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# Davidson County Child Death Review Team Annual Report

Data for 2013



*Metro Public Health Dept*

Nashville/Davidson County

Protecting, Improving, and Sustaining Health

Davidson County Child Death Review Team Annual Report, Data for 2013

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# The Child Death Review Process

When a child dies:

- The birth and death certificates are sent from the Tennessee Department of Health (TDOH) to the Metro Public Health Department (MPHD) Child Death Review Team Leader. Deaths are put on the docket for review if they resided in Davidson County at the time of death, were aged 0 to 17 years, and did not die out of state. Infants are included if they were born on or after 22 weeks gestation, or were born at a weight greater than 500 grams. Copies of the birth and death records are sent to the team members.
- All team members search their agency or organization for applicable files and bring either the records or case summaries to team meetings. Available records are also requested from programs within MPHD.
- At the team's monthly meetings, each case is reviewed until a consensus is reached to close the case. A case remains under review (sometimes 2-3 months) until all information relating to the case is obtained and discussed. This information may include autopsy results, hospital medical records, school disciplinary records, investigation information provided by the police and the Department of Children's Services (DCS), and judicial information provided by the District Attorney and Juvenile Court.
- The team reviews available information and comes to a consensus on whether the child death was preventable. A preventable death is defined as one in which some action or actions of individuals or systems would have alleviated the circumstances that led to a specific child death.
- The TDOH data collection form is completed using the information obtained in the review process. The team leader enters the information into a statewide database managed by the National Center for the Review & Prevention of Child Deaths (NCRPCD).
- After all cases are reviewed for the calendar year, an annual report is produced. The purpose of the report is to share findings and assist in the development of data-driven recommendations for the prevention of child deaths.

# Preface

The Davidson County Child Death Review Team (CDRT) reviewed eighty-four infant and child deaths (ages 0 to 17) for the calendar year 2013, to better understand how and why these children died. Case review for children who died during the 2013 calendar year began in August 2013 and ended in September 2014. Data cleaning and analysis started in January 2015. The delay was the result of competing demands and publications. The CDRT is empowered by State statute (T.C.A. 68-42-101) and a Mayoral Executive Order to conduct reviews to achieve the following goals:

1. Ensure an accurate inventory of child fatalities by age, location, cause, manner, and circumstance.
2. Support adequate child death investigation.
3. Enable multi-agency collaboration, cooperation, and communication at the state and local levels regarding child fatalities.
4. Analyze patterns and trends in child deaths from all causes, including abuse and neglect, unsafe sleep environment, and inadequate medical care, or public health services.
5. Enhance the general awareness of child death through the understanding of why and how children die.
6. Develop community prevention initiatives from the findings of the child death review team.

This report presents the key findings and recommendations from the CDRT, designed to help prevent future deaths of children in Davidson County.

## Recommendations and Actions

Each year, based on the results of child death investigations, the CDRT makes recommendations for policy, infrastructure, and service changes in an effort to prevent future childhood mortality. Recommendations are forwarded to the TDOH State Child Fatality Team where they are consolidated with recommendations from other teams across the State. These recommendations fuel legislative, programmatic, and policy agendas for the State of Tennessee. When recommendations are applicable to the local level, the Davidson County CDRT takes a role in the implementation either through direct interaction with the agencies and organizations involved, or through facilitating contacts and partnerships with appropriate community groups. The Davidson County CDRT made the following recommendations based on review of 2013 cases:

1. The team discovered a gap in representation to the CDRT that prevented access to information included in the mother's medical record. As such information can be important to a successful and thorough review, the team recommended that a process be created that would facilitate our access to those records.

**Action:** After receiving clarification from the Tennessee Child Fatality Review Team about our legal authority to obtain those records, the CDRT is working with the Metropolitan Department of Law to craft a boilerplate letter that can be sent to providers in possession of required records. Additionally, the Team Leader meets regularly with the Medical Abstractor of the Fetal and Infant Mortality Review (FIMR) to discuss medical records where the two programs overlap. It is important to note that only information from the medical record is shared; confidentiality regulations for the FIMR program prohibit the sharing of information from the maternal interview.

2. The CDR team recommended that a state-wide campaign be designed to counter the claim that people "don't want to get involved" in cases of child abuse. The campaign should detail how to report suspected child abuse and that reports can be made anonymously.
3. The team recommended that the State conduct an evaluation of the quality and accuracy of vital statistics data. During its work reviewing child deaths, the team often encounters errors or omissions on birth and death certificates, and recognizes that these inaccuracies can impact the quality and timeliness of our reviews. The team also suggested that the list of congenital anomalies on the birth transcript be expanded to include more of the commonly seen anomalies.
4. The team has noted inconsistencies in the referral system intended to connect families with needed services. The CDRT recommended an analysis of data from the Central Referral System to determine the actual rates of referral and the subsequent rates of service participation.

## Recommendations and Actions, continued

5. The CDR team expressed concern regarding the adequacy of student protections on urban streets at the beginning and end of school days. The team recommended that the current policies regarding traffic in that specific area be assessed and modified as warranted to increase student safety during certain times of the day.

*Action:* The team crafted and sent a letter stating its concern and support for increased student protections to the Bicycle and Pedestrian Advisory Committee (BPAC). This Mayoral-appointed committee works to improve safety for bicyclists and pedestrians in Nashville and Davidson County. The intent is to develop a working relationship with this group to facilitate this recommendation and any applicable recommendations in the future.



# Executive Summary

The CDRT reviewed the deaths of eighty-four children who died in 2013.

## Demographics

- 59 deaths (70.2%) occurred among children less than 1 year of age.
- 6 deaths (7.1%) occurred among children aged 1 to 4 years.
- 4 deaths (4.8%) occurred among children aged 5 to 9 years.
- 7 deaths (8.3%) occurred among children aged 10 to 14 years.
- 8 deaths (9.5%) occurred among children aged 15 to 17 years.
- 1 death (1.2%) occurred among Asians.
- 14 deaths (16.7%) occurred among Hispanics.
- 39 deaths (46.4%) occurred among non-Hispanic blacks.
- 30 deaths (35.7%) occurred among non-Hispanic whites.
- 52 deaths (61.9%) occurred among males.

## Manner of Death

- 56 deaths (66.7%) were due to natural causes.
- 13 deaths (15.5%) were due to unintentional injuries.
- 8 deaths (9.5%) were due to undetermined<sup>a</sup> causes.
- 4 deaths (4.8%) were due to homicide.
- 3 deaths (3.6%) were due to suicide.

*70.2% of child deaths occurred to children less than one year of age and 46.4% of deaths occurred to non-Hispanic black children.*

<sup>a</sup> Undetermined deaths are defined as “any death for which manner is unknown after extensive autopsy and crime scene investigation”. In 2013, all 8 sleep-related deaths were categorized as undetermined. Changes in classification of SIDS deaths have increased the number of deaths marked undetermined. A specific section on sleep-related deaths is included in this report.

## Preventability of Deaths

For 2013, twenty-five deaths (29.8%) were judged to have been preventable, and in four deaths (4.8%), preventability could not be determined.

- 12 (92.3%) deaths due to unintentional injury were judged as preventable.
- 7 (100%) homicide and suicide cases were judged as preventable.
- 6 (75%) undetermined deaths were judged as preventable.

## Factors that Hindered Review or Resulted in Specific Action

- Inaccurate or incomplete death/birth certificates hindered case review in 31 (36.9%) cases.
- The CDRT disagreed with the official manner of death in 1 (1.2%) case, and disagreed with the official cause of death in 1 (1.2%) case.
- In 4 (4.8%) cases, review was hindered by the absence of necessary team members.
- Information was needed from another state or in-state locality in 2 (2.4%) cases.
- In 1 (1.2%) case, regulations of the Health Insurance Portability and Accountability Act (HIPAA) prevented access to or exchange of information.
- Official manner or cause was changed because of the case review in 2 (2.4%) cases.
- Action was taken by the Department of Children's Services (DCS) as a result of the death in 8 (9.5%) cases.

*100% of homicide and suicide cases, 92.3% of unintentional injury deaths, and 75% of undetermined deaths were judged as preventable.*

## An Important Note on Interpretation

The data presented in this report are compiled from many different sources, and may not be representative of the characteristics of children in Davidson County as a whole. Substance use, for example, is generally underreported because of low testing rates and clinical practice patterns. Therefore the rates reported here are conservative estimates.

Additionally, since details emerge from a variety of sources on each death, errors in the data are more readily identified. For this reason, the data presented in this report might differ from data published from other stand-alone sources, such as vital records. For example, an analysis of prenatal care based on information from vital records and medical records could differ from an analysis of prenatal care from vital records alone.

Death is the final outcome of a continuum of circumstances, and the data collected by the CDRT represents this extreme. Therefore, caution should be used when extrapolating these results to the general population. However, the data collected by the CDRT clearly illustrates areas where the systems, policies, and practices of a community fail to adequately protect children. As such, this information provides a valuable tool to promote and advocate for systems change.

# Demographics and Spatial Analysis

## Demographics

The population in Davidson County, according to the 2013 census estimates, was approximately 650,000, of which 21.6% were under the age of 18. The racial and ethnic composition of the population was mostly non-Hispanic white (65.8%) and non-Hispanic black (28.1%), with a growing percentage of Hispanic residents (9.9%)<sup>1</sup>. There were 9,911 births in Davidson County in 2013 (birth rate: 15.0 per 1,000 population), 8.8% of which were born weighing less than 2500 grams (low birth weight).

