tennessee: Expanding Safe Sleep Education Efforts

The *ABCs of Safe Sleep* are intended to be followed every time a baby is sleeping, including nap time and night time. As infants frequently sleep away from home, all caregivers must be educated about infant safe sleep. TDH's East Regional Health Department has been building unique partnerships to help educate and reach individuals, including grandparents, baby sitters, medical providers and child care providers. Other communities have provided infant safe sleep information at community baby showers. These collaborations have continued to expand the reach of safe sleep messaging. One important partnership includes partnership with local faith-based communities. The team leaders for the local CFR teams visited local churches to distribute the Safe Sleep Church Bulletin inserts. Faith-based communities have the potential to reach multi-generational audiences that may have contact with infants. The church bulletin includes statistics on infant sleep-related deaths in Tennessee, education around the importance of the *ABCs of Safe Sleep* and a story from a Tennessee mother who lost her son due to an unsafe sleep environment.

A community baby shower was hosted for Jefferson and Hamblen County residents in August, 2018. The East Regional Health Office set up a Safe Sleep informational booth at the event, which included a portable crib and infant doll modeling a safe sleep environment. The booth also included onesies, the *Sleep Baby Safe and Snug* board book, and safe sleep door hangers, fliers, diaper bags, and bag tags. According to a survey completed by attendees, more than 625 individuals participated in the event, with nearly one quarter of the participants being adult caregivers other than the mother of the infant.

The CFR team in East Region has also partnered with local hospitals to include infant safe sleep education in their prenatal classes. Safe sleep materials have also be handed out to local pediatric provider offices for distribution to all new mothers.

East Regional Health Department has another unique partnership with the Child Advocacy Center (CAC). When the CAC conducts car seat checks, parents are asked if they have a safe sleep environment for their infant. The CAC provides a portable cribs and safe sleep educational materials to those in need.

Engaging Local High Schools to Reduce Teen Motor Vehicle Crashes

Motor vehicle crashes are a leading cause of death in teenagers. In 2017, there were 25 deaths involving teenagers of driving age. In an effort to reduce fatalities and injuries due to motor vehicle crashes, TDH's Northeast Regional Health Office has collaborated with Johnson City Medical Center's Trauma Center to implement *Battle of the Belt*, a statewide competition between high schools to promote seatbelt use. In the 2017-2018 school year, three high schools in the Northeast region participated in the program: Unaka High School in Carter County, Science Hill High School in Johnson City, and Davy Crocket High School in Washington County.

Each fall, students of participating schools conduct seatbelt checks to determine their school's baseline number of students who properly wear seatbelts. The students then take a seatbelt pledge and the schools implement as many seat belt safety awareness activities as they feel necessary to achieve 100 percent safety belt use for all who access the school property. These activities may include daily announcements, campus speakers and demonstrations. The students then conduct a second seatbelt check in the spring.

All participating schools create a presentation based on their prevention efforts. The schools are scored on their improvement in seat belt use, quality of their prevention education efforts and their use of media campaigns. The winner receives the coveted *Battle of the Belt* trophy. In Tennessee's Northeast region, Unaka High school won the Battle, having achieved a 10.22% increase in seatbelt use.

Engaging students in programs which provide education about the dangers of distracted driving, the importance of wearing a seat belt and the need to obey graduated driver's license laws has been shown to reduce injuries and fatalities among teen drivers. During the 2017-2018 school year, several other schools in the Northeast Region participated in activities to reduce motor vehicle crashes, such as *Students Against Destructive Decisions*, and the *Committed to Safety* program. Many others hosted guest speakers who educated students on the importance of safe driving.

