2004 Executive Summary

Deaths to children less than 18 years of age are steadily declining in the Commonwealth. In 1997, there were a total of 715 child deaths to Kentucky residents compared to 631* child deaths in 2004. This represents a 12% decline over the seven year period. The majority of all the child deaths (66%) were due to Natural causes, whereas 32% were Injury related cases. Natural cause of deaths include congenital anomalies, prematurity and low birth weight, SIDS, cancers, and other while injury related cause of deaths includes transportation fatalities, drowning, homicide, suicide and other.

Overall, the rate of death was higher among males compared to females (7.6/10,000 vs. 5.0/10,000) with males having a higher rate of Natural cause deaths than Injury related causes (4.9/10,000 vs. 2.5/10,000). Similarly, females had a higher rate of Natural cause deaths than Injury related causes (3.4/10,000 vs. 1.5/10,000).

In terms of age, infants (<1 year of age) had a higher rate of death than any other age group. The rate of death to infants due to Natural causes was almost 11 times that of the rate of death due to Injury related causes (56.4/10,000 vs. 5.4/10,000 respectively). In contrast, deaths to children aged 10-17 were primarily Injury related causes with this age group having a rate of death due to Injuries slightly more than twice that of Natural causes (2.6/10,000 vs. 1.2/10,000 respectively). Congenital anomalies were the most common cause of infant mortality followed by short gestation/low birth weight. The most common cause of death to Kentucky's teen population (ages 13-17) was motor vehicle crashes followed by suicide.

Racial disparities continue to remain a problem in the Commonwealth. Infant mortality rates for Blacks are more than twice that for Whites and this has changed little over the last five years. In 2004, the ratio of the Black to White infant mortality rate was 2.4, meaning that Black infants were more than twice as likely to die during the first year of life from any cause than White infants. This ratio has not improved over time and in fact it has increased since 1997. Additionally, in 2004 73% of black infants and children died due to Natural cause deaths, while 27% died due to Injury related causes.

The following table presents an overview of the comparison of Natural cause child fatalities to Injury cause child fatalities in the Commonwealth of Kentucky for year 2004.

*Data in this report is based on 2004 Preliminary Vital Statistics Birth & Death Certificate files. 13 records in the Preliminary Vital Statistics Death Certificate file did not have cause of death coded.

Comparison of Natural Cause Fatalities to Injury Cause Fatalities for Children Ages 0-17; Year 2004

	Grand Total		Natural Cause		Injury Cause	
	#	Rate*	#	Rate*	#	Rate*
Total	631**	6.3	414	4.2	204	2.1
Male	388	7.6	250	4.9	130	2.5
Female	243	5.0	164	3.4	74	1.5
Age Groups:						
<1	351	63.5	312	56.4	30	5.4
1-4	73	3.4	36	1.7	36	1.7
5-9	35	1.3	13	4.8	22	0.8
10-17	172	3.8	53	1.2	116	2.6

*Rates are per 10,000 specified population ; Denominator data are based on the 2004 population estimates for Kentucky as compiled by the Kentucky State Data Center, Urban Studies Institute

**13 records in the Preliminary Vital Statistics Death Certificate file did not have cause of death coded.

Note: Classification of death (Natural vs. Injury) is based on the ICD10 code as recorded on the death certificate

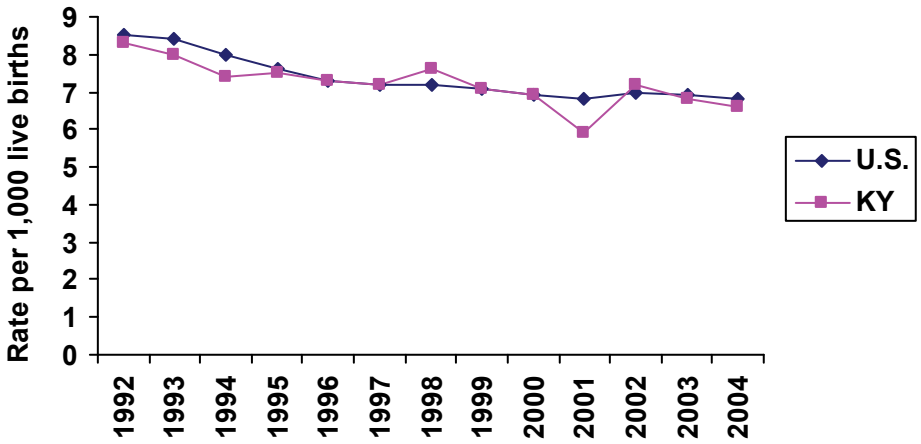
I. Infant Mortality

Infant mortality rates are the most commonly used index for measuring the risk of dying during the first year of life. Infant mortality is expressed as a rate of death per 1,000 live births. Often times, infant mortality rates are used to assess the health status of a nation or a specific geographical area. Multiple factors affect infant mortality making it difficult to target interventions however, significant advances have been made in the field of science which has helped to reduce infant deaths. Even though improvements are being made, the U.S. still has one of the higher infant mortality rates of all industrialized nations.

Infant mortality has been decreasing in Kentucky and the U.S. over time except for 2002. From 1992-2004 the infant mortality rate declined 20% for the U.S. and 20% for Kentucky (Figure 1.) The 2004 infant mortality rate for Kentucky was 6.6/1,000 live births compared to 6.8/1,000 live births for the U.S.

Figure 1.

Infant Mortality Rates per 1,000 Live Births;
United States & Kentucky, 1992-2004

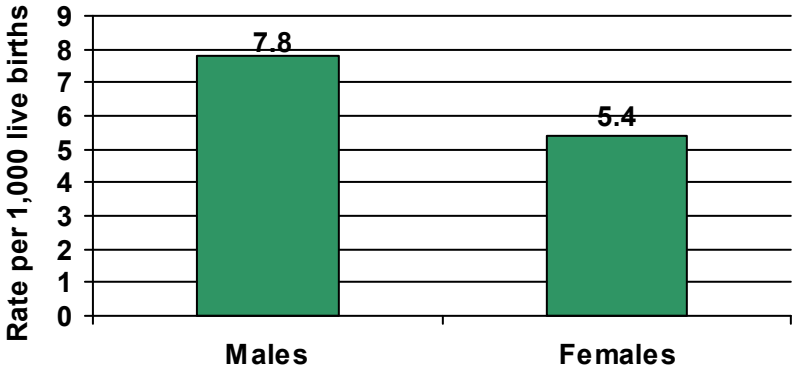


Factors that can influence infant mortality include but are not limited to: infant gender and race, maternal/paternal socioeconomic status, education, risk behaviors, and knowledge of safe infant care practices.