Five-year census estimates (2009-2013) indicate that among persons under the age of 18, 30% subsisted on an income below the federal poverty level<sup>2</sup>. Among family households, 24.2% contain children under the age of 18, and 42.8% of grandparents living with their grandchildren are the primary caretakers<sup>3</sup>.

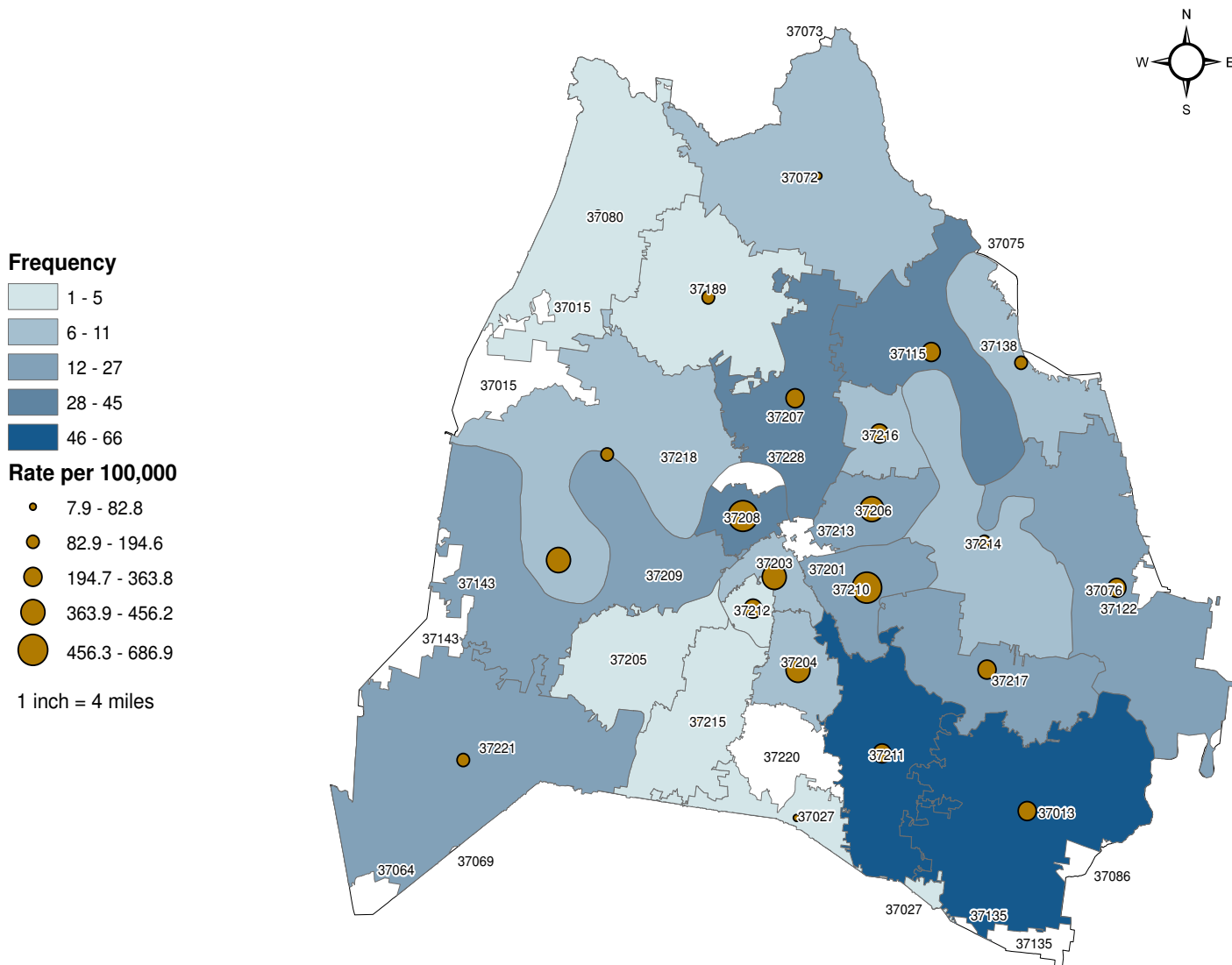
## Spatial Analysis

Figure 1 depicts the distribution and rates of the reviewed infant and child deaths that occurred between 2009 and 2013 by zip code (430 deaths). The zip codes with the greatest number of deaths were located in the southeast of the county (37211 and 37013). A wide band of deaths also occurred from the center of the county and extended into the northeast (37208, 37207, 37115). According to the Census Bureau estimates for 2009 through 2013, the areas with the highest number of child deaths correspond to the zip codes with the highest percentage of families living below the poverty level ranging from 10.3% in zip code 37013 to 40.4% in zip code 37208. In stark contrast is zip code 37215, which had between 1 and 5 total child deaths for the 5-year period and 0.9% of families living below the poverty level<sup>4</sup>.

The mortality rate (deaths per 100,000) in each zip code of children aged 0 to 17 years is also depicted in Figure 1. The zip codes with the highest mortality rates were 37208 (814.1), 37210 (485.5), and 37206 (468.8).

Rates calculated with small numbers can appear artificially inflated. For this reason, mortality rates were not mapped when the number of deaths in the zip code was 5 or less. Additionally, there are some zip codes that are not fully contained within the county line. As the CDRT only reviews deaths among resident children, the rates and frequencies present for some zip codes along the county border represent only the Davidson County portion of the area. Lastly, there were some zip codes for which no deaths were recorded during the 5-year period. These areas are indicated in white.

**Figure 1: Child Deaths by Zip Code According to Resident Address at the time of Death, Davidson County, TN, 2009-2013**



# Infant Mortality in Davidson County<sup>b</sup>

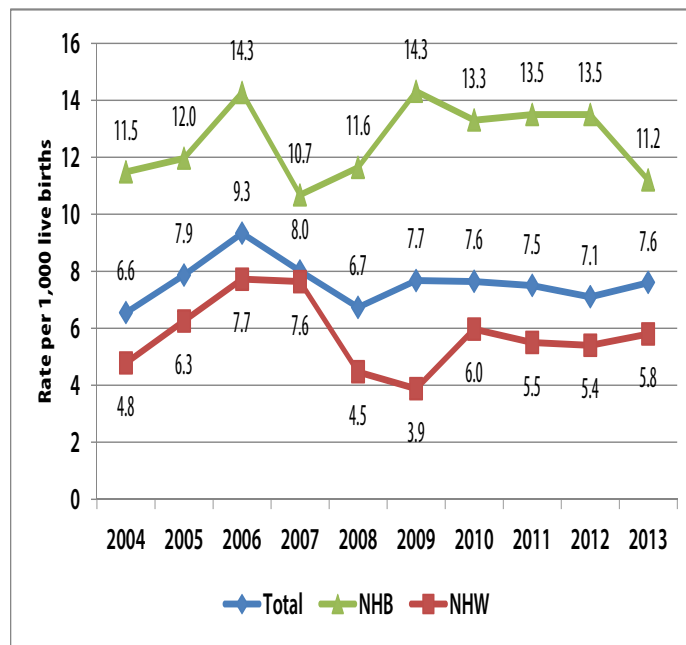
Infant and child mortality are important indicators of the health of a nation and are associated with several factors such as access to health care, maternal health, and socioeconomic status<sup>5</sup>. Nationally, the infant mortality rate has declined each year since 2007<sup>6</sup>.

On average in Davidson County, infant deaths comprise sixty percent or more of the total number of child deaths. Fifteen to twenty percent of child deaths each year do not meet the CDRT review inclusion criteria<sup>c</sup>. This section presents data on the total number of infants and children residing in Davidson County who died in 2013 (regardless of case review) to provide the most accurate picture of the magnitude of infant and child mortality (Figure 2).

- In 2013, the infant mortality rate in Davidson County was 7.6 deaths per 1,000 live births, a 7% increase from the rate in 2012 (7.1).
- The non-Hispanic white infant mortality rate in 2013 was 5.8 deaths per 1,000 live births, and the non-Hispanic black rate was 11.2. The non-Hispanic black infant mortality rate was 1.9 times higher than the non-Hispanic white rate.
- The non-Hispanic white infant mortality rate in 2013 was 20.8% higher than the rate in 2004. The non-Hispanic black infant mortality rate in 2013 was 2.6% lower than the rate in 2004.

Nationally, infant mortality has demonstrated a modest but steady decline since 2005. Despite these declines, non-Hispanic black infants continue to die at a rate that is nearly twice that of non-Hispanic white infants<sup>7</sup>. Davidson County does not share in the overall reduction of infant mortality. There is little difference in the non-Hispanic black rates between 2004 and 2013, and the non-Hispanic white rate has increased by nearly 21%. This means that any reduction of the disparity between non-Hispanic black and non-Hispanic white rates is the result of a small but gradual increase in the

**Figure 2: Infant Mortality by Race, Davidson County, TN, 2004-2013**



non-Hispanic white infant mortality rate as opposed to reductions across all groups. This deviation from the national trend illustrates the need for continuing vigilance through review in order to identify the issues and find ways to resolve them.