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

JD 2 (Sullivan County)

Kathy Benedetto	Barry Honeycutt	Heather Mullins
Andrea Black, JD	William Hudson, MD	Karen Nave
Justin Bush	Capt. Joel Jones	Teresa Nelson, JD
Julie Canter, JD	Ashley Justice	Jim Perry
Lt. Sean Chambers	Christina Keen	Debbie Richmond
Steven Combs, MD	Stephen May, MD	Jessica Ritchie
Jason English	Gary Mayes	Emily Smith, JD
Sheriff Michelle Gilliam	Darrell Mears	Barry Stabus, JD
William Harper, JD	Janice Miller	Michelle Steadman
Sheriff Ray Hayes	Marjorie Miller	Sgt. Martin Taylor

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

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

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

Juli Allen	Susan Blair, RN	Teresa Moyers Atty.
Charles Arms	Derek Chambers	Rodney Satterfield
Amy Ball	Kristin Dean, PhD	Jodi Stott
Jeremy Ball	Rita Hillhouse, RN	Tara Sturdivant, MD
Don Best, BSE, ME	David McConnell, MD	Derrick Woods

JD 5 (Blount County)

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

JD 6 (Knox County)

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

JD 7 (Anderson County)

Emily Abbott	Bobbi Jo Henderson	Det. Rodney Minor
Thomas Clary, MD	Kelly Johnson	Angela Perez
Anthony Craighead	Autumn Mays	Jodi Stott
Margaret Durgin	Darinka Mileusnic-	Tara Sturdivant, MD
Traci Golbach	Polchan, MD, PhD	Rune Wright

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

Jeff Acres	Det. Ricky Jeffers	Bruce Perkins
Juli Allen	Rosemary Jeffers	Meredith Slemp
Kristi Clark	Det. Randy Lewallen	Jodi Stott
Kim Hammock	Jeff Mann, MD	Tara Sturdivant, MD
Stacey Heatherly	John Norris	Zachary Young-Lutz, RN

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

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

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

Jeannie Bentley	Carol Henson	Dana Mulcahy
Deanna Brooks	Det. Cody Hinson	Calvin Rockholt
Allyson Cornell, MD	Sandra Holder	Teresa Rogers
Det. Shaunda Efaw	Nita Jergian	Lt. David Shoemaker
Tina Florey	Travis Jones	Nadine Stone
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	Nita Jergian	Charlene Nunley
Allyson Cornell, MD	Julie Anna Johnson	Rhonda Sills
Kimberly A. Dean	Joye Layman	Inv. Kevin Snyder
Carol Henson, RN	Kelly Lusk	Lt. Coy Swanger
Jessica Hill	Susan Merriman	Mike Taylor
Sandra Holder	Dana Mulcahy	

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

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

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	James Payne
Matt Batey	Felicia Harris	Michael Railing
Darlene Brown	Marty Hinson	Ray Russell
Robert Bryan	Steve Hopper	Ricky Slack
Patrick Cockburn	Heather Jefferies	R. Stafford
Jean Coffee	Nathan Miller	Tom Swink
Tina Davis, RN	Christina Moody	Mark Taylor
Mark Gammons	Brian Newberry	Tommy Thompson, JD
Pat Gannon	Donald Nuessle, MD	Sharice Williams
Scott Giles, DO	Kristi Paling	

JD 16 (Cannon and Rutherford Counties)

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

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

Tammy Anderson	Robert J. Carter, DA	Jill Murdock, RN
Sarah Bates, RN	Mike Clements	Shaun Noblit
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	
David Brumley, DDS	Penny Hawk	
Richard Wright		

JD 18 (Sumner County)

Alison Asaro, MD Jay Austin Amy Burke-Salyers	Chief David Hindman Chief Mark Jenkins Ray Whitley, JD	Tara Wyllie, JD
--	--	-----------------

JD 1901 (Montgomery County)

Alison Asaro, MD Eric Berg, MD John Carney, JD Mary Davila	Kimberly Lund, JD David Mendoza, MD Sabrina Sanford Fred Smith	Joey Smith Sarah Wilkins Danette T. Woodcock
--	---	--