Gender appears to have a role in infant survival during the first year of life. The rate of infant deaths was higher among males as opposed to females with males having a rate of death 1.4 times that of females (Figure 2.). In Kentucky and in US, males in general are typically at greater risk of dying during the first year of life as opposed to females and even though infant deaths decreased as a whole, male deaths still remain higher than female deaths.

Figure 2.

Kentucky Infant Mortality Rates
By Sex; Year 2004



Racial disparities in infant mortality have been a long-standing problem for both the U.S. and Kentucky.

Infant mortality rates differ greatly among whites and non-white races. Black infants have higher rates of mortality compared to white infants. In fact, in Kentucky, the infant mortality rate has not decreased for blacks in the same way it has for whites. In 2004, the ratio of the black to white infant mortality rate was more than twofold meaning that black infants were more than twice as likely to die during the first year of life compared to white infants (Table 1.). This discrepancy has not improved over the last five years and actually increased from 1.5 in 1997 to 2.4 in 2004.

Table 1.

Kentucky Infant Mortality Rates*
By Race; 1993-2004

Year	White	Black
1993	7.4	14.1
1994	6.8	13.5
1995	7.2	10.7
1996	6.8	13.0
1997	7.0	10.8
1998	6.9	15.4
1999	6.7	12.3
2000	6.3	12.9
2001	5.4	10.5
2002	6.4	14.0
2003	6.3	11.6
2004	6.0	14.2

*Rates are per 1,000 live births

II. Natural Cause Infant Fatalities

Natural cause deaths can be influenced by a wide variety of factors. In terms of natural cause deaths in infants, contributing factors may be present before conception and throughout the pregnancy. Such factors may include but are not limited to socioeconomic factors, cultural factors, geographical location, education level, and health behaviors of the mother. Poor birth outcomes are greatest among teenage mothers, those of non-white race, and individuals living in poverty. Steps taken to improve pregnancy outcomes include early and appropriate prenatal care, health education, proper nutrition, social support, risk identification with intervention, and obstetrical care. Prior to conception and throughout the prenatal period, it is critical to assure optimal maternal and fetal health as this will directly impact the number of infant and child deaths in the state.

Deaths classified under the category of natural cause are generally linked to a specific disease or condition. The three leading natural causes of infant deaths are: congenital anomalies, prematurity and low birth weight, and Sudden Infant Death Syndrome (SIDS). Better understanding to the prevention of specific diseases and adverse birth outcomes will help to aid in the reduction of occurrences of natural cause deaths.

Over half (75%) of the natural cause deaths occurred to children less than one year of age with only 25% occurring to those aged 1-17 (Figure 3.). Natural cause deaths to infants have declined during the past seven years as depicted in Figure 4.

Figure 3.

Percent of Kentucky Natural Cause Child Deaths by Age Groups; Year 2004

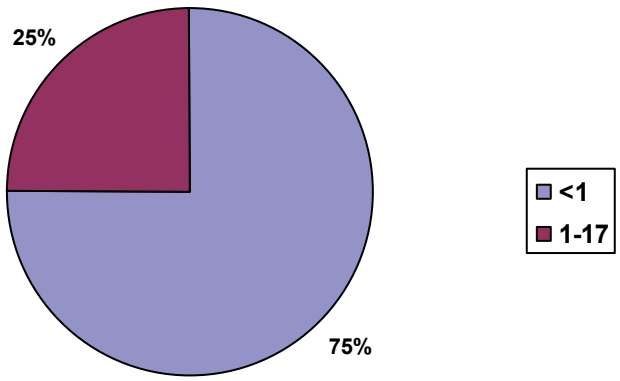
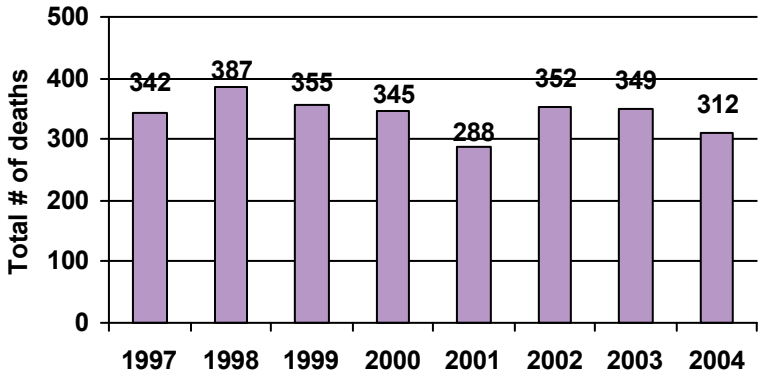


Figure 4.

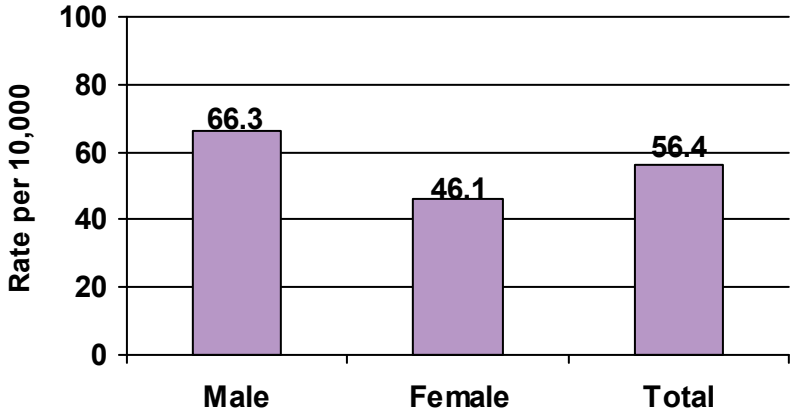
Total Number of Natural Cause Deaths to Kentucky Children <1 Years of Age; 1997-2004



Natural cause deaths affect males at a higher rate than females (Figure 5.) with males having a rate 1.4 times higher than that of females. The overall rate of deaths due to natural causes for year 2003 was 56.4/10,000 population aged <1.

