

Kentucky Department
for Public Health

Child Fatality Review

2022 Report

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prevention, promotion, and protection.



Kentucky Public Health
Prevent. Promote. Protect.

Revised: July 2022

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Child Fatality Data Review – Annual Report 2022

The Child Fatality Review Annual Report is prepared by the Division of Maternal and Child Health, within the Kentucky Department for Public Health, under Commissioner Dr. Steven Stack. This report was made possible by the many individuals who contributed their time and efforts toward the prevention of child fatalities.

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Executive Summary

This annual report was prepared and submitted in accordance with Kentucky Revised Statute 211.684. The 2022 report describes data on child deaths, or fatalities, occurring in the 2021 calendar year. When available, data for years 2016-2020 has also been included to demonstrate trends and fluctuations in causes of child fatality.

Although a decline has occurred in the overall number of child deaths for years 2016-2020, a slight increase was noted in 2021 as seen in Figure 1. The change in number of child deaths over time is difficult to attribute to specific causative factors since the causes of death for Kentucky children can vary from year-to-year. Speculation and inferences explaining this fluctuation are largely absent from this report and have been reserved for more in-depth reports which can take into account additional datasets and input from subject matter experts.

Introduction

All data points included within this report, unless otherwise noted, are obtained from the Kentucky Department for Public Health, Office of Vital Statistics death certificate records. For this report on child fatality in Kentucky, only records for children who were Kentucky residents at the time of death have been included. This includes Kentucky residents who died out of state. Where appropriate, causes of death are broken down by a child's age and will include infants (less than 365 days of age) and children (ages 1-17 years).

Causes of death for this report refer to the primary cause of death listed on the official death certificate. These causes of death are indicated by codes using the 10th revision of the International Statistical Classification of Diseases and Related Health Problems codes (commonly known as ICD-10 codes); these codes are assigned to each decedent by the National Vital Statistics System through the Kentucky Office of Vital Statistics.

For this report, causes of death have been broken down into five overarching categories, which take into account the primary cause of death and the manner of death. Manner of death is contained within a death certificate and includes accident, natural, homicide, suicide, undetermined, or pending. These overarching categories are based on federal categorizations through the National Center for Fatality Review and Prevention and include unintentional injuries, natural, homicide, suicide, and undetermined deaths such as sudden unexpected infant death (SUID) and sudden infant death syndrome (SIDS). SUID occurs among infants less than 1 year old and have no immediately obvious cause of death, and includes three commonly reported types (SIDS, accidental suffocation and strangulation in bed, and unknown causes).

Sub-categories will be included with each overarching category to draw attention to specific causes of death that affect larger portions of the population or otherwise require attention. Not all causes of death can be included as sub-categories due to the Cabinet for Health and Family Services' data suppression restrictions, which restrict releasing records with fewer than five occurrences for a given region. Causes of death with small numbers will be addressed in the most meaningful way possible while protecting anonymity and families' privacy.

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Figure 1. Number of Deaths to Children 0-17 Years of Age; Kentucky, 2016-2021