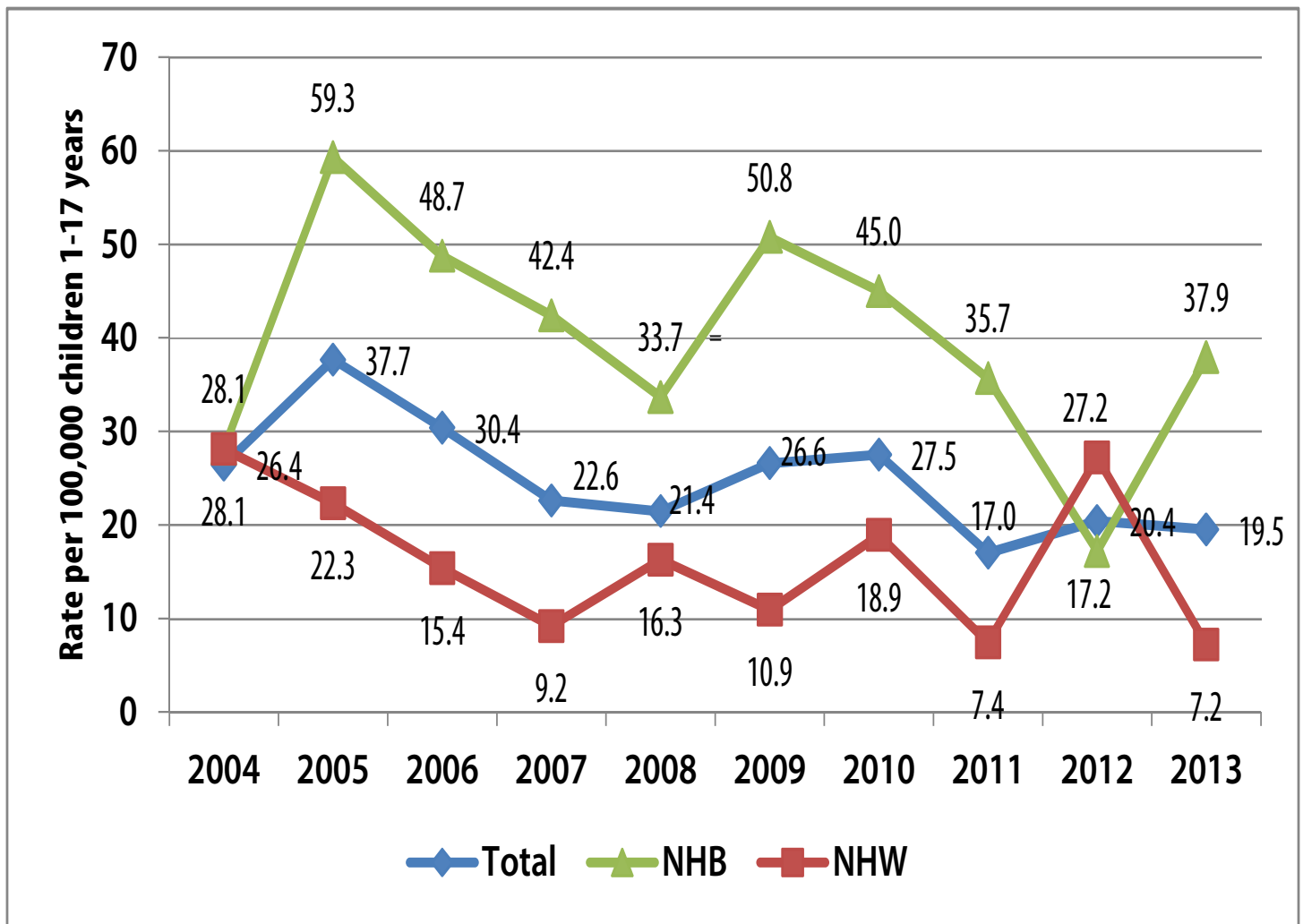
<sup>b</sup>Infant mortality rates were calculated by the Epidemiology Department at MPHD. Hispanic ethnicity is not presented due to the small numbers of infant deaths in that population, which would make the corresponding rates unreliable.

<sup>c</sup>Deaths that occurred out of state, and infants that were born before 22 weeks of gestation, or weigh less than 500 grams were excluded from review.

# Child Mortality in Davidson County<sup>d</sup>

- In 2013, the mortality rate in Davidson County for children aged 1 to 17 years was 19.5 deaths per 100,000 population. Davidson County’s child mortality rate was 17.7% lower than the state rate of 23.7 per 100,000 population in 2013.
- The non-Hispanic white child death rate in 2013 was 7.2 deaths per 100,000 population, and the non-Hispanic black rate was 37.9. The non-Hispanic black rate was 5.3 times higher than the non-Hispanic white rate.
- The non-Hispanic white child death rate in 2013 was 74.4% lower than the 2004 rate. The non-Hispanic black child death rate in 2013 was 34.9% higher than the rate in 2004.
- There was an anomalous reversal of rates in 2012, with the non-Hispanic black rate being lower than the non-Hispanic white rate. Since the rates reverted to the previous pattern in 2013, we can conclude that this anomaly was an artifact in the data due to an uncharacteristically low number of deaths in this age group among non-Hispanic blacks.

**Figure 3: Child Mortality by Race/Ethnicity, Davidson County, 2004-2013**



<sup>d</sup>Race and ethnicity was analyzed for child mortality but due to small numbers, data for Hispanic child mortality was excluded from this report.

## Age-Specific Mortality

Age is one of the most important factors to consider when describing the occurrence of any disease or illness<sup>5</sup>. In the United States, mortality rates are highest among children less than one year of age followed by those aged 15 to 17 years. Mortality rates are lowest among children aged 5 to 9. Nationally, the overall leading cause of death among children is unintentional injuries while the leading causes of death among infants are congenital anomalies (birth defects), disorders related to short gestation, low birth weight, and SIDS<sup>6</sup>. Key risk factors for these leading causes of death include maternal smoking and placing the infant in unsafe sleeping environments<sup>7</sup>.

### Infant Deaths

The CDRT in Davidson County reviewed eighty-four deaths that occurred in 2013. Fifty-nine (70.2%) of the cases reviewed were of children less than 1 year of age. The leading causes of death for infants were as follows: twenty-five deaths (42.4%) resulted from prematurity, fifteen deaths (25.4%) resulted from birth defects, and five deaths (8.5%) resulted from other perinatal conditions. Prematurity is of primary concern because infants born before 37 weeks gestation have a higher risk of long-term disabilities such as breathing problems, cerebral palsy, developmental delay, and vision and hearing impairment.

### Demographics, Manner of Death, and Risk Factors among Infants (Tables 1 & 4)

#### Demographics

- 1 (1.7%) was Asian.
- 9 (15.3%) were Hispanic.
- 24 (40.7%) were non-Hispanic black.
- 25 (42.4%) were non-Hispanic white.
- 33 (55.9%) were male.

#### Manner of Death

- 47 deaths: natural
- 8 deaths: undetermined
- 4 deaths: unintentional injury

*Nationally, the overall leading cause of death among children is unintentional injuries while the leading causes of death among infants are birth defects, disorders related to short gestation, low birth weight, and SIDS.*



### **Risk Factors<sup>e</sup>**

- 41 (69.5%) were low birth weight (less than 2500 grams).
- 39 (66.1%) were premature (less than thirty-seven weeks gestation).
- 10 (16.9%) experienced intrauterine tobacco exposure.
- 3 (5.1%) experienced intrauterine drug exposure.
- 3 (5.1%) received late (>6 months) or no prenatal care.

### **Child Deaths**

#### **Demographics and manner of death of the remaining twenty-five reviewed deaths are as follows (Table 1):**

6 deaths (7.1% of total) occurred to children aged 1 to 4:

#### **Demographics**

- 4 deaths: non-Hispanic black
- 2 deaths: non-Hispanic white
- 5 deaths: male

#### **Manner of Death**

- 2 deaths: homicide
- 2 deaths: natural
- 2 deaths: unintentional injury

4 deaths (4.8% of total) occurred to children aged 5 to 9:

#### **Demographics**

- 2 deaths: Hispanic
- 2 deaths: non-Hispanic black
- 3 deaths: male

#### **Manner of Death**

- 1 death: natural
- 3 deaths: unintentional injury

7 deaths (8.3% of total) occurred to children aged 10 to 14:

#### **Demographics**

- 2 deaths: Hispanic
- 4 deaths: non-Hispanic black
- 1 death: non-Hispanic white
- 5 deaths: male

#### **Manner of Death**

- 6 deaths: natural
- 1 death: suicide

8 deaths (9.5% of total) occurred to children aged 15 to 17:

#### **Demographics**

- 1 death: Hispanic
- 5 deaths: non-Hispanic black
- 2 deaths: non-Hispanic white
- 6 deaths: male

#### **Manner of Death**

- 2 deaths: homicide
- 2 deaths: suicide
- 4 deaths: unintentional injury

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<sup>e</sup>Risk factors related to unsafe sleep are discussed in a later section in this report.

## Deaths Due to Natural Causes

Nationally, deaths from natural causes are the leading cause of death in children under one and the second-leading cause of death to children over one year of age, following unintentional injuries. These deaths generally result from common health conditions such as prematurity, birth defects, genetic disorders and cancers. Although many health conditions that contribute to natural deaths are not preventable, case review provides quality assurance that medical and public health practices are working properly to ensure these children have the best chance for survival. Such practices include preconception health, genetic counseling and screening, decreasing exposure to environmental hazards, and increasing compliance with treatment regimens<sup>8</sup>.

A total of fifty-six deaths reviewed by the CDRT were due to natural causes, representing 66.7% of the reviewed child deaths. (Table 1)

### Demographics

- 47 deaths (83.9%) occurred to infants.
- 2 deaths (3.6%) occurred to children aged 1 to 4.
- 1 death (1.8%) occurred to children aged 5 to 9.
- 6 deaths (10.7%) occurred to children aged 10 to 14.
- 1 child (1.8%) was Asian.
- 10 children (17.9%) were Hispanic.
- 23 children (41.1%) were non-Hispanic black.
- 22 children (39.3%) were non-Hispanic white.
- 33 children (58.9%) were male.