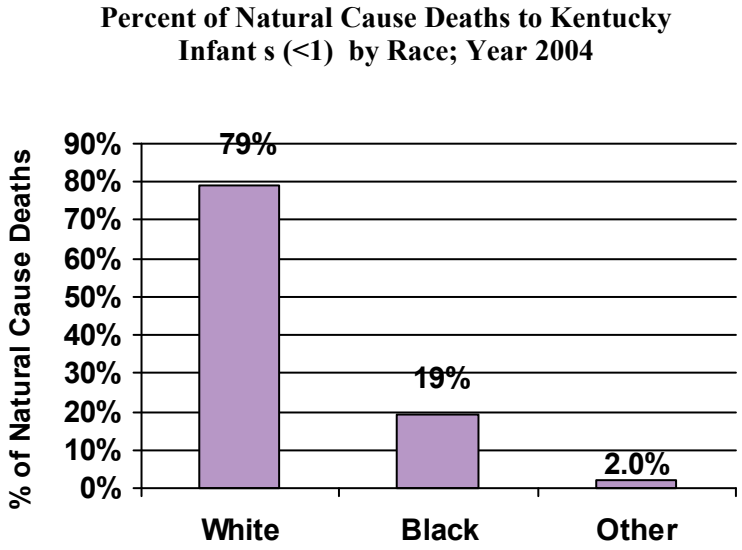
Figure 5.

Kentucky Infant (<1) Death Rates* due to Natural Causes by Sex; Year 2004



The percentage of natural cause infant deaths was highest among those of white race compared to those of black or other races (Figure 6.). Over three-fourths (79%) of the deaths in this category were to those children of white race.

Figure 6.



A. Congenital Anomalies

Congenital anomalies, also known as birth defects, accounted for 18% of the natural cause deaths in 2004. Birth defects continue to remain the leading cause of morbidity and mortality in the U.S. accounting for more than one in five infant deaths. Even though advances in other causes of infant mortality have lead to their decline, there has not been a significant decline in those infant deaths due to birth defects over the past several years, with the exception of neural tube defects

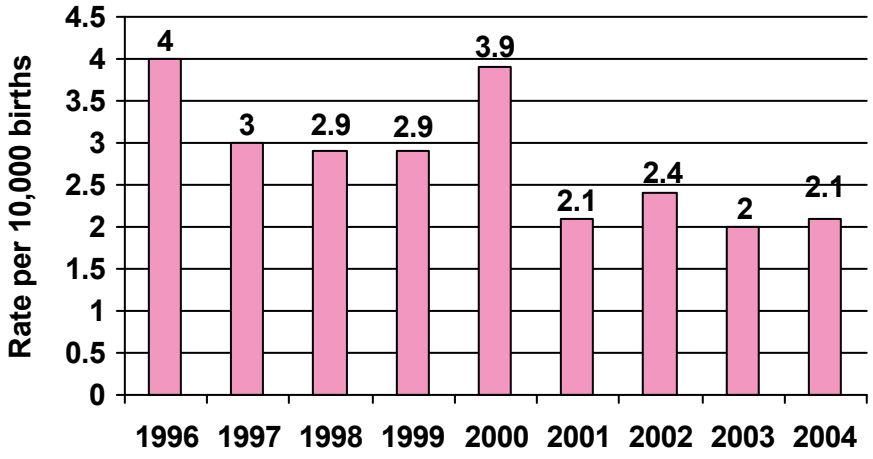
One specific type of congenital anomaly, neural tube defects (NTDs), affect approximately 4,000 infants each year in the U.S. NTDs are a group of congenital malformations involving defects in the skull and spinal column that are caused primarily by the failure of the neural tube to close during embryonic development. This group of defects consist of anencephaly, spina bifida, and encephalocele.

a. Anencephaly

Anencephaly, a lethal condition characterized by the absence of major portions of the brain and malformation of the brainstem, accounts for several of the infant deaths due to congenital anomalies. In Kentucky, rates of anencephaly declined 49% from 1996-2004 with the highest rate (4.0/10,000 births) occurring in 1996 (Figure 7.).

Figure 7.

Kentucky Anencephaly Rates*;
1996-2004



*Rates are per 10,000 live and still births
Cases are based on the ICD9 code 740.0-740.1
Source: Kentucky Birth Surveillance Registry, 1996-2004

Certain other types of birth defects are considered to be lethal conditions thus contributing greatly to the overall infant mortality rate. Two such types of conditions are Trisomy 13 and Trisomy 18. These two types of syndromes are the second and third most common chromosomal abnormalities with Down Syndrome being the most common chromosomal disorder.