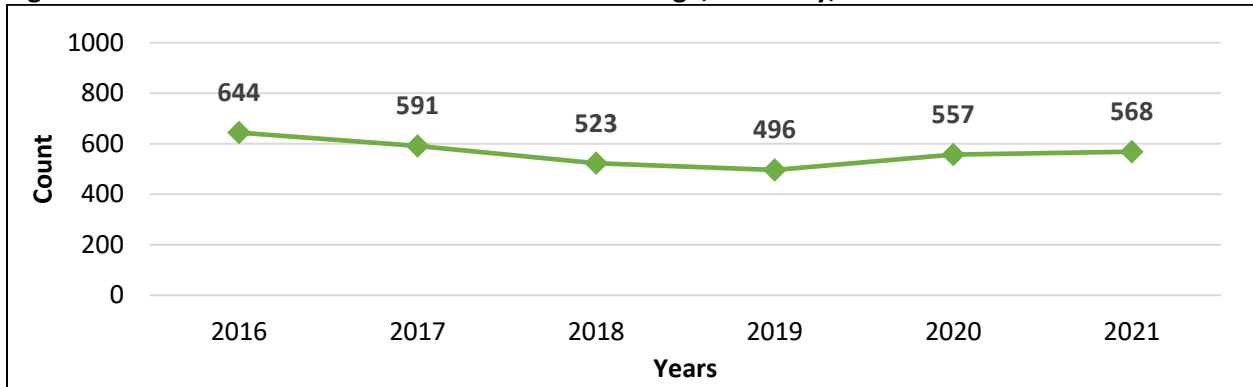


Figure 2. Leading Causes of Death for Infants; Kentucky, 2021

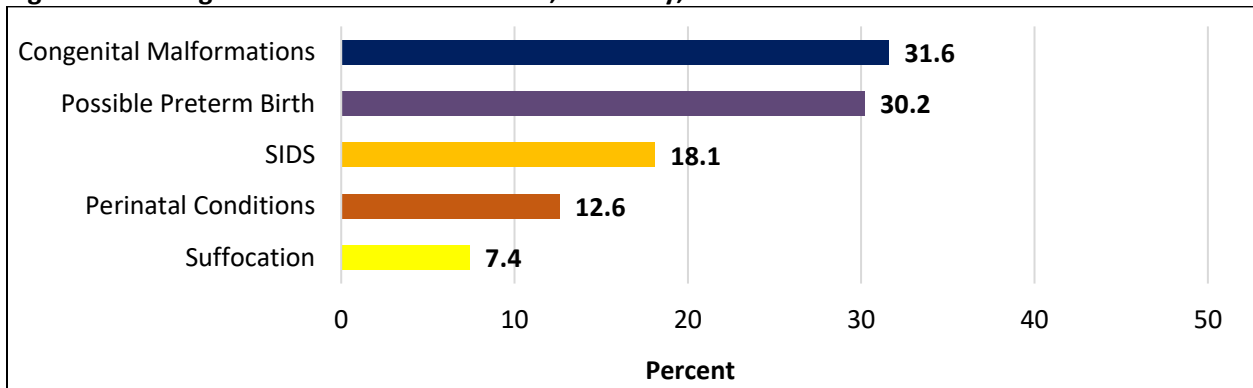


Figure 3. Leading Causes of Death for Children Aged 0-17 Years of Age; Kentucky, 2021

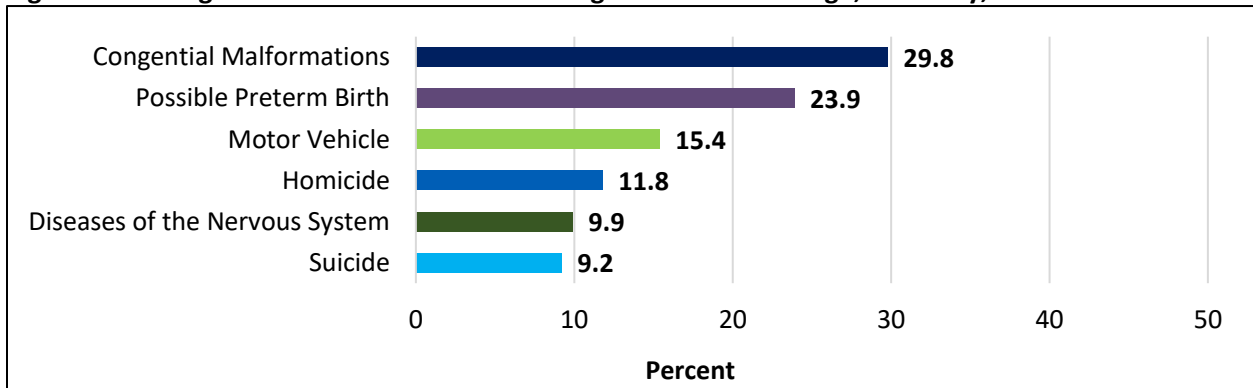
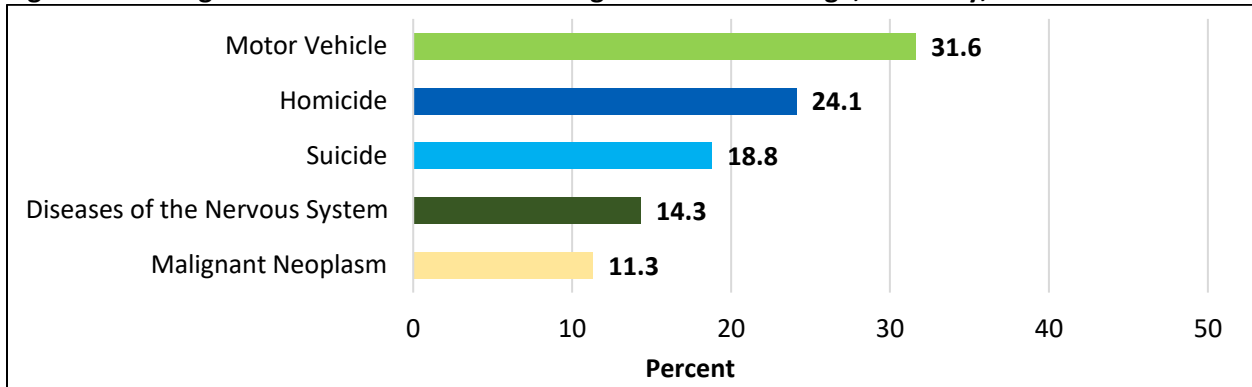


Figure 4. Leading Causes of Death for Children Aged 1-17 Years of Age; Kentucky, 2021



Infant Mortality

Infant deaths account for a majority of all child deaths in Kentucky as seen in Table 1. Infant mortality is widely recognized as an important indicator for assessing the overall health of a society (CDC, 2018). While infants do succumb to unintentional injuries and homicides, they are primarily affected by natural causes of death such as a preterm birth and congenital anomalies as previously detailed within this report.