*A total of fifty-six deaths reviewed by the CDRT were due to natural causes, representing 66.7% of the reviewed child deaths.*

## Causes of Death

In the United States, one in every nine babies (more than half a million) is born prematurely<sup>9</sup> and approximately one in every thirty-three babies is born with a birth defect<sup>10</sup>. Reflective of national trends, in Davidson County, prematurity and birth defects are the leading causes of natural deaths with most of these deaths occurring among infants. Many gaps exist in understanding why some women experience premature labor and why some babies are born with a birth defect; however, there are several known risk factors. These include having a previous preterm birth, maternal medical conditions such as hypertension, diabetes, and smoking/substance abuse, genetic predisposition, and maternal age. Early access to quality preconception and prenatal care, and the daily consumption of folic acid can reduce the likelihood of pre-term births and birth defects<sup>9,10</sup>. Twenty-five deaths (44.6%) were due to prematurity. Of these:

- 22 (88%) had prenatal care, and prenatal care status was unknown in 3 (12%) cases.
- In 23 (92%) cases, the mother had a medical condition during pregnancy.
- 6 (24%) were exposed to tobacco or drugs during pregnancy.
- 17 deaths (30.4%) were due to birth defects. Of these:
  - 14 (82.4%) had prenatal care, and prenatal care status was unknown in 1 (5.9%) case.
  - In 9 (52.9%) cases, the mother had a medical condition during pregnancy.

- 5 deaths (8.9%) were due to perinatal conditions (any medical condition that occurred between three months before birth and twenty-eight days after birth).
- 3 deaths (5.4%) were due to infections (such as meningitis, disseminated Herpes Simplex virus, parvovirus).
- 2 deaths (3.6%) were due to cancer.
- 2 deaths (3.6%) were due to cardiovascular disease.
- 1 death (1.8%) was due to influenza.

# Deaths Due to Sleep-Related Factors

Annually, more than 4,000 infants die suddenly and unexpectedly in the United States, without a prior known illness or injury<sup>11</sup>. These sudden unexpected infant deaths (SUID) can be from a variety of causes, including accidental suffocation, sudden infant death syndrome (SIDS), or may remain undetermined. The classification of SIDS is only declared after a rigorous autopsy, death scene investigation, and review of an infant's clinical history. It is a diagnosis of exclusion. With advances in death scene investigations and a growing recognition that many of the deaths previously thought unpreventable might have modifiable risk factors associated with them, the diagnosis of SIDS has declined<sup>12</sup>. The most important modifiable risk factor for SUIDs is the sleep environment of the infant<sup>11</sup>.

Ten deaths reviewed by the CDRT were determined to be sleep-related, representing 11.9% of the total deaths. Of these: three deaths were due to asphyxia (suffocation), and the remaining seven deaths were due to other causes, including unknown causes and deaths where it was undetermined if the death resulted from a medical or injury cause.

## Demographics

- 10 deaths (100%) occurred to children less than 1 year of age.
- 1 death (10%) occurred to a Hispanic.
- 6 deaths (60%) occurred to non-Hispanic blacks.
- 3 deaths (30%) occurred to non-Hispanic whites.
- 5 deaths (50%) occurred among male children.

## Risk factors (Table 5)

- 10 children (100%) were not placed to sleep in a crib or bassinet.
- 9 children (90%) were sleeping with other people.
- 4 children (40%) were exposed to second-hand smoke.
- 3 children (30%) were not sleeping on their back.
- 2 children (20%) were premature.
- In 2 cases (20%) there was no crib in the home.
- In 2 cases (20%) an adult was alcohol or drug impaired at the time of the incident.

# Deaths Due to Unintentional Injuries

Nationally, unintentional injuries are the leading cause of death among people aged 1 to 19, and are the fifth leading cause of death among infants<sup>13</sup>. Further, for every child death from an unintentional injury, there are 1,000 nonfatal injuries that require treatment or medical consultation. It is estimated that child and adolescent unintentional injuries that result in death, hospitalization, or emergency room visits cost \$11.5 billion in medical expenses<sup>13</sup>. These injuries are preventable and represent the most effective way for a community to reduce its mortality rates.

In 2013, there were thirteen infant and child deaths due to unintentional injury, representing 15.5% of the total deaths. The greatest number of deaths occurred among infants (4, 30.8%), children aged 15 to 17 years (4, 30.8%), males (9, 69.2%), and both non-Hispanic blacks (5, 38.5%), and non-Hispanic whites (5, 38.5%). The leading cause of unintentional injury was motor vehicle crashes, representing 8.3% of the total deaths and 53.8% of deaths due to unintentional injuries. Additional deaths due to unintentional injuries were caused by suffocation (2, 15.4%), electrocution (1, 7.7%), drowning (1, 7.7%), poisoning (1, 7.7%), and a weapon-related incident (1, 7.7%) (Table 7). The circumstances are below:

## Motor Vehicle Crash

All child deaths due to motor vehicle crashes were preventable through a combination of proper use of safety equipment, eliminating driving under the influence, or employing safe driver behaviors.

The child was a pedestrian in two deaths, a passenger in four deaths, and the driver in one death. Speeding was indicated in one incident, reckless driving was indicated in two incidents, and driver distraction was cited in two incidents. Cell-phone use while driving was evident in one incident. Drug or alcohol use was reported in three incidents. Weather conditions were normal in six incidents, and inadequate lighting was cited as a factor in one incident. Seatbelts were present but not used in one incident, and used correctly in one incident. In two incidents, a child seat or a booster seat was present but used incorrectly, and used correctly in one incident. In one incident, a helmet was needed but not present.

## Suffocation

Both incidents of suffocation were sleep-related.

## Electrocution

A child encountered a downed power line while walking home after a storm.

## Drowning

An unattended child followed someone through a pool gate and drowned. The child did not know how to swim and there was no flotation device present.

## Poisoning

A child overdosed at a party.

## Weapon-Related

The incident was the result weapon malfunction. The child was not handling the weapon, but was in the same room with the person who was attempting to repair it.

## Deaths Due to Violence

Estimates indicate that 55,000 people in the United States die from injuries related to violence each year<sup>14</sup>. Deaths due to violence include weapons such as firearms, knives and other instruments, brute force such as a physical fight, and suffocation (Table 9). Both homicides and suicides are counted as violence-related deaths, and the CDRT considers them to be preventable. In Davidson County, a total of seven child deaths were the result of violence, representing 8.3% of the total deaths in 2013. Four deaths (57.1%) occurred in children aged 15 to 17, two deaths (28.6%) occurred in children aged 1 to 4 years, and one death (14.3%) occurred among children aged 10 to 14 years. Violence-related deaths occurred most frequently to males (6, 85.7%), and non-Hispanic black children (5, 71.4%).

### Suicides

Nationally, suicide is the third-leading cause of death among persons aged 10 to 14 and 15 to 19 years<sup>14</sup>. The three leading methods of suicide deaths include firearms, suffocations, and poisoning. Males are more likely than females to die from suicide, but females are more likely to report suicide attempts. Risk factors for suicide include previous attempts, alcohol or drug abuse, a history of mental illness, and exposure to the suicidal behavior of others<sup>15</sup>.

There were three deaths due to suicide, representing 42.9% of deaths due to violence and 3.6% of the total deaths. (Table 9)

### Circumstances

Two deaths resulted from manual strangulation with a ligature, and one death resulted from the use of a weapon. One child had a history of prior suicide attempts and self-mutilation, and in two cases the suicide was completely unexpected. In one case the precipitating event was an argument with the parents or caregivers, and in one case the child had an argument with the boyfriend or girlfriend. Social media was involved in one case,

and drugs or alcohol was involved in one case. A note was left in two cases.

### Homicides

Nationally, homicide is the second-leading cause of death among persons aged 15 to 19 years, the third-leading cause of death for persons aged 1 to 4 years and the fourth leading cause of death for persons aged 5 to 9 and 10 to 14. Rates of homicide deaths among youth are highest among non-Hispanic black males, and can be precipitated by a variety of factors including poverty, mental health issues, drug or gang activity, and relationship problems<sup>14</sup>.

In Davidson County, four deaths were due to homicide, representing 57.1% of deaths due to violence and 4.8% of the total deaths (Table 9).

### Circumstances

Two deaths involved a firearm, one death involved poison, and one death involved people using their body parts as weapons. Two deaths were caused by relatives. Two deaths occurred during the commission of another crime, and one incident was related to gang activity. The poisoning death involved parents who regularly dosed their children with medication to make them sleep. The physical abuse death was the result of the parent and parent's partner beating the child. One firearm death involved a gang shoot-out, and the other was the result of a targeted attack. In both firearm deaths, the victim had a history of problems in school, and one victim had a history of criminal activity. In two cases, the victim received prior mental health services.

# Acts of Omission or Commission

The rate of child maltreatment in the United States during 2012 was estimated at 9.2 cases per 1,000 children, or 686,000 children. This figure is acknowledged to be an underestimate. Most of these victims were maltreated by a parent (80.3%). Among those who died from maltreatment, 70% were under the age of 3<sup>16</sup>. The CDRT recognizes that these deaths are preventable, and that prevention strategies need to promote safe, stable, and nurturing relationships and environments for children and families<sup>17</sup>.

Acts of omission or commission are defined as any act, or failure to act, that either causes or substantially contributes to the death of a child. Although acts of omission or commission are not exclusively defined as child maltreatment, many cases involve types of abuse that are common to child maltreatment (neglect, physical, emotional, and sexual abuse). This section is designed to reveal any behaviors of others that may be involved in a child's death.