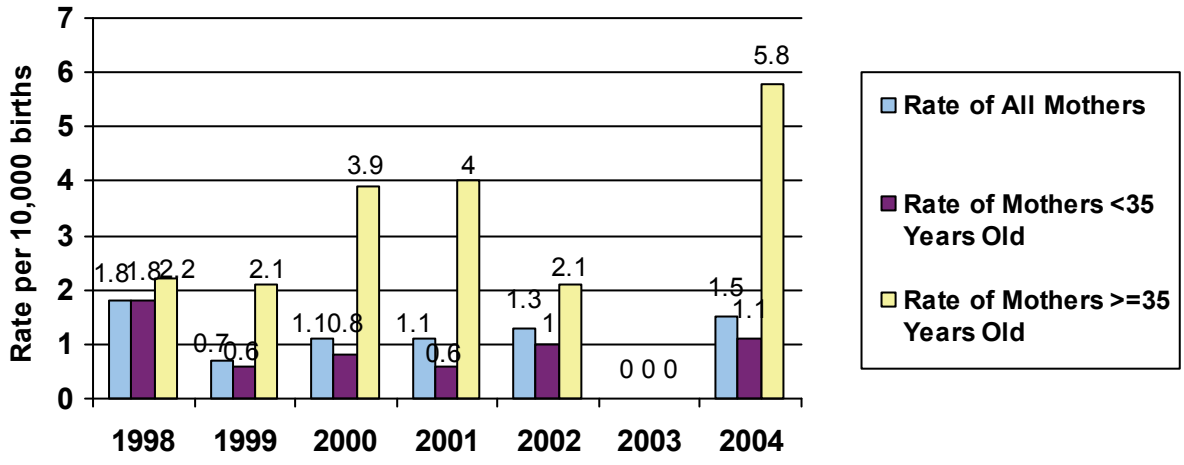
b. Trisomy 13

Trisomy 13 is a chromosome disorder in which a child has an extra copy of chromosome 13. There is no known apparent cause for the disorder, however advanced maternal age seems to play a role. Nationally, the disorder affects approximately 1/10,000 live births and is a common chromosomal cause of fetal death, miscarriage, and stillbirth[2]. Infants born with Trisomy 13 tend to be small for gestational age and have anatomical defects of the brain. Approximately 80% of cases have additional congenital anomalies including heart defects, cleft lip and or cleft palate, omphalocele, and limb anomalies. Infants that survive past one month of age usually have severe developmental delays as well as slow physical growth[3].

Rates of Trisomy 13 decreased 25% in Kentucky from 1998-2004; in 2003 there were no deaths due to Trisomy 13. There was also a 44% decrease in the rate of Trisomy 13 to women less than 35 years of age at the time of birth for the same time period. Although overall rates and rates to women less than 35 decreased, the rate of Trisomy 13 to women aged greater than or equal to 35 at the time of birth increased from 2.2/10,000 births in 1998 to 4.0/10,000 births in 2001 before declining to 2.1/10,000 births in 2002 (Figure 8.).

Figure 8

Rates* of Trisomy 13 by Maternal Age Among Kentucky Residents, 1998-2004; Kentucky Birth Surveillance Registry Data**



*Rates are per 10,000 live & still births per specified age group
**Maternal age reflects the Mother's age at time of birth, either <35 or >=35
Cases are based on the ICD9 code 758.1
Source: Kentucky Birth Surveillance Registry, 1998-2004

c. Trisomy 18

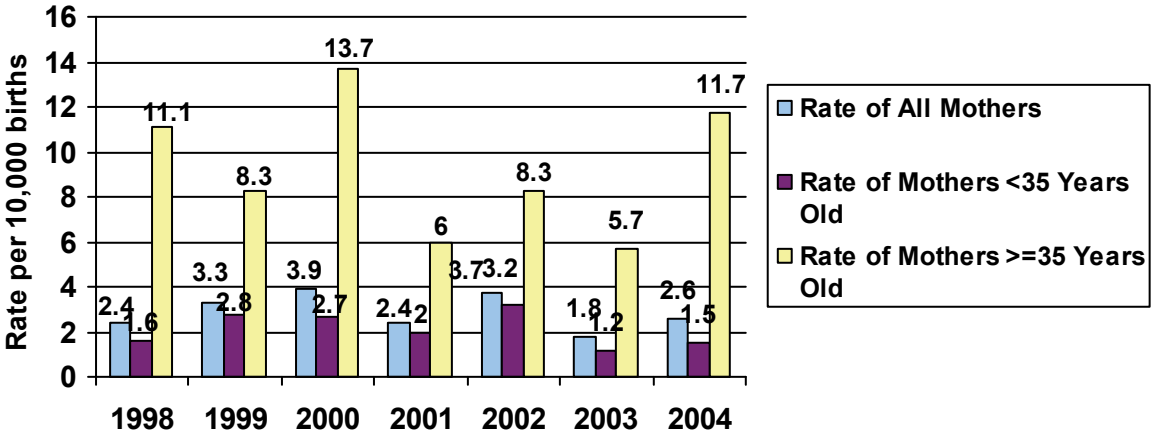
Trisomy 18, the second most common chromosomal disorder after Down syndrome, is a genetic disorder affecting approximately 1/8,000 live births nationally. This syndrome is typically a lethal condition where 95% of affected fetuses abort spontaneously. Babies born with Trisomy 18 have a very poor prognosis with 96% dying within the first year of life, 30% within the first month, and 50% within the second month[4]. There is no known cause for this disorder, however, advanced maternal age appears to be a risk factor. There is often a history of minimal fetal activity, excess fluid in the fetal sac, a small placenta, and a single umbilical artery.

Infants born with Trisomy 18 tend to be small for gestational age, have difficulty eating, and fail to thrive. Often times other congenital anomalies are present such as heart defects, anomalies of the lung, kidney, and diaphragm, cleft lip and or cleft palate, eye abnormalities, hearing loss, and limb deformities. Severe developmental delays and profound mental retardation are exhibited by those infants surviving to one year of age[5].

Rates of Trisomy 18 in Kentucky have increased slightly since 1998 with a rate of 2.4/10,000 births in 1998 compared to 2.6/10,000 births in 2004. There was a slight decrease in rates to women less than 35 years of age at time of birth decreasing from 1.6 to 1.5/10,000 births from 1998-2004. Rates to women greater than or equal to 35 years of age at time of birth slightly increased with a rate of 11.1/10,000 births in 1998 compared to 11.7/10,000 births in 2004 (Figure 9.). However, the rate of 11.7/10,000 in 2004 is more than a twice-fold increase compared to 2003 of a rate 5.7/10,000 births.

Figure 9.

Rates* of Trisomy 18 by Maternal Age Among Kentucky Residents, 1998-2004; Kentucky Birth Surveillance Registry Data**



*Rates are per 10,000 live & still births per specified age group
**Maternal age reflects the Mother's age at time of birth, either <35 or >=35
Cases are based on the ICD9 code 758.2

Multiple causes exist for birth defects however, current research is gaining insight into more specific causes enabling prevention efforts to become more targeted. One such example is the discovery that up to 70% of NTDs can be prevented through the daily consumption of 400 mcg of folic acid by women of childbearing age. Proper risk education along with preconceptional health promotion are critical elements of targeted prevention in helping to reduce birth defects. Although all birth defects are not preventable, there are steps that a woman can take to increase her chance of having a healthy baby. Many birth defects happen very early in pregnancy, sometimes before a woman even knows that she is pregnant.