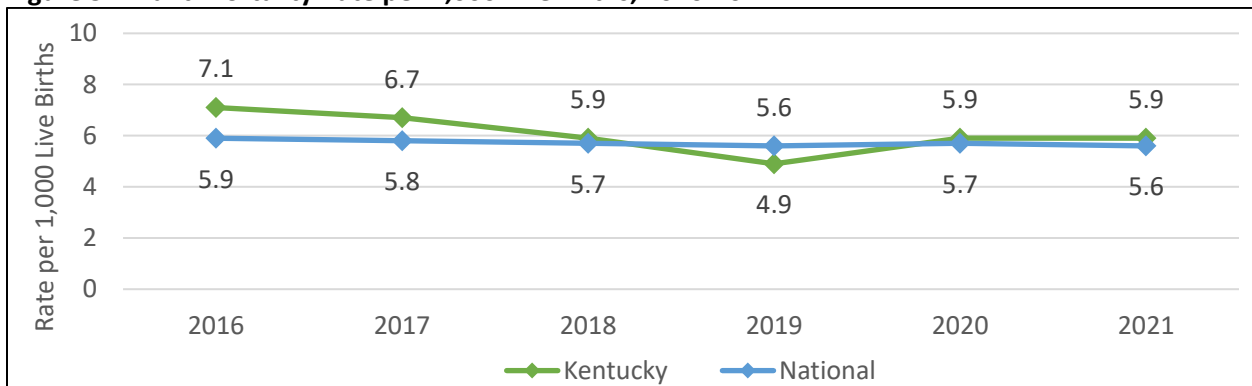
Infants account for 54% of all deaths to Kentucky children for 2021.

Table 1: Infant Deaths; Kentucky, 2016-2021

Age Range	2016	2017	2018	2019	2020	2021
Infants (<365 days old)	390	359	312	268	314	309

A common way to express infant deaths is through the use of a mortality rate. This approach takes into account population size and allows for comparison between other states, regions, and even other countries. An infant mortality rate includes any death to an infant in a given year regardless of cause or manner of death per 1,000 live births within the specific geographic region of interest. While the United States consistently has one of the highest infant mortality rates among developed nations (CDC, 2021), Kentucky ranked 33rd in infant mortality among all 50 US states in 2020 (America’s Health Rankings, 2021). Kentucky’s infant mortality rate has experienced an encouraging decrease between the years 2016 and 2021 as seen in Figure 5.

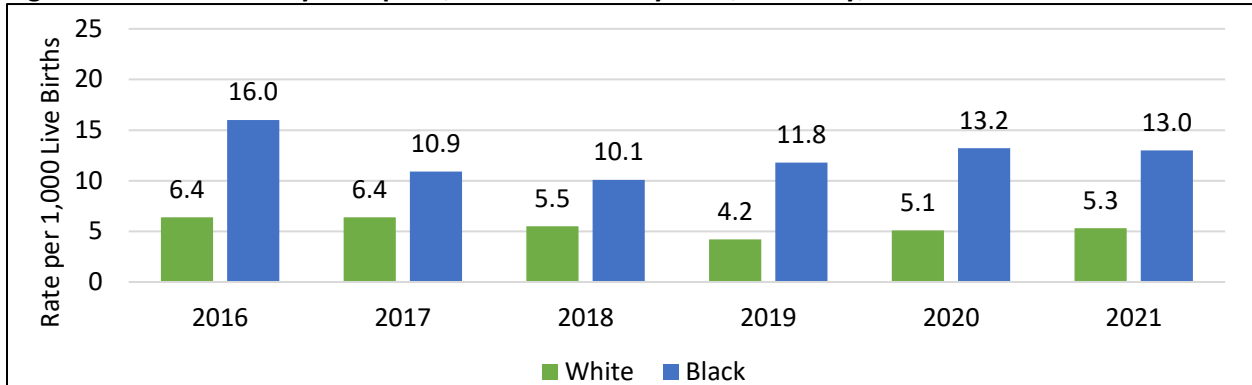
Figure 5. Infant Mortality Rate per 1,000 Live Births, 2016-2021



Live birth data obtained from Kentucky Office of Vital Statistics Birth Certificate Records, 2016-2021
 National data obtained from the Centers for Disease Control and Prevention, 2016-2021

Despite the encouraging decrease in the overall infant mortality within Kentucky, a consistent disparity persists when examining infant mortality among black and white populations. As demonstrated in Figure 6, black infants in Kentucky die at more than double the rate of white infants for 2021.

Figure 6. Infant Mortality Rate per 1,000 Live Births by Race; Kentucky, 2016-2021



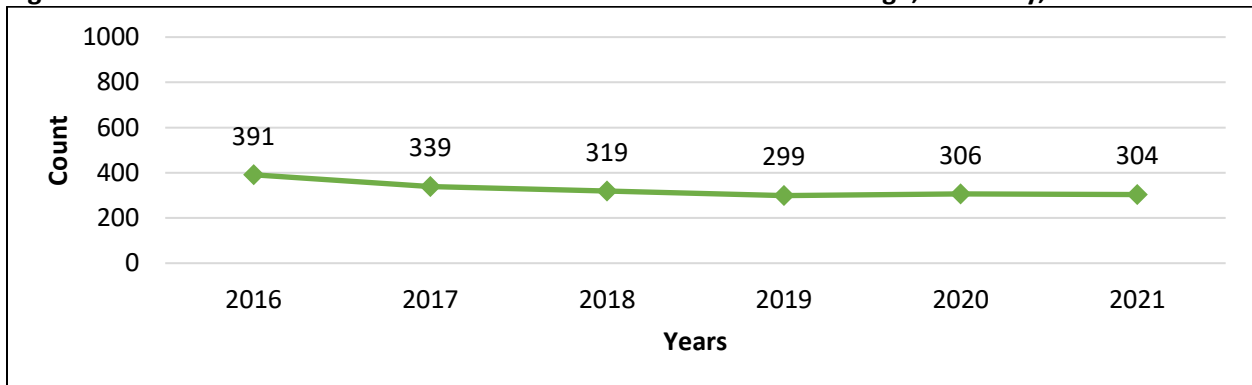
Live birth data obtained from Kentucky Office of Vital Statistics Birth Certificate Records, 2016-2021.