A total of twenty-eight deaths reviewed by the CDRT involved an act of omission (e.g. neglect) or commission (i.e. abuse or assault), and with one additional death, an act of omission or commission was probable. Together, the twenty-nine deaths represented 34.5% of all reviewed deaths. For the purposes of this analysis, the case when omission or commission was probable is included in the total number of cases. In sixteen cases (55.2%), the acts of omission or commission caused the death of the child. In thirteen deaths, the act contributed to the death of the child, with five additional cases showing evidence of multiple acts that both caused and contributed to the death.

## Demographics

- 13 deaths (44.8%) occurred among infants.
- 3 deaths (10.3%) occurred among children aged 1 to 4 years.
- 3 deaths (10.3%) occurred to a child aged 5 to 9 years.
- 2 deaths (6.9%) occurred among children aged 10 to 14 years.
- 8 deaths (27.6%) occurred among teens aged 15 to 17 years.
- 4 deaths (13.8%) occurred among Hispanic children.
- 17 deaths (58.6%) occurred among non-Hispanic black children.
- 8 deaths (27.6%) occurred among non-Hispanic white children.
- 20 deaths (69%) occurred among male children.

## Circumstances (Table 6)

- In 15 cases (51.7%), the perpetrator was impaired (e.g. using substances, asleep, absent, ill).
- In 14 cases (48.3%), the perpetrator of the act was the biological parent of the child.
- In 10 cases (34.5%), the act of omission or commission was either chronic with the child or a pattern in the family or with the perpetrator.
- 5 cases (17.2%) involved child neglect.
- 3 victims (10.3%) were involved with DCS at the time of the death.
- 3 cases (10.3%) involved child abuse.
- 3 cases (10.3%) involved suicide.
- 2 cases (6.9%) involved poor or absent supervision.

# Child Deaths from 2009 to 2013

Small numbers of events often make it difficult to discern patterns and opportunities for prevention. For this reason, all deaths reviewed by the Davidson County CDRT occurring from 2009 through 2013 were analyzed in aggregate. The CDRT reviewed the deaths of 430 resident children of Davidson County that died from 2009 to 2013.

## Demographics

- 289 deaths (67.2%) occurred among children less than 1 year of age.
- 36 deaths (8.4%) occurred among children 1 to 4 years of age.
- 30 deaths (7%) occurred among children 5 to 9 years of age.
- 31 deaths (7.2%) occurred among children 10 to 14 years of age.
- 44 deaths (10.2%) occurred among children 15 to 17 years of age.
- 7 deaths (1.6%) occurred among Asian children.
- 50 deaths (11.6%) occurred among Hispanic children.
- 1 death (0.2%) occurred among Pacific Islander children.
- 224 deaths (52.1%) occurred among non-Hispanic black children.
- 148 deaths (34.4%) occurred among non-Hispanic white children.
- 256 deaths (59.5%) occurred among male children.

## Manner of Death

- 275 deaths (64%) were due to natural causes.
- 60 deaths (14%) were due to unintentional injuries.
- 28 deaths (6.5%) were due to homicide.
- 11 deaths (2.6%) were due to suicide.

- 53 deaths (12.3%) were undetermined<sup>f</sup>.
- In 3 deaths (0.7%), the manner of death was left blank on the death certificate.

## Preventability of Deaths

From 2009 to 2013, 142 deaths (33%) were judged to have been preventable, and in 20 deaths (4.7%), preventability could not be determined.

- 100% of suicide and homicide cases were judged as preventable.
- 56 deaths (93.3%) due to unintentional injuries were judged as preventable.
- 37 undetermined deaths (69.8%) were judged as preventable.
- 10 deaths (3.6%) due to natural causes were judged as preventable.

## Factors that Hindered Review or Resulted in Specific Action

- The CDRT team disagreed with the official manner of death in 15 cases (3.5%) and the official cause of death in 11 cases (2.6%).
- The review led to a change in the official manner or cause of death in 7 cases (1.6%)
- Confidentiality issues or HIPAA regulation prevented the full exchange of information in 5 cases (1.2%).
- Records were needed from another locality in 5 cases (1.2%)
- Review led to implementation of a policy or prevention initiative in 4 cases (0.9%).
- Evidence of prior abuse was found in 17 cases (4%).
- Action was taken by DCS as a result of the death in 30 cases (7%).
- Other factors such as an inaccurate or incomplete death/birth certificates hindered the review in 112 cases (26%).

<sup>f</sup>Undetermined deaths are defined as any death for which manner is unknown after extensive autopsy and crime scene investigation. Changes in classification of SIDS deaths have increased the number of deaths marked undetermined (see recommendations). A specific section on sleep-related deaths is included in this report.



# Age-Specific Mortality

From 2009 to 2013, 289 (67.2%) of the child death cases reviewed were of children less than 1 year of age.

## Demographics and Risk Factors among Infants (Tables 2 & 4)

### Demographics

- 4 were Asian.
- 33 were Hispanic.
- 143 were non-Hispanic black.
- 108 were non-Hispanic white.
- 1 was a Pacific Islander.
- 164 were male.

### Manner of Death

- 211 deaths: natural
- 50 deaths: undetermined
- 21 deaths: unintentional injury
- 5 deaths: homicide
- 2 deaths: unknown manner<sup>g</sup>

### Risk Factors

- 188 (65.1%) were low birth weight (less than 2500 grams).
- 179 (61.9%) were premature (less than thirty-seven weeks gestation).
- 59 (20.4%) experienced intrauterine tobacco exposure.
- 24 (8.3%) received late or no prenatal care.
- 16 (5.5%) experienced intrauterine drug exposure.

## Demographics and manner of death of the remaining 141 reviewed deaths are as follows:

36 deaths (8.4% of total) occurred to children aged 1 to 4:

### Demographics

- 2 deaths: Hispanic
- 17 deaths: non-Hispanic black
- 17 deaths: non-Hispanic white
- 23 deaths: male

## Manner of Death

- 20 deaths: natural
- 11 deaths: unintentional injury
- 3 deaths: homicide
- 2 deaths: undetermined

30 deaths (7% of total) occurred to children aged 5 to 9:

### Demographics

- 3 deaths: Hispanic
- 18 deaths: non-Hispanic black
- 9 deaths: non-Hispanic white
- 16 deaths: male

### Manner of Death

- 19 deaths: natural
- 10 deaths: unintentional injury
- 1 death: undetermined

31 deaths (7.2% of total) occurred to children aged 10 to 14:

### Demographics

- 2 deaths: Asian
- 3 deaths: Hispanic
- 23 deaths: non-Hispanic black
- 3 deaths: non-Hispanic white
- 20 deaths: male

### Manner of Death

- 18 deaths: natural
- 6 deaths: homicide
- 5 deaths: suicide
- 2 deaths: unintentional injury

44 deaths (10.2% of total) occurred to children aged 15 to 17:

### Demographics

- 1 death: Asian
- 9 deaths: Hispanic
- 23 deaths: non-Hispanic black
- 11 deaths: non-Hispanic white
- 33 deaths: male

### Manner of Death

- 16 deaths: unintentional injury
- 14 deaths: homicide
- 7 deaths: natural
- 6 deaths: suicide
- 1 death: unknown manner

<sup>g</sup>Unknown manner indicates a blank manner on the death certificate. Recent changes to the CDRT process allows for the marking of the most likely manner of death in instances when it is blank. This does not change the blank manner on the official vital record.

# Deaths Due to Natural Causes

A total of 275 deaths (64%) reviewed by the CDRT from 2009 to 2013 were due to natural causes. (Table 2)

## Demographics

- 211 deaths (76.7%) were to infants less than 1 year of age.
- 20 deaths (7.3%) occurred to children aged 1 to 4.
- 19 deaths (6.9%) occurred to children aged 5 to 9.
- 18 deaths (6.6%) occurred to children aged 10 to 14.
- 7 deaths (2.6%) occurred to children aged 15 to 17.
- 5 children (1.8%) were Asian.
- 32 children (11.6%) were Hispanic.
- 131 children (47.6%) were non-Hispanic black.
- 106 children (38.6%) were non-Hispanic white.
- 1 child (0.4%) was a Pacific Islander.
- 156 children (56.7%) were male.

## Causes of Death

- 99 deaths (36%) were due to prematurity.
- 97 deaths (35.3%) were due to birth defects.
- 27 deaths (9.8%) were due to medical conditions.
- 14 deaths (5.1%) were due to cancer.
- 13 deaths (4.7%) were due to some type of infection.
- 12 deaths (4.4%) were due to perinatal conditions.
- 7 deaths (2.5%) were due to neurological and seizure disorders.
- 5 deaths (1.8%) were due to influenza or pneumonia.
- 3 deaths (1.1%) were due to cardiovascular issues.

- 2 deaths (0.7%) were due to SIDS.
- 2 deaths (0.7%) were due to asthma.
- 2 deaths (0.7%) were due to undetermined medical causes.
- 1 death (0.4%) was due to malnutrition or dehydration.

## Circumstances

- 259 children (94.2%) received treatment for the medical condition within 48 hours of death.
- In 158 cases (57.5%), death was the expected outcome of the medical condition.
- Environmental tobacco exposure was a contributing factor in 10 (3.6%) deaths.
- In 5 cases (1.8%), the medical condition was associated with an outbreak.
- In cases in which family compliance to a medical treatment regime was necessary (n=133), 10 (7.5%) were not compliant.

# Deaths Due to Sleep-Related Factors

A total of seventy-eight deaths (18.1%) reviewed by the CDRT from 2009 to 2013 were determined to be sleep-related. Of these: twenty-two deaths were due to asphyxia, eleven deaths were due to medical conditions, and two deaths were due to SIDS. The cause of death was undetermined in one case and forty-two deaths were due to other causes<sup>h</sup> (Table 5).