Every woman should:

- Take a multivitamin that has 400 mcg of folic acid in it every day
- Have regular medical check-ups
- Talk to her health care provider about any medical problems such as diabetes or phenylketonuria
- Talk to her health care provider about any medicine use including over-the-counter and prescription medications
- Talk to her health care provider about substances at work or home that should be avoided as they might be harmful to a developing baby
- Keep vaccinations up-to-date
- Eat a healthy, balanced diet
- Avoid eating raw or undercooked meat
- Avoid alcohol, tobacco, and street drugs

Surveillance of birth defects in Kentucky is necessary in order to identify areas of concern within the state. One way in which this is accomplished is through a statewide birth defects registry. The Kentucky Birth Surveillance Registry (KBSR) is a state mandated surveillance system designed to provide information on incidence, prevalence, trends and possible causes of stillbirths, birth defects, and disabling conditions. The KBSR collects information from vital records, acute care, and birthing hospitals, laboratory reporting, and voluntary outpatient reporting on all children from birth to five years of age who are diagnosed with any structural, functional, or biochemical abnormality determined genetically or induced during gestation. The KBSR operates under the authority of KRS 211.651-670 with statewide data collection for surveillance beginning in April of 1996.

B. Prematurity and Low Birth Weight

Prematurity and low birth weight fatalities contribute greatly to the natural cause deaths both nationwide and in Kentucky. In fact, in 2004, prematurity and low birth weight was the second leading cause of infant mortality in the U.S. and has remained among the top ten leading causes of infant death for the past seven years.

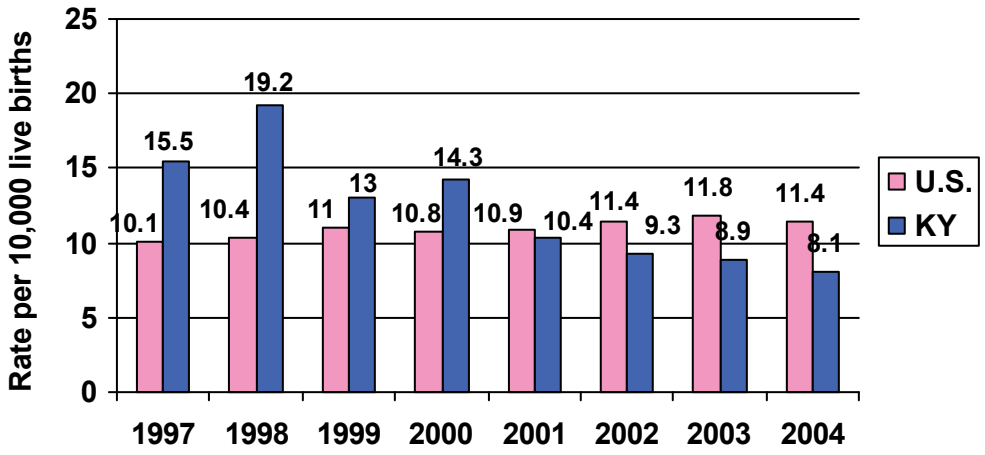
Preterm birth is defined as any birth occurring prior to 37 weeks of completed gestation, and low birth weight is defined as any infant weighing less than 2500 grams (5lb. 8oz.) at birth. Certain known risk factors place a woman at higher risk of preterm delivery than others. These factors include:

Previous preterm or low birth weight birth
Multiple births
Short interpregnancy interval
Maternal smoking during pregnancy
Maternal drug use during pregnancy
Certain infections during pregnancy including sexually transmitted diseases
Little or no prenatal care
Certain birth defects

The low birth weight infant mortality rate has declined 48% in Kentucky over the past eight years (Figure 10). Since 2001, the rate of low birth weight infant mortality in Kentucky has remained lower than the national rate.

Figure 10.

Infant Mortality Rate due to Prematurity & Low Birth Weight; United States & Kentucky; 1997-2004



Continued research into the causes and risk factors associated with prematurity and low birth weight is critical in order to develop effective prevention of preterm and low birth weight deliveries. Women must be educated to recognize the signs of preterm labor and know the appropriate steps to follow. Additionally, women and their families must be educated that preventing preterm birth saves babies lives and improves the future of our whole community.

C. Sudden Infant Death Syndrome

Sudden Infant Death Syndrome (SIDS) remains in the top ten leading causes of infant deaths in the U.S. and was the third leading cause of infant deaths in 2004. The American Academy of Pediatrics defines SIDS as "the sudden death of an infant under the age of one year which remains unexplained after thorough case investigation, including the performance of a complete autopsy, examination of the death scene, and review of the clinical history." The typical presentation in SIDS is the sudden unexpected death of a seemingly healthy infant with more deaths occurring in the winter months. Ninety-five percent of SIDS cases occur by six months of age with peak onset between two and four months.

The etiology of SIDS is still unknown and several risk factors play a key role in the onset of the syndrome. Some of the risk factors include:

Maternal smoking during pregnancy
Infants exposed to passive smoke after birth
Maternal age younger than 20 years at first pregnancy
Illicit drug use during pregnancy
Low socioeconomic status
Premature infant
Low birth weight infant
Inadequate or no prenatal care
Infants placed to sleep in prone sleeping position
Infants placed to sleep on soft bedding surfaces
Infants with a recent history of illness