Natural Deaths

This category includes deaths due to cancer, congenital anomalies (birth defects), preterm births, perinatal conditions, and other health-related causes of death. A six-year trend of natural deaths is demonstrated in Figure 7. While some of these deaths could be preventable under ideal circumstances, these natural causes of death are not considered accidents or unintentional injuries as determined by the assigned manner of death on the death certificate. In this case, the manner is identified as natural.

Natural causes of death account for 54% of all child deaths regardless of age for 2021 in Kentucky.

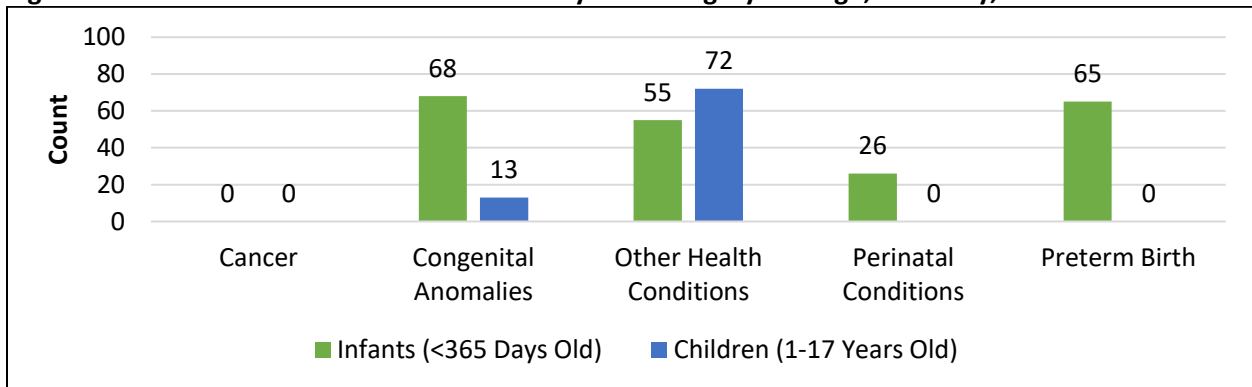
Figure 7: Number of Natural Causes of Death to Children 0-17 Years of Age; Kentucky, 2016-2021



Preterm Birth

For preterm birth to be identified as a cause of death, the child must be born prior to 37 weeks gestation and the primary cause of death must be one of seventy specific ICD-10 codes (see appendix). Preterm birth has been identified by the National Center for Fatality Review and Prevention as one of the greatest predictors of infant mortality (NCFRP, 2020). Only 3% of Kentucky babies who ultimately died of preterm birth lived greater than 6 months for 2021. Figure 8 shows preterm birth and perinatal condition deaths primarily affect infants while other health conditions primarily affect children 1-17 years of age.

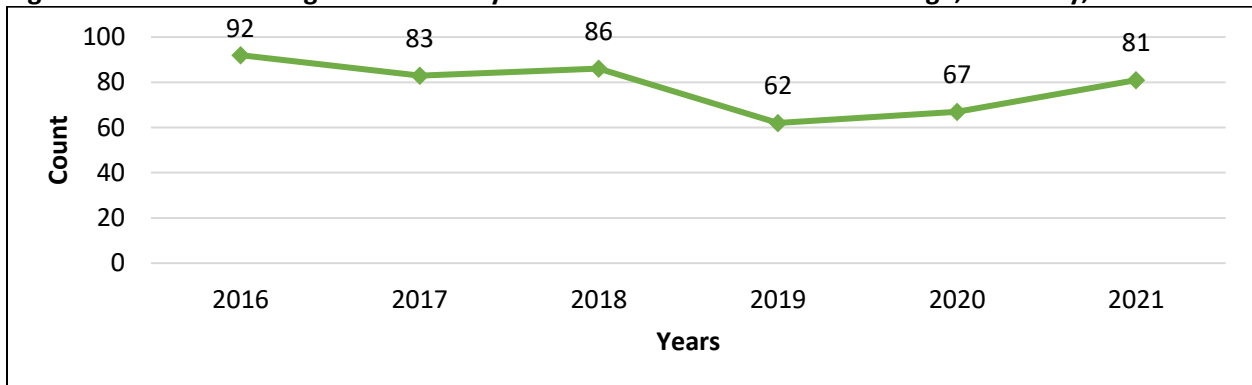
Figure 8. Number of Natural Causes of Death by Sub-Category and Age; Kentucky, 2021



Congenital Anomalies

Congenital anomaly-related deaths are not exclusive to infants, but they are the single most common cause of death for infants in 2021, accounting for 22% of all infant deaths. Due to the complexity involved in diagnosing many congenital anomalies, it is not possible to provide an accurate and detailed breakdown of specific anomalies with death or birth certificate data alone. Death and birth certificate data do not make it clear whether or not a child received any kind of genetic testing, which is required for diagnosing several congenital anomalies. Figure 9 shows the number of deaths due to congenital anomalies for 2016-2021.