## Demographics

- 73 deaths (93.6%) occurred to children less than 1 year of age.
- 5 deaths (6.4%) occurred to Hispanic children.
- 48 deaths (61.5%) occurred to non-Hispanic black children.
- 25 deaths (32.1%) occurred to non-Hispanic white children.
- 50 deaths (64.1%) occurred among male children.

## Risk factors

- 64 children (82.1%) were not placed to sleep in a crib or bassinette.
- 50 children (64.1%) were sleeping with other people.
- 41 children (52.6%) were not sleeping on their back.
- 21 children (26.9%) were placed to sleep on unsafe bedding or with toys.
- 17 children (21.8%) were premature.
- 17 children (21.8%) were exposed to second-hand smoke.
- In 8 cases (10.3%), the supervising adult was drug impaired.
- In 12 cases (15.4%), there was no crib in the home.
- 2 children (2.6%) were sleeping with an obese adult.

*A total of eighty-six deaths (18.1%) reviewed by the CDRT from 2009 to 2013 were determined to be sleep-related. 82.1% were not placed to sleep in a crib or bassinette.*

<sup>h</sup>Other causes include child deaths for which it was undetermined if the death was due to injury or medical cause.

# Deaths Due to Unintentional Injuries

There were sixty deaths due to unintentional injuries, representing 14% of the deaths that occurred from 2009 to 2013. The greatest number of deaths occurred among infants (21, 35%), males (34, 56.7%), and non-Hispanic blacks (27, 45%). There were twelve deaths (20%) among Hispanic children. (Table 8)

## Motor Vehicle Deaths

There were twenty-two deaths due to motor vehicle crashes, representing 36.7% of the deaths due to unintentional injuries and 5.1% of the total deaths.

## Demographics (Table 8)

- 6 deaths (27.3%) occurred to children 1 to 4.
- 4 deaths (18.2%) occurred to children aged 5 to 9.
- 11 deaths (50%) occurred to teens aged 15 to 17.
- 1 child (4.6%) was Asian.
- 8 children (36.4%) were Hispanic.
- 8 children (36.4%) were non-Hispanic black.
- 5 children (22.7%) were non-Hispanic white.
- 13 children (59.1%) were male.

## Circumstances

- Driving conditions were normal in 19 cases, and wet in 2 cases.
- In 13 cases, children were passengers in the vehicle.
- In 6 cases, children were pedestrians.
- In 3 cases, children were drivers.
- Speeding was indicated in 8 cases, reckless driving in 4 cases, distracted driving in 3 cases, fatigue in one case, and driver inexperience in 1 case.
- The driver was alcohol/drug impaired in 4 incidents.
- Poor weather was cited in 1 case, and poor visibility in 1 case.
- The child was responsible for causing the incident in 2 cases, and in an additional 11 cases the child's driver was responsible.

- In 6 cases, the drivers were in violation of the Tennessee graduated driver's license law, driving with a suspended license, or did not have a license.
- In 9 cases, vehicle protective measures (such as seatbelt, airbag, child seat, helmet) were present but used incorrectly.
- In 6 cases, seat belts were present in the vehicle but not used.
- In 3 cases, vehicle protective measures (such as seatbelt, airbag, child seat, helmet) were needed but not available.

## Additional Unintentional Injury Deaths

Additional deaths due to unintentional injuries were caused by suffocations (17, 28.3%), fires or burns (6, 10%), drowning (8, 13.3%), poisoning (3, 5%), weapons (1, 1.7%), exposure (1, 1.7%) and falls or crushing (1, 1.7%). One incident involved prematurity subsequent to maternal cocaine use and was ruled as accidental.

# Deaths Due to Violence

Thirty-nine deaths (9.1%) were attributed to violence from 2009 to 2013. The greatest number of deaths occurred among children aged 15 to 17 (20, 51.3%), and non-Hispanic blacks (28, 71.8%). There were two deaths (5.1%) among Hispanic children. (Table 10)

## Suicides

There were eleven deaths due to suicide, representing 28.2% of violence-related deaths and 2.6% of the total deaths. (Table 10)

## Demographics

- 5 deaths (45.5%) occurred to children aged 10 to 14 years.
- 6 deaths (54.5%) occurred to children aged 15 to 17 years.
- 1 child (9.1%) was Hispanic.
- 6 children (54.5%) were non-Hispanic black.
- 4 children (36.4%) were non-Hispanic white.
- 5 children (45.5%) were male.

## Circumstances

- 6 cases involved asphyxia.
- 5 cases involved the use of a weapon.
- In 9 cases, suicide was unexpected, despite the fact that the child had threatened, attempted, or premeditated a suicide attempt in 3 cases.
- A note was left in 7 cases.
- An argument with a parent was noted in 4 cases, family discord in 2 cases, divorce in 1 case, an argument with a boyfriend/girlfriend in 1 case, and a breakup with a boyfriend/girlfriend in 1 case.
- The child had a history of self-mutilation in 2 cases.
- Social media was reported as a factor in the suicide in 2 cases.
- There was a family history of suicide in 1 case.
- One case involved a victim of bullying.
- The child had problems with the law in 1 case.
- The child had a history of drug or alcohol abuse in 1 case.

*In 9 cases, suicide was unexpected, despite the fact that the child had threatened, attempted, or premeditated a suicide attempt in 3 of those cases.*

## Homicides

There were 28 deaths due to homicide, representing 71.8% of violence-related deaths and 6.5% of the total deaths. (Table 10)

### Demographics

- 5 deaths (17.9%) occurred among children less than 1 year of age.
- 3 deaths (10.7%) occurred among children aged 1 to 4 years.
- 6 deaths (21.4%) occurred among children aged 10 to 14 years.
- 14 deaths (50%) occurred among teens aged 15 to 17 years.
- 1 child (3.6%) was Asian
- 1 child (3.6%) was Hispanic.
- 22 children (78.6%) were non-Hispanic black.
- 4 children (14.3%) were non-Hispanic white.
- 24 children (85.7%) were male.

### Common Factors in Homicide Deaths

- Criminal History: 11(39.3%)
- Positive drug screen at autopsy: 13 (50%) of 26 cases with toxicology screens
- Open DCS case: 6 (21.4%)
- Problems in school: 12 (42.9%)
- Juvenile detention history: 6 (21.4%)
- Received mental health services: 7 (25%)
- History of drug abuse: 2 (7.1%)
- Victim of child maltreatment: 1 (3.6%)

### Type of Weapon Involved in Homicide Death

- Firearm: 19 (67.9%)
- Physical trauma (such as beating, kicking): 6 (21.4%)
- Sharp or Blunt Instrument: 1 (3.6%)

### Circumstances Related to Homicide Deaths Involving the Use of Weapons (n=26):

- 17 incidents (65.4%) were related to the commission of a crime.
- 8 incidents (30.8%) involved gang activity.
- 6 incidents (23.1%) involved an argument.
- 1 incident (3.9%) involved jealousy.

### Other homicide deaths that were not weapon-related:

There were two homicide deaths that were not weapon-related: a poisoning and a suffocation. Both homicides were committed by the mother of the child. In one case, the mother had documented mental health issues, and in two cases there was maternal drug and alcohol abuse. DCS had prior involvement with the family in one case.

*In 39.3% of homicide deaths, the child had a criminal history, and in 42.9%, the child had documented problems in school.*

# Acts of Omission or Commission

A total of 130 deaths (30.2%) reviewed by the CDRT involved an act of omission (i.e. neglect) or commission (i.e. abuse or assault), with an additional 20 deaths (4.7%) where an act of omission or commission was probable. Together, the 150 deaths represented 34.9% of all reviewed deaths. For the purposes of this analysis, probable omission or commission is included in the total number of cases with evidence of omission or commission. In 72 cases (48%), the acts of omission or commission caused the death of the child. In 84 cases (56%), the act contributed to the death of the child, with 6 additional cases showing evidence of multiple acts that both caused and contributed to the death.

## Demographics

- 80 deaths (53.3%) occurred among infants.
- 16 deaths (10.7%) occurred among children aged 1 to 4 years.
- 9 deaths (6%) occurred among children aged 5 to 9 years.
- 16 deaths (10.7%) occurred among children aged 10 to 14.
- 29 deaths (19.3%) occurred among teens aged 15 to 17 years.
- 2 deaths (1.3%) occurred among Asian children.
- 14 deaths (9.3%) occurred among Hispanic children.
- 93 deaths (62%) occurred among non-Hispanic black children.
- 41 deaths (27.3%) occurred among non-Hispanic white children.
- 95 deaths (63.3%) occurred among males.

## Circumstances (Table 6)

- In 89 cases (59.3%), the perpetrator of the act was a biological parent of the child.
- In 60 cases (40%), the perpetrator was impaired (such as using substances, asleep, absent, ill).
- 26 victims (20%) were involved with DCS at the time of the death.

- 16 cases (10.7%) involved poor or absent supervision.
- In 16 cases (10.6%), the act of omission or commission was either chronic with the child or a pattern in the family or with the perpetrator.
- 13 cases (8.7%) involved child neglect.
- 7 cases (4.7%) involved child abuse.