JD 1902 (Robertson County)

Alison Asaro, MD Hunter Butler, MD Rebecca Chafatelli	Regina Duffie Det. James Kendrick Nicole Martin	Cleatsa Pope
--	---	--------------

JD 20 (Davidson County)

D'Yuanna Allen-Robb Amanda Burke Alison Butler Susan Campbell Amy Campbell-Pittz Erin Carney, MD Ron Carter Anjenetta Cook Monica Coverson Trevor Crowder	Bryan Currie Emily Dennison, MD Tony Hayes Margreete Johnson, MD Johanna Lee Charlsi Legendre Sarah Loch Tyronda McClellan Brook McKelvey Michael Meadors, MD	Gloria Morrison Jan Norman William Paul, MD Raquel Qualls-Hampton Scott Ridgway Mary Ann Smith Dawn Smith Obrenka Thompson Lisa Weakley Jennifer Weatherly, RN
--	--	--

JD 2101 (Hickman, Lewis, and Perry Counties)

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

JD 2102 (Williamson County)

Sgt. Charles Achinger Alison Asaro, MD Det. Robert Cardan Alicia Hardemon Shannon Langford Feng Li, MD	Jeff Long Zannie Martin Peggy Phillips Det. Tameka Sanders Samuel Smith, MD Capt. Cindy Strange	Tamara Swinson Lt. Monty Terry Lt. John P. Wood Brittany Youngblood
--	--	--

JD 2201 (Giles, Lawrence, and Wayne Counties)

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

JD 2202 (Maury County)

LeeAnne Boeringer	Michelle Estes, RN	Gayle Martin
Katelyn Bojoquez	Susan Ferencei	Shaun Noblit
Jamie Brown	Tommy Goetz	Jennifer Owens, RN
David Brumley, DDS	Jason Griggs	Kimberly Primm, RN
Mike Clements	E. Ann Ingram	Lang Smith, MD
Brent Cooper, DA	Andy Jackson	Lt. Roscoe Voss
Det. Terry Dial	Micheal Kash	Lisa Williamson
Sgt. Jeff Duncan	Andrew Kenney	

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

Karen Anderson	Alana Carmical	Venk Mani, MD
Alison Asaro, MD	Regina Duffie	Nicole Martin
Det. Mark Bausell	Christy Espey	Inv. Ken Miller
Sgt. J.D. Blackwell	Maggie Filson	Capt. Randy Starkey
Sharrie Booker	Claudette Fizer	Timothy Stavelly
Comm. Eddie Breeden	Lawrence Jackson, MD	Kevin Suggs

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

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

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

Kinney Bridges	Richard Griggs	Stephen Shopper
Christy Chandler	Raven M. Icaza	Det. Sheri Wassel
Falen Chandler	Ginny Jaco	Inv. David Webb
Shavetta Conner, MD	Kristy King	Tracy Worlds
Det. Scottie DeLashmit	Rives Seay	
Sherika Goodman	James Shelton	

JD 26 (Chester, Henderson, and Madison Counties)

Corie Currie	Donna Heatherington	Lisa Piercey, MD
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	Lindsey Nanney, RN	

JD 27 (Obion and Weakley Counties)

Kate Bynum	Keith Jones	Drew Vernon
Shavetta Conner, MD	Kristy King	Chief Randall Walker
Christy Espey	Marty Plunk	Angie Workman
James Robert Halter	Laura Toney	Rick Workman
Lt. Stan Haskins	Tommy Thomas	

JD 28 (Crockett, Gibson, and Haywood Counties)

Gary Brown, JD	Chief Roger Jenkins	Elashia Ramsey
Shavetta Conner, MD	Kristy King	Tony Rankin
John Copeland	Inv. Dennis Mitchell	Maigon Shanklin
Christy Espey	Lt. Roy Mosier	Selina Williams

JD 29 (Dyer and Lake Counties)

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

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
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.