Figure 9. Number of Congenital Anomaly Deaths to Children 0-17 Years of Age; Kentucky, 2016-2021

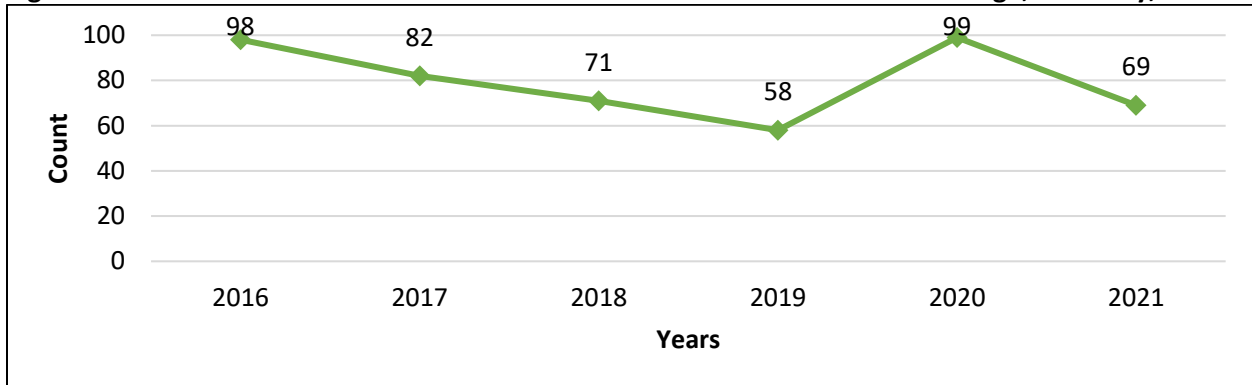


Undetermined Deaths, SIDS and SUID

Undetermined as a category of death includes causes which are undetermined or ill-defined; the five-year trend is shown in Figure 10. A death can be categorized as undetermined because there is insufficient information on the death certificate or because the coroner and/or medical examiner was unable to determine a specific cause of death. Insufficient information most frequently occurs in cases where a Kentucky resident dies in another state. Every effort is made by the Kentucky Office of Vital Statistics to obtain death certificate information in such cases but delays in reporting and communication barriers often result in deaths where no clear cause can be delineated based on death certificate data alone.

Sixty-eight percent of undetermined deaths to Kentucky children occurred in another state for 2021.

Figure 10. Number of Undetermined Causes of Death for Children 0-17 Years of Age; Kentucky, 2016-2021

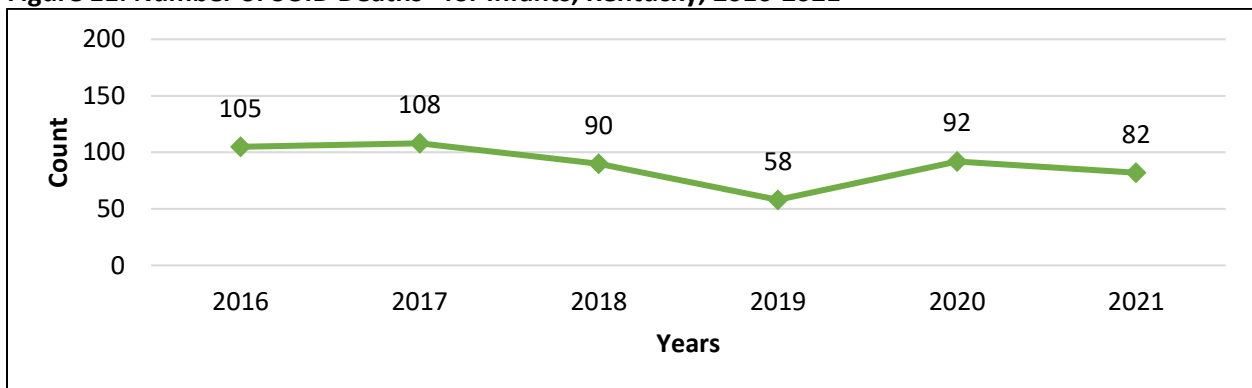


SUID

The Centers for Disease Control and Prevention defines Sudden Unexpected Infant Deaths (SUID) to describe the sudden and unexpected death of a baby less than 1 year old if the cause was not obvious before investigation. The three commonly reported types of SUID include the following: Sudden Infant Death Syndrome (SIDS), unknown cause, and accidental suffocation and strangulation in bed.

In order for an infant to be considered a SUID case, their primary cause of death must be one of six ICD-10 codes (R95: SIDS, R99: undetermined, W75: accidental strangulation and suffocation in bed, W83: other specified threats to breathing, and W84: unspecified threats to breathing). When potential infant deaths are identified, a multidisciplinary team reviews details surrounding the child’s death and decides whether or not the death meets criteria to be considered a SUID. The cases of SUID over the past 6 years are shown in Figure 11.

Figure 11. Number of SUID Deaths* for Infants; Kentucky, 2016-2021



Data Source: Kentucky SUID Case Registry, 2016-2021

*Counts are mutually exclusive and cannot be compared to other causes of death in this report.

SIDS

Sudden infant death syndrome (SIDS) as a primary cause of death is identified through a specific ICD-10 code (R95). SIDS is an exclusionary cause of death that can only be used for infant deaths where a clear cause of death cannot be identified. Figure 12 shows SIDS deaths for years 2016-2021.