*A total of 130 deaths (30.2%) reviewed by the CDRT involved an act of omission (i.e. neglect) or commission (i.e. abuse or assault). Over half of these deaths, 53.3%, occurred among infants.*

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# Appendix

Table 1: Number and Percentage of Deaths by Manner of Death and Age, Race/Ethnicity, and Sex, Davidson County, Tennessee, 2013

| Manner of Death      | Total |      | Age      |           |           |             |             | Sex  |        | Race/Ethnicity     |                    |       |          |
|----------------------|-------|------|----------|-----------|-----------|-------------|-------------|------|--------|--------------------|--------------------|-------|----------|
|                      | N     | %    | < 1 year | 1-4 years | 5-9 years | 10-14 years | 15-17 years | Male | Female | non-Hispanic white | non-Hispanic black | Asian | Hispanic |
| Natural              | 56    | 66.7 | 47       | 2         | 1         | 6           | 0           | 33   | 23     | 22                 | 23                 | 1     | 10       |
| Unintentional Injury | 13    | 15.5 | 4        | 2         | 3         | 0           | 4           | 9    | 4      | 5                  | 5                  | 0     | 3        |
| Suicide              | 3     | 3.6  | 0        | 0         | 0         | 1           | 2           | 2    | 1      | 1                  | 2                  | 0     | 0        |
| Homicide             | 4     | 4.8  | 0        | 2         | 0         | 0           | 2           | 4    | 0      | 1                  | 3                  | 0     | 0        |
| Undetermined         | 8     | 9.5  | 8        | 0         | 0         | 0           | 0           | 4    | 4      | 1                  | 6                  | 0     | 1        |
| Total                | 84    |      | 59       | 6         | 4         | 7           | 8           | 52   | 32     | 30                 | 39                 | 1     | 14       |
| Percentage*          |       | 100  | 70.2     | 7.1       | 4.8       | 8.3         | 9.5         | 61.9 | 38.1   | 35.7               | 46.4               | 1.2   | 16.7     |

\*Percentage of total deaths.

Table 2: Number and Percentage of Deaths by Manner of Death and Age, Race/Ethnicity, and Sex, Davidson County, Tennessee, 2009–2013

| Manner of Death      | Total |      | Age      |           |           |             |             | Sex  |        | Race/Ethnicity     |                    |       |          |                  |
|----------------------|-------|------|----------|-----------|-----------|-------------|-------------|------|--------|--------------------|--------------------|-------|----------|------------------|
|                      | N     | %    | < 1 year | 1-4 years | 5-9 years | 10-14 years | 15-17 years | Male | Female | non-Hispanic white | non-Hispanic black | Asian | Hispanic | Pacific Islander |
| Natural              | 275   | 64   | 211      | 20        | 19        | 18          | 7           | 156  | 119    | 106                | 131                | 5     | 32       | 1                |
| Unintentional Injury | 60    | 14   | 21       | 11        | 10        | 2           | 16          | 34   | 26     | 20                 | 27                 | 1     | 12       | 0                |
| Suicide              | 11    | 2.6  | 0        | 0         | 0         | 5           | 6           | 5    | 6      | 4                  | 6                  | 0     | 1        | 0                |
| Homicide             | 28    | 6.5  | 5        | 3         | 0         | 6           | 14          | 24   | 4      | 4                  | 22                 | 1     | 1        | 0                |
| Undetermined         | 53    | 12.3 | 50       | 2         | 1         | 0           | 0           | 35   | 18     | 13                 | 37                 | 0     | 3        | 0                |
| Unknown*             | 3     | 0.7  | 2        | 0         | 0         | 0           | 1           | 2    | 1      | 1                  | 1                  | 0     | 1        | 0                |
| Total                | 430   |      | 289      | 36        | 30        | 31          | 44          | 256  | 174    | 148                | 224                | 7     | 50       | 1                |
| Percentage**         |       | 100  | 67.2     | 8.4       | 7         | 7.2         | 10.2        | 59.5 | 40.5   | 34.4               | 52.1               | 1.6   | 11.6     | 0.2              |

\*Percentage of total deaths.

\*\*Describes deaths for which the manner on the death certificate was left blank.

| Table 3: Deaths by Manner and Preventability, Davidson County, 2013 and 2009–2013 |     |     |                     |         |       |
|-----------------------------------------------------------------------------------|-----|-----|---------------------|---------|-------|
| Could the Death Have Been Prevented?                                              |     |     |                     |         |       |
| 2013                                                                              |     |     |                     |         |       |
| Manner                                                                            | No  | Yes | Could not determine | Unknown | Total |
| Natural                                                                           | 55  | 0   | 1                   | 0       | 56    |
| Unintentional Injury                                                              | 0   | 12  | 1                   | 0       | 13    |
| Suicide                                                                           | 0   | 3   | 0                   | 0       | 3     |
| Homicide                                                                          | 0   | 4   | 0                   | 0       | 4     |
| Undetermined                                                                      | 0   | 6   | 2                   | 0       | 8     |
| Unknown                                                                           | 0   | 0   | 0                   | 0       | 0     |
| Total                                                                             | 55  | 25  | 4                   | 0       | 84    |
| 2009-2013                                                                         |     |     |                     |         |       |
| Natural                                                                           | 260 | 10  | 5                   | 0       | 275   |
| Unintentional Injury                                                              | 2   | 56  | 2                   | 0       | 60    |
| Suicide                                                                           | 0   | 11  | 0                   | 0       | 11    |
| Homicide                                                                          | 0   | 28  | 0                   | 0       | 28    |
| Undetermined                                                                      | 3   | 37  | 13                  | 0       | 53    |
| Unknown                                                                           | 3   | 0   | 0                   | 0       | 0     |
| Total                                                                             | 268 | 142 | 20                  | 0       | 427   |

Table 4: Characteristics of Infant Deaths by Manner of Death Listed on Death Certificate, Davidson County, 2013 and 2009–2013

|                                       | Manner of Death on Death Certificate* |                      |          |              |         | Total |
|---------------------------------------|---------------------------------------|----------------------|----------|--------------|---------|-------|
|                                       | Natural                               | Unintentional Injury | Homicide | Undetermined | Unknown |       |
| 2013                                  |                                       |                      |          |              |         |       |
| Total Deaths Reviewed                 | 47                                    | 4                    | 0        | 8            | 0       | 59    |
| Premature (<37 weeks)                 | 37                                    | 0                    | 0        | 2            | 0       | 39    |
| Low Birth Weight (<2500 grams)        | 39                                    | 0                    | 0        | 2            | 0       | 41    |
| Late (> 6 months) or No Prenatal Care | 3                                     | 0                    | 0        | 0            | 0       | 3     |
| Intrauterine Drug Exposure            | 2                                     | 1                    | 0        | 0            | 0       | 3     |
| Intrauterine Smoke Exposure           | 4                                     | 2                    | 0        | 4            | 0       | 10    |
| 2009-2013                             |                                       |                      |          |              |         |       |
| Total Deaths Reviewed                 | 211                                   | 21                   | 5        | 50           | 2       | 289   |
| Premature (<37 weeks)                 | 158                                   | 5                    | 1        | 13           | 2       | 179   |
| Low Birth Weight (<2500 grams)        | 169                                   | 3                    | 1        | 13           | 2       | 188   |
| Late (> 6 months) or No Prenatal Care | 16                                    | 2                    | 2        | 4            | 0       | 24    |
| Intrauterine Drug Exposure            | 7                                     | 3                    | 1        | 5            | 0       | 16    |
| Intrauterine Smoke Exposure           | 28                                    | 8                    | 0        | 22           | 1       | 59    |

\*Categories are not mutually exclusive. Infants should not have a suicide manner of death, so this manner is not included in this table.

Table 5: Factors Involved in Sleep-Related Deaths By Age Group, Davidson County, 2013 and 2009–2013

|                                       | Age Group |         |         |         |         |          | Total |           |
|---------------------------------------|-----------|---------|---------|---------|---------|----------|-------|-----------|
|                                       | 2013      | 0-1 mos | 2-3 mos | 4-5 mos | 6-7 mos | 8-11 mos |       | 1-4 years |
| Total Deaths Reviewed                 |           | 4       | 3       | 1       | 2       | 0        | 0     | 10        |
| Not in a crib or bassinette           |           | 4       | 3       | 1       | 2       | 0        | 0     | 10        |
| Not sleeping on back                  |           | 1       | 1       | 1       | 0       | 0        | 0     | 3         |
| Placed on unsafe bedding or with toys |           | 0       | 0       | 0       | 0       | 0        | 0     | 0         |
| Sleeping with other people            |           | 4       | 2       | 1       | 2       | 0        | 0     | 9         |
| Obese adult sleeping with child       |           | 0       | 0       | 1       | 0       | 0        | 0     | 1         |
| Adult was alcohol or drug impaired    |           | 0       | 1       | 1       | 0       | 0        | 0     | 2         |
| 2009-2013                             |           |         |         |         |         |          |       |           |
| Total Deaths Reviewed                 |           | 25      | 23      | 15      | 9       | 1        | 5     | 78        |
| Not in a crib or bassinette           |           | 22      | 19      | 14      | 7       | 0        | 2     | 64        |
| Not sleeping on back                  |           | 10      | 14      | 10      | 3       | 1        | 3     | 41        |
| Placed on unsafe bedding or with toys |           | 7       | 6       | 6       | 1       | 0        | 1     | 21        |
| Sleeping with other people            |           | 19      | 13      | 10      | 6       | 0        | 2     | 50        |
| Obese adult sleeping with child       |           | 1       | 0       | 1       | 0       | 0        | 0     | 2         |
| Adult was alcohol or drug impaired    |           | 6       | 5       | 2       | 0       | 0        | 0     | 13        |

\*Categories are not mutually exclusive.