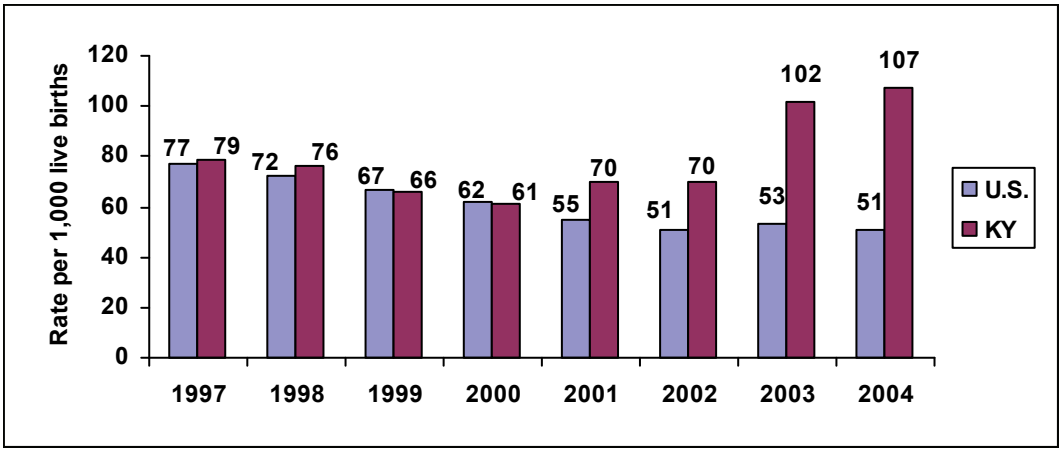
It is also important to note that SIDS affects a higher percentage of males than females. Also, a large number of infants who die from SIDS have either a respiratory or gastrointestinal infection prior to their death. Research to determine the cause of SIDS is still ongoing. Evidence suggests that some SIDS babies are born with brain abnormalities that make them vulnerable to sudden death during infancy. These abnormalities are found in the part of the brainstem involved in the control of breathing during sleep.

Education related to prevention interventions must be delivered continuously in order to assure that parents and caregivers are knowledgeable of the risk factors for SIDS. While there is currently no way to determine which infants will die from SIDS, it is imperative that all parents and caregivers of infants be aware of the risk factors for SIDS and take the appropriate measures to lower these risks.

SIDS deaths accounted for 14% of the natural cause child deaths for Kentucky during 2004. The nation experienced a slight increase in the SIDS rate in 2003, but then had a slight decrease in 2004. In July 2003, the definition/classification of SIDS changed in KY, thus the increase in the number of SIDS deaths in 2003 may be due to the reclassification of SIDS. Kentucky experienced a 35% increase in the number of SIDS deaths since 1997. The Kentucky rate remains well above the National rate (Figure 7.).

Figure 11.

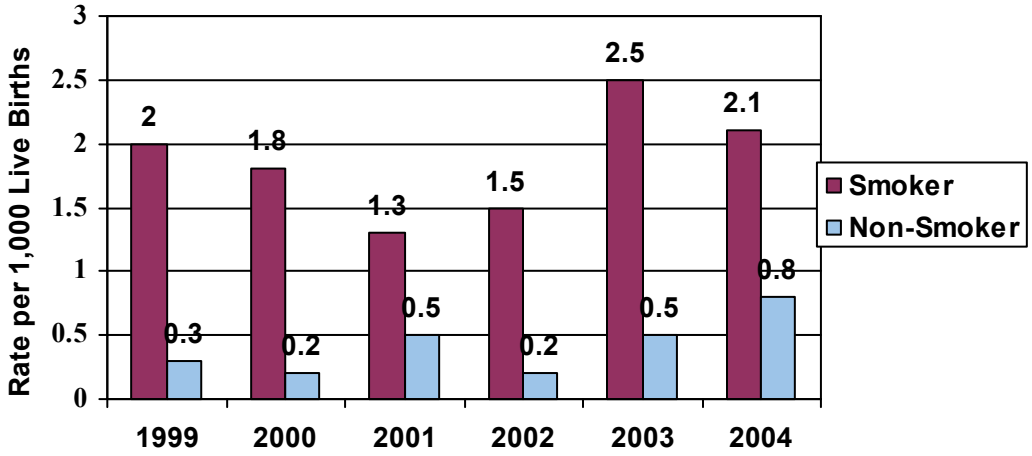
Infant Mortality Rate due to SIDS; United States & Kentucky, 1997-2004



In the United States more than 20% of women smoke and many of these women smoke while they are pregnant. This is a major public health problem because, not only can smoking harm a woman's health, but smoking during pregnancy can lead to pregnancy complications and serious health problems in newborns. Additionally, infants who are exposed to their parents' smoke after birth face an increased risk of SIDS. In 2003, pregnant smokers were 2 times as likely as non-smokers for their infants to die due to SIDS. Smokers had a rate of 2.1/1,000 population, while non-smokers had a rate of 0.8/1,000 population (Figure 12.).

Figure 12.

Infant Mortality Rate* Due to SIDS by Smoking Status during Pregnancy; Kentucky, 1999-2004



Rates are per 1,000 Live Births by Smoking Status
SIDS deaths are based on the ICD9 code 798.0 & ICD10 code R95
Source: Kentucky Vital Statistics Files; Linked Live Birth

There were a total of 59 Kentucky infant deaths due to SIDS in 2004 with 86% of those occurring in infants between the ages of one and four months. Over half (59%) of SIDS deaths were male compared to female (Figure 13.) and 79% were of white race (Figure 14.).

Figure 13.

Percent of Kentucky Infant Deaths due to SIDS by Sex; Year 2004

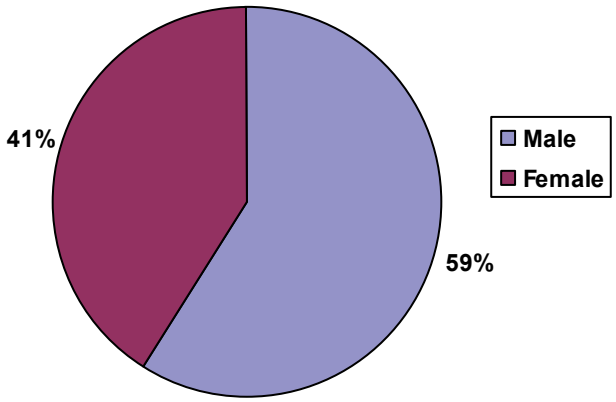
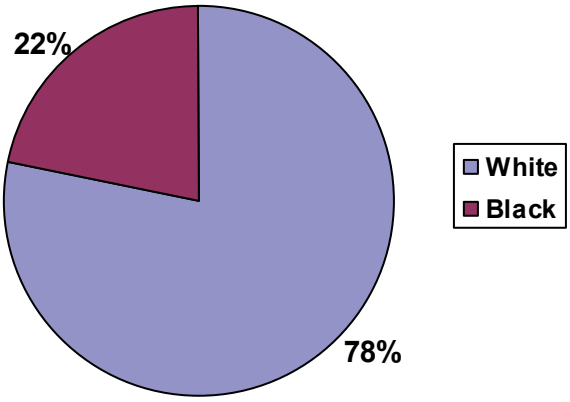


Figure 14.