Figure 12. Number of SIDS Causes of Death for Infants; Kentucky, 2016-2021

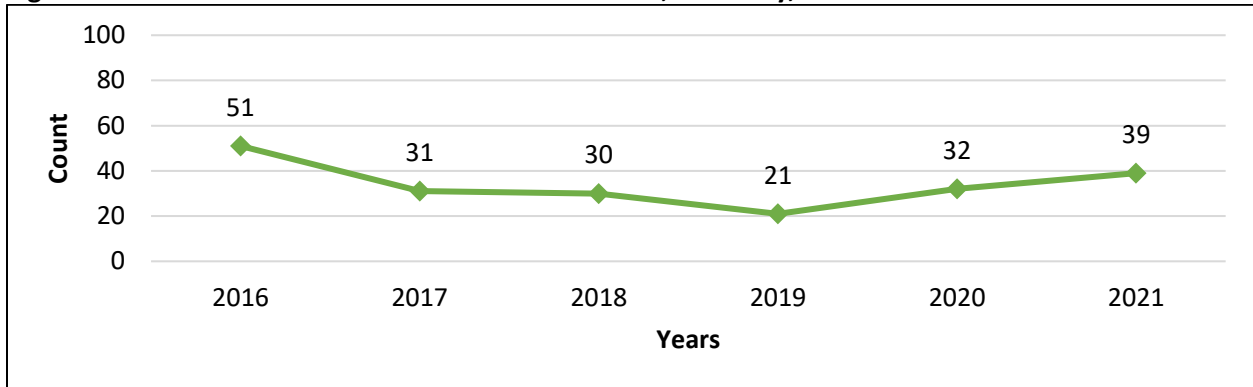


Table 2: Child Deaths by Age Ranges; Kentucky, 2016-2021

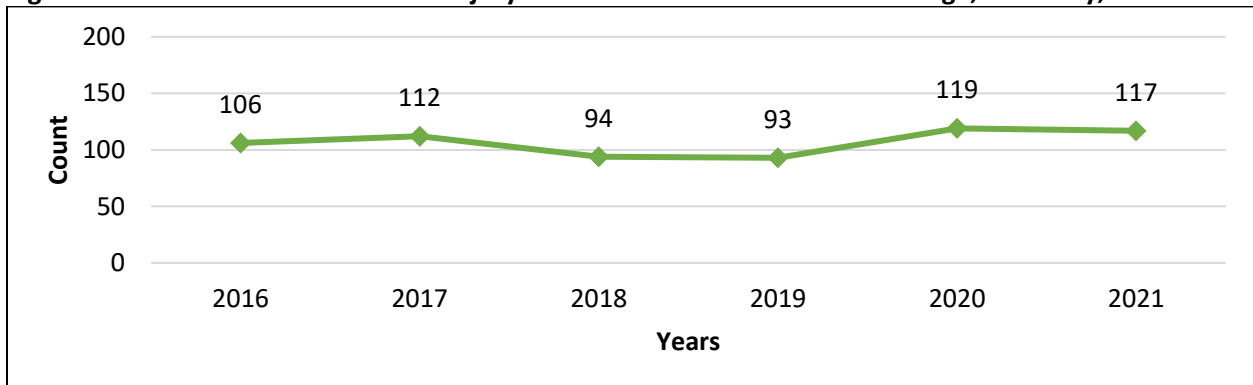
Age Range	2016	2017	2018	2019	2020	2021
1-4 years old	69	51	61	58	46	51
5-9 years old	41	39	41	38	36	50
10-14 years old	58	52	36	59	69	56
15-17 years old	86	90	73	73	92	102
Total	254	232	211	228	243	259

Unintentional Injury Deaths

Shown in Figure 13 are the number of unintentional injury deaths from 2016 to 2021. This category mainly consists of deaths where the manner is listed as “accident.” For that reason, these deaths do not include intentional causes (e.g., homicide or suicide) or deaths where the child died due to a health-related cause (e.g., congenital anomalies or cancer). Unintentional injuries are often the most preventable deaths for children. Some of the preventable deaths include children that choke on food or toys, are left in a hot car (i.e., hyperthermia), and accidentally shot with a firearm.

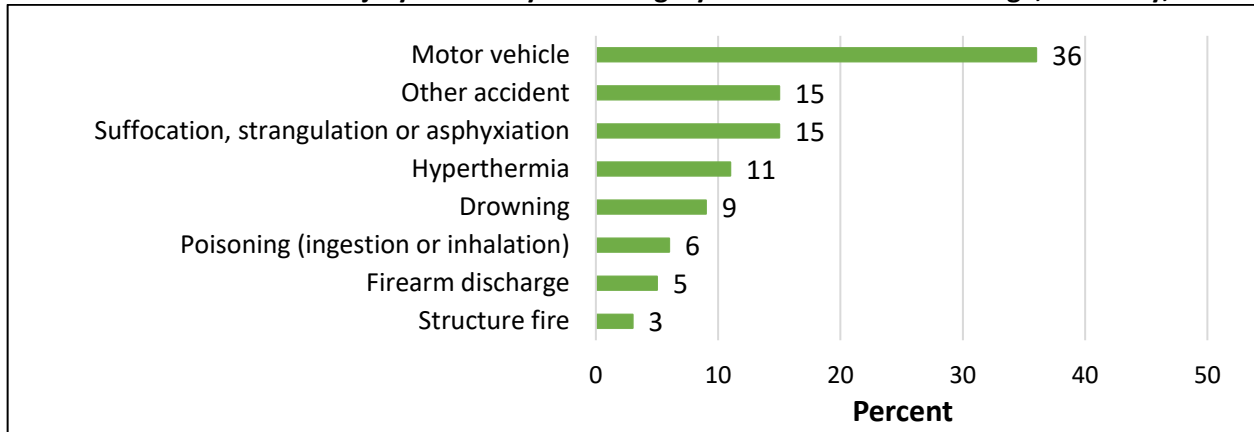
Infants account for **21%** of unintentional injury deaths to Kentucky children in 2021.