Table 6: Acts of Omission and Commission By Age Group, Davidson County, 2013 and 2009–2013

|             | Total Deaths Reviewed | Poor/Absent Supervision | Child Abuse | Child Neglect | Other Negligence | Assault (not child abuse) | Suicide | Other |
|-------------|-----------------------|-------------------------|-------------|---------------|------------------|---------------------------|---------|-------|
| 2013        |                       |                         |             |               |                  |                           |         |       |
| <1 year     | 13                    | 0                       | 0           | 4             | 11               | 1                         | 0       | 0     |
| 1-4 years   | 3                     | 1                       | 2           | 1             | 0                | 0                         | 0       | 0     |
| 5-9 years   | 3                     | 1                       | 0           | 0             | 2                | 0                         | 0       | 0     |
| 10-14 years | 2                     | 0                       | 0           | 0             | 0                | 0                         | 1       | 1     |
| 15-17 Years | 8                     | 0                       | 0           | 0             | 2                | 2                         | 2       | 2     |
| Total       | 29                    | 2                       | 2           | 5             | 15               | 3                         | 3       | 3     |
| 2009-2013   |                       |                         |             |               |                  |                           |         |       |
| <1 year     | 80                    | 5                       | 4           | 9             | 45               | 3                         | 0       | 16    |
| 1-4 years   | 16                    | 5                       | 3           | 1             | 6                | 0                         | 0       | 0     |
| 5-9 years   | 9                     | 3                       | 0           | 1             | 3                | 0                         | 1       | 1     |
| 10-14 years | 16                    | 1                       | 0           | 2             | 1                | 5                         | 5       | 2     |
| 15-17 Years | 29                    | 2                       | 0           | 0             | 4                | 10                        | 6       | 6     |
| Total       | 150                   | 16                      | 7           | 13            | 59               | 18                        | 12      | 25    |

\*Categories are not mutually exclusive. Includes all cases where action of omission/commission caused or contributed to the death was reported by the team as Yes or Probable.

Table 7: Number and Percentage of Deaths Due to Unintentional Injury by Age, Sex, and Race/Ethnicity, Davidson County, Tennessee, 2013

| Cause of Death | Total |      | Age      |           |           |             |             | Sex  |        | Race/Ethnicity     |                    |          |
|----------------|-------|------|----------|-----------|-----------|-------------|-------------|------|--------|--------------------|--------------------|----------|
|                | N     | %    | < 1 year | 1-4 years | 5-9 years | 10-14 years | 15-17 years | Male | Female | non-Hispanic white | non-Hispanic black | Hispanic |
| Vehicular      | 7     | 53.9 | 1        | 1         | 2         | 0           | 3           | 4    | 3      | 0                  | 4                  | 3        |
| Fire/Burn      | 1     | 7.7  | 0        | 0         | 1         | 0           | 0           | 1    | 0      | 0                  | 1                  | 0        |
| Drowning       | 1     | 7.7  | 0        | 1         | 0         | 0           | 0           | 1    | 0      | 1                  | 0                  | 0        |
| Suffocation    | 2     | 15.4 | 2        | 0         | 0         | 0           | 0           | 1    | 1      | 2                  | 0                  | 0        |
| Weapon         | 1     | 7.7  | 1        | 0         | 0         | 0           | 0           | 1    | 0      | 1                  | 0                  | 0        |
| Poisoning      | 1     | 7.7  | 0        | 0         | 0         | 0           | 1           | 1    | 0      | 1                  | 0                  | 0        |
| Total          | 13    |      | 4        | 2         | 3         | 0           | 4           | 9    | 4      | 5                  | 5                  | 3        |
| Percentage*    |       | 100  | 30.8     | 15.4      | 23.1      | 0           | 30.8        | 69.2 | 30.8   | 38.5               | 38.5               | 23.1     |

\*Percentage of total deaths due to unintentional injury.

Table 8: Number and Percentage of Deaths Due to Unintentional Injury by Age, Sex, and Race/Ethnicity, Davidson County, Tennessee, 2009–2013

| Cause of Death | Total |      | Age     |           |           |             |             | Sex  |        | Race/Ethnicity     |                    |       |          |
|----------------|-------|------|---------|-----------|-----------|-------------|-------------|------|--------|--------------------|--------------------|-------|----------|
|                | N     | %    | <1 year | 1-4 years | 5-9 years | 10-14 years | 15-17 years | Male | Female | non-Hispanic white | non-Hispanic black | Asian | Hispanic |
| Vehicular      | 22    | 36.7 | 1       | 6         | 4         | 0           | 11          | 13   | 9      | 5                  | 8                  | 1     | 8        |
| Fire/Burns     | 6     | 10.0 | 0       | 0         | 5         | 0           | 1           | 3    | 3      | 1                  | 4                  | 0     | 1        |
| Drowning       | 8     | 13.3 | 1       | 3         | 1         | 2           | 1           | 4    | 4      | 3                  | 4                  | 0     | 1        |
| Suffocation    | 17    | 28.3 | 16      | 1         | 0         | 0           | 0           | 8    | 9      | 7                  | 9                  | 0     | 1        |
| Weapon         | 1     | 1.7  | 1       | 0         | 0         | 0           | 0           | 1    | 0      | 1                  | 0                  | 0     | 0        |
| Fall/Crush     | 1     | 1.7  | 0       | 1         | 0         | 0           | 0           | 1    | 0      | 0                  | 1                  | 0     | 0        |
| Poisonings     | 3     | 5.0  | 0       | 0         | 0         | 0           | 3           | 3    | 0      | 2                  | 0                  | 0     | 1        |
| Exposure       | 1     | 1.7  | 1       | 0         | 0         | 0           | 0           | 1    | 0      | 1                  | 0                  | 0     | 0        |
| Other*         | 1     | 1.7  | 1       | 0         | 0         | 0           | 0           | 0    | 1      | 0                  | 1                  | 0     | 0        |
| Total          | 60    |      | 21      | 11        | 10        | 2           | 16          | 34   | 26     | 20                 | 27                 | 1     | 12       |
| Percentage**   |       | 100  | 35      | 18.3      | 16.7      | 3.3         | 26.7        | 56.7 | 43.3   | 33.3               | 45.0               | 1.7   | 20       |

\*This was a death due to prematurity subsequent to maternal cocaine use and was ruled accidental.  
 \*\*Percentage of total deaths due to unintentional injuries.

Table 9: Number and Percentage of Deaths Due to Violence by Age, Sex, and Race/Ethnicity, Davidson County, Tennessee, 2013

| Manner of Death | Cause of Death | Total |      | Age     |           |           |             |             | Sex  |        | Race/Ethnicity     |                    |          |
|-----------------|----------------|-------|------|---------|-----------|-----------|-------------|-------------|------|--------|--------------------|--------------------|----------|
|                 |                | N     | %    | <1 year | 1-4 years | 5-9 years | 10-14 years | 15-17 years | Male | Female | non-Hispanic white | non-Hispanic black | Hispanic |
| Homicide        | Weapon**       | 3     | 42.9 | 0       | 1         | 0         | 0           | 2           | 3    | 0      | 0                  | 3                  | 0        |
|                 | Poisoning      | 1     | 14.3 | 0       | 1         | 0         | 0           | 0           | 1    | 0      | 1                  | 0                  | 0        |
| Suicide         | Suffocation    | 2     | 28.6 | 0       | 0         | 0         | 0           | 2           | 1    | 1      | 1                  | 1                  | 0        |
|                 | Weapon         | 1     | 14.3 | 0       | 0         | 0         | 1           | 0           | 1    | 0      | 0                  | 1                  | 0        |
|                 | Total          | 7     |      | 0       | 2         | 0         | 1           | 4           | 6    | 1      | 2                  | 5                  | 0        |
|                 | Percentage*    |       | 100  | 0.0     | 28.6      | 0.0       | 14.3        | 57.1        | 85.7 | 14.3   | 28.6               | 71.4               | 0        |

\*Percentage of total deaths due to violence for all ages.  
 \*\*Weapon includes firearm, knives and other instruments, as well as a person's body part.



Table 10: Number and Percentage of Deaths Due to Violence by Age, Sex, and Race/Ethnicity, Davidson County, Tennessee, 2009–2013

| Manner of Death | Cause of Death | Total |      | Age      |           |           |             |             | Sex  |        | Race/Ethnicity     |                    |       |          |
|-----------------|----------------|-------|------|----------|-----------|-----------|-------------|-------------|------|--------|--------------------|--------------------|-------|----------|
|                 |                | N     | %    | < 1 year | 1-4 years | 5-9 years | 10-14 years | 15-17 years | Male | Female | non-Hispanic white | non-Hispanic black | Asian | Hispanic |
| Homicide        | Suffocation    | 1     | 2.6  | 1        | 0         | 0         | 0           | 0           | 1    | 0      | 1                  | 0                  | 0     | 0        |
|                 | Weapon**       | 26    | 66.7 | 4        | 2         | 0         | 6           | 14          | 22   | 4      | 2                  | 22                 | 1     | 1        |
|                 | Poisoning      | 1     | 2.6  | 0        | 1         | 0         | 0           | 0           | 1    | 0      | 1                  | 0                  | 0     | 0        |
| Suicide         | Suffocation    | 6     | 15.4 | 0        | 0         | 0         | 3           | 3           | 2    | 4      | 1                  | 4                  | 0     | 1        |
|                 | Weapon**       | 5     | 12.8 | 0        | 0         | 0         | 2           | 3           | 3    | 2      | 3                  | 2                  | 0     | 0        |
|                 | Total          | 39    |      | 5        | 3         | 0         | 11          | 20          | 29   | 10     | 8                  | 28                 | 1     | 2        |
|                 | Percentage*    |       | 100  | 12.8     | 7.7       | 0.0       | 28.2        | 51.3        | 74.4 | 25.6   | 20.5               | 71.8               | 2.6   | 5.1      |

\*Percentage of total deaths due to violence.

\*\*Weapon includes firearm, knives and other instruments, as well as a person's body part.