Percent of Kentucky Infant Deaths due to SIDS by Race; Year 2004



III. Natural Cause Child Fatalities

Natural cause deaths can be influenced by a wide variety of factors. Such factors may include but are not limited to socioeconomic factors, cultural factors, geographical location, education level, and health behaviors of the mother.

Child deaths (1-17 years of age) due to natural causes account for the 37% of fatalities for the year 2004 (Figure 15). Deaths classified under the category of natural cause are generally linked to a specific disease or condition such as leukemia. Natural cause deaths to children have declined in the past as depicted in Figure 16. Several factors could have contributed to the decrease such as prevention of diseases and improved quality of care.

Figure 15.

Percent of Total Kentucky Child (1-17 Years of Age)
Deaths by Type; Year 2004

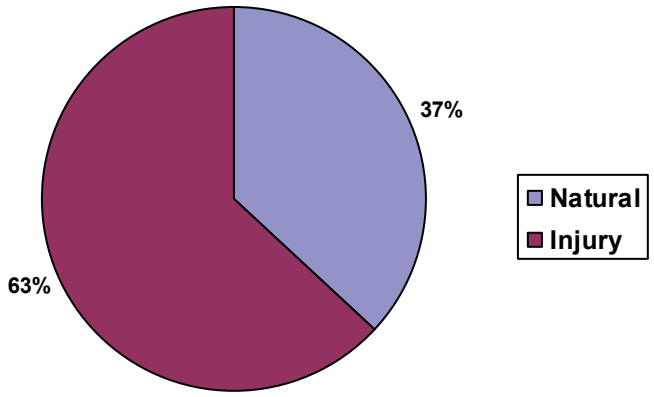
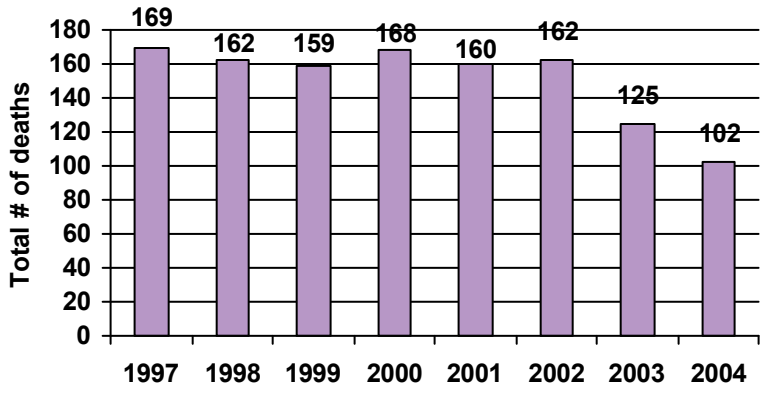


Figure 16.

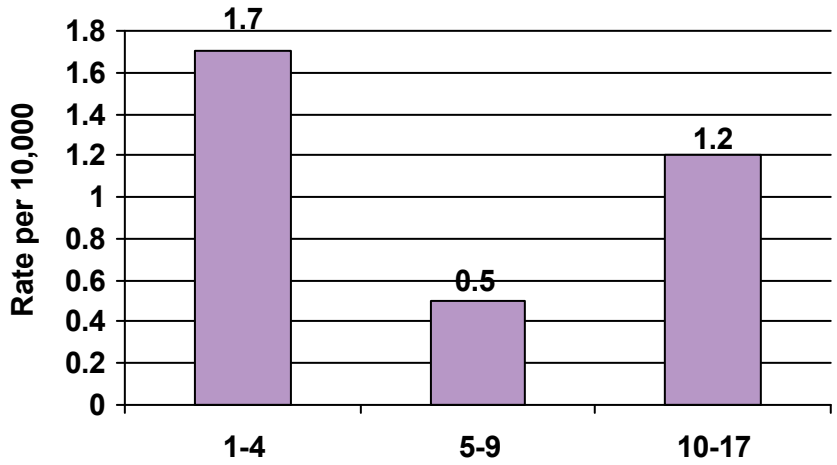
Total Number of Natural Cause Deaths to Kentucky Children 0-17 Years of Age; 1997-2004



Age break-outs reveal that children ages 1-4 have the highest age-specific death rate due to natural causes with a rate of 1.7/10,000 population (Figure 17.), while children 5 – 9 years old have the lowest rate of 0.5/10,000 population.

Figure 17

Kentucky Age Specific Death Rates* due To Natural Causes; Year 2004

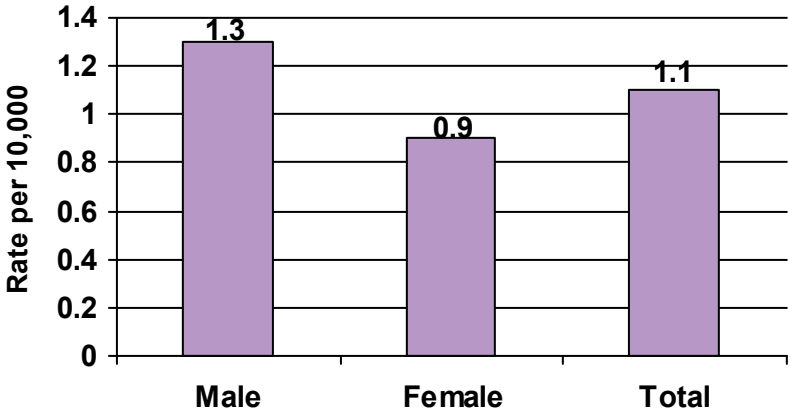


*Rates are per 10,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

Natural cause deaths for children ages 1-17 years of age affect males at a higher rate than females (Figure 18.) with males having a rate of 1.3/10,000 population while females had a rate of 0.9/10,000 population. The overall rate of deaths due to natural causes for children in 2004 was 1.1/10,000 population aged 1-17.