Figure 13. Number of Unintentional Injury Deaths to Children 0-17 Years of Age; Kentucky, 2016-2021



The unintentional injury category contains the most variety of any cause of death within this report (see Figure 14) and accounts for 21% of all childhood deaths. There are several sub-categories but with yearly variation.

Figure 14. Percent of Unintentional Injury Deaths by Sub-Category Children 0-17 Years of Age; Kentucky, 2021



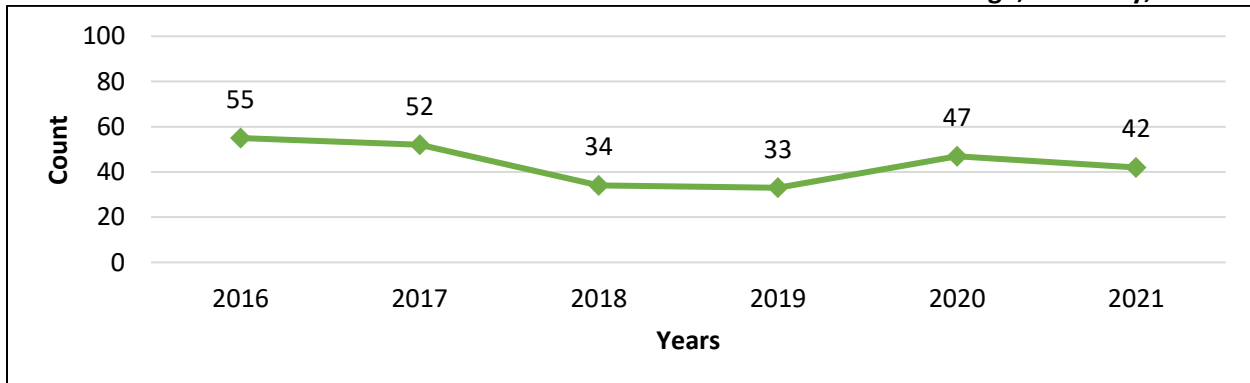
Motor Vehicle Accidents

Motor vehicle accidents include accidents where the deceased was either a pedestrian, passenger (unsecured or secured), or driver of a motor vehicle, motorcycle, train, pedal bike, watercraft, aircraft, or all-terrain vehicle. Although pedal bikes are not motorized vehicles, when unintentional injury deaths involve a collision with some form of motorized vehicle and the decedent was a passenger of the pedal bike, the death is included in this sub-category.

Thirty-six percent of unintentional injury deaths to Kentucky children are attributed to some form of motor vehicle accident.

The number of motor vehicle accident-related deaths in the past five years is shown in Figure 15. When a motor vehicle accident occurs, but the manner is either homicide or suicide, the child’s death will be categorized with either homicide or suicide causes of death and not as an unintentional injury.

Figure 15: Number of Motor Vehicle Accident-Related Deaths to Children 0-17 Years of Age; Kentucky, 2016-2021



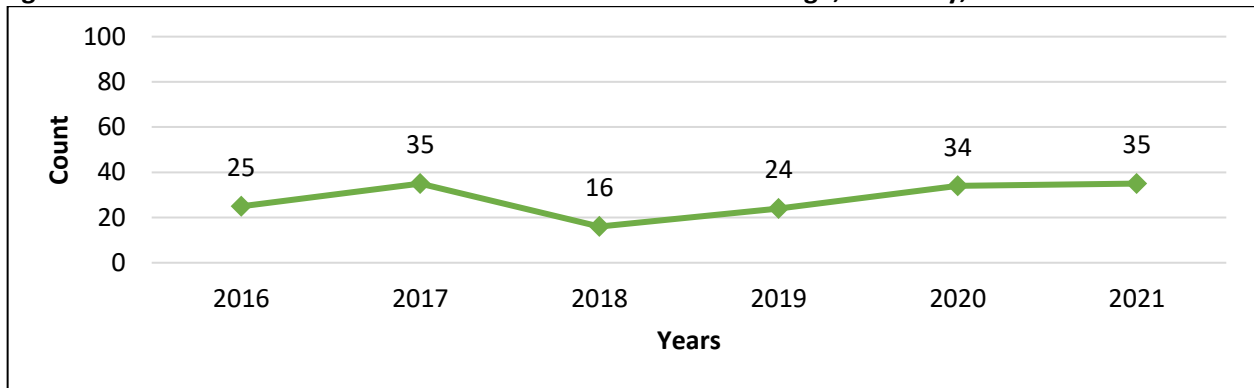
The type of motor vehicle-related deaths can vary from year to year, but the most common type is consistently motor vehicle accidents where the child was either a passenger or driver of a motorized vehicle (including trucks or cars).

Homicide Deaths

Homicide deaths, demonstrated within Figure 16, include any death where the manner is listed as homicide. This means the death occurred at the hands of another in such a way that cannot be categorized as an unintentional injury or accident. While many homicide deaths do end with criminal investigations, homicide as a manner of death is primarily a medical term and is not necessarily analogous with legal definitions of manslaughter or malice aforethought.

Ninety-one percent of homicide deaths for 2021 were to children between ages 1 and 17 years old in Kentucky.

Figure 16. Number of Homicide Deaths to Children 0-17 Years of Age; Kentucky, 2016-2021



Abuse, Neglect, and Maltreatment

Abuse, neglect, and maltreatment deaths among Kentucky children are not represented within this report due to limitations in the data set. Such occurrences of child death are not clearly identified within death vital records because of the complexities of the circumstances leading to the child's death and associated legal proceedings to identify responsible parties. For this reason, abuse and maltreatment deaths have been suppressed and are included with unspecified homicide deaths in the Figure 16.

For an in-depth review of Kentucky's abuse, neglect, and maltreatment-related child deaths, please see the Annual Report of Child Fatalities and Near Fatalities prepared by the Division of Protection and Permanency in conjunction with the Department for Community Based Services (DCBS) and the Cabinet for Health and Family Services (CHFS):

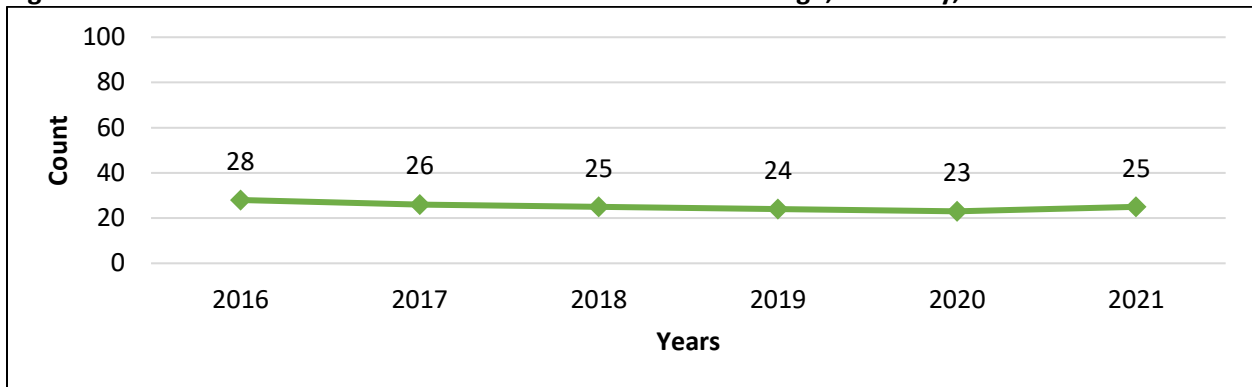
<https://chfs.ky.gov/agencies/dcbs/dpp/cpb/Documents/reportofchildfatalitiesandnearfatalities.pdf>

Suicide Deaths

This category of death is strictly for deaths in which the manner is listed as suicide. In cases where the child's intentions are not clear, at the discretion of the coroner and/or medical examiner, the manner of death would be listed as undetermined. For this report, such deaths would be categorized with unintentional injuries since intent could not be clearly identified. Figure 17 shows the number of suicide deaths from 2016-2021.

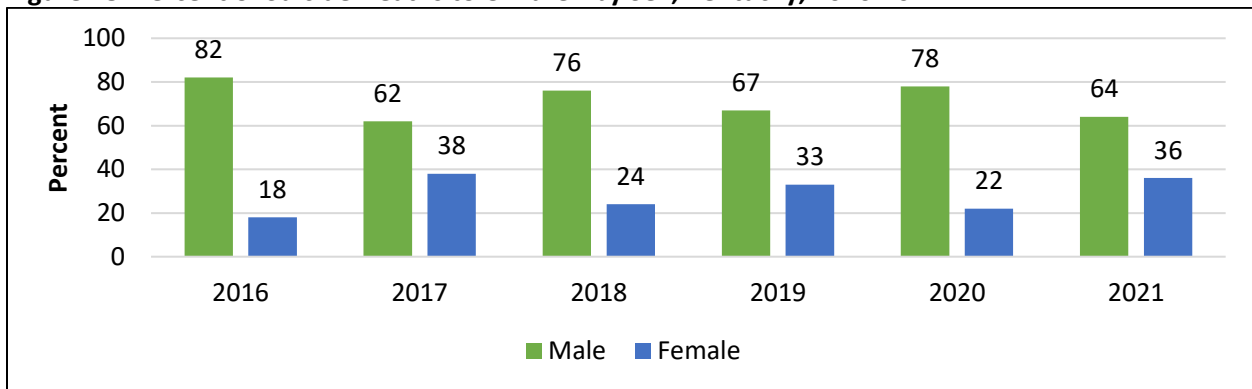
The age range for death by suicide for Kentucky children extends from 10 to 17 years for 2021.

Figure 17. Number of Suicide Deaths to Children 10-17 Years of Age; Kentucky, 2016-2021



Males are much more likely to die by suicide than females as demonstrated in Figure 18.

Figure 18. Percent of Suicide Deaths to Children by Sex; Kentucky, 2016-2021



Acknowledgments

We would like to thank the tireless work of the Kentucky Office of Vital Statistics and the various individuals across the commonwealth who contribute to death and birth certificate data. Without their work, this report would not be possible. We would also like to acknowledge each Kentucky child included in this report; they are so much more than a number in a graph.

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