Figure 18.

Kentucky Child (1-17 Years of Age) Death Rates* due to Natural Causes by Sex; Year 2004

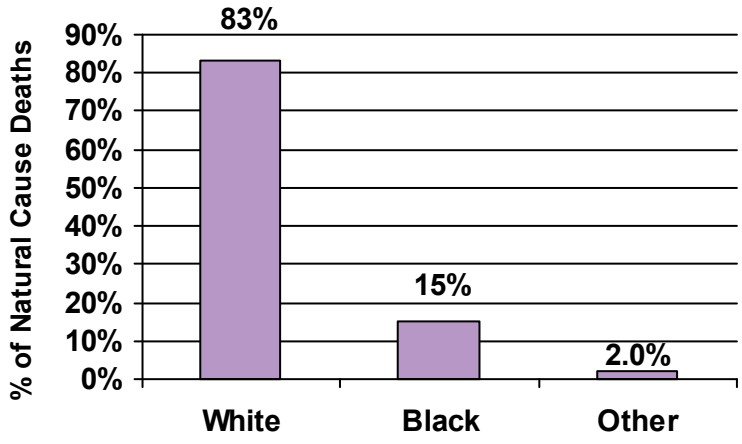


*Rates are per 10,000 specified population
For further explanation of rates, refer to the Technical Notes section in the Appendix

The percentage of natural cause deaths for children 1-17 years old was highest among those of white race compared to those of black or other races (Figure 19.). Over three-fourths (83%) of the deaths in this category were to those children of white race.

Figure 19.

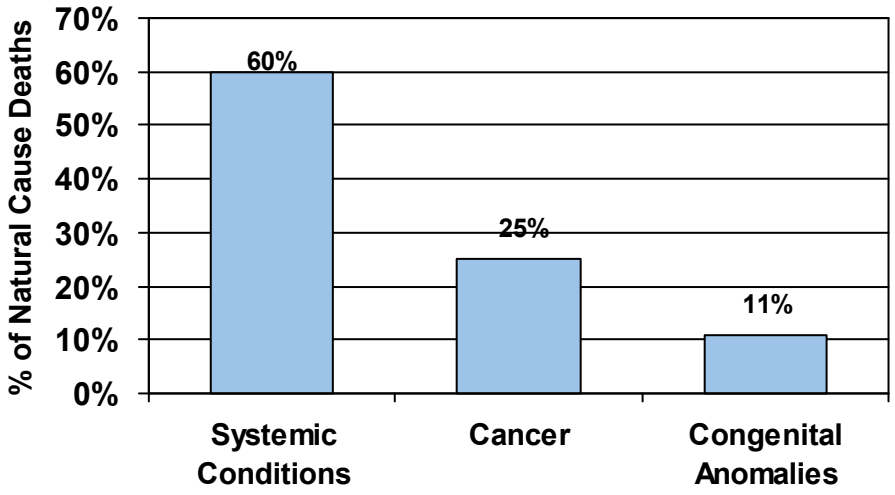
Percent of Natural Cause Deaths to Kentucky Children 1-17 Years of Age by Race; Year 2004



In Kentucky, the greatest number of natural cause deaths were due to systemic conditions and diseases. Examples of this category include infectious diseases, endocrine and metabolic diseases, nervous system diseases, digestive system diseases, musculoskeletal system diseases, and genitourinary system diseases. The second most common natural cause of death occurring to children was cancer (Figure 20.).

Figure 20.

Percent of Selected Natural Cause Fatalities To Kentucky Children Aged 1-17; Year 2004



IV. Injury Related Fatalities

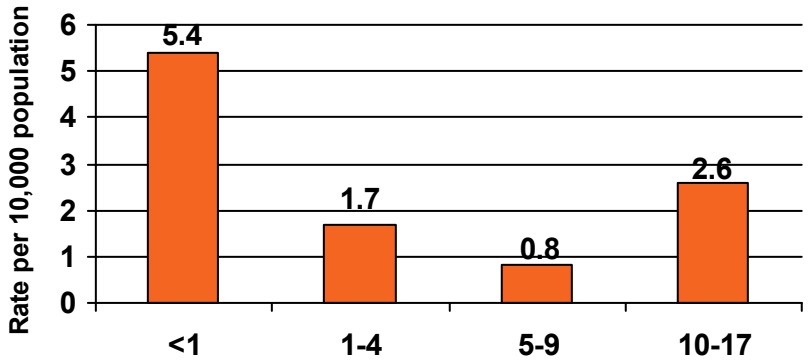
Injuries to children continue to remain a major cause of morbidity and mortality in the U.S. The majority of childhood injuries are preventable yet they continue to remain in the top ten leading causes of death nationwide. Injuries are also extremely costly to society. The financial cost of injuries is estimated at more than $224 billion each year. These costs include direct medical care, rehabilitation, lost wages and lost productivity. The federal government pays approximately $12.6 billion each year in injury related medical costs and about $18.4 billion in death and disability benefits. It is estimated that insurance companies and other private sources pay approximately $161 billion annually[6].

Prevention of injuries is necessary in order to reduce the number of injury related deaths. Previous research has identified three key aspects of injury prevention including education, environment/product changes, and legislation/regulation. Of these three areas, legislation/ regulation is the most influential in reducing childhood injuries[7]. Injury rates exhibit a decline when education, environmental and product changes are combined with primary enforcement. Kentucky has achieved progress in protecting very young children with primary enforcement regulations regarding appropriate use of safety seats and restraints.

Injury related fatalities continue to remain a leading cause of death for children of all ages in Kentucky accounting for 32% of child deaths in 2004. Children less than one year of age had the highest death rate due to injuries (5.4/10,000) and children aged 5-9 had the lowest rate (0.8/10,000) (Figure 21.). The overall rate of death for children birth to 17 due to injuries was 2.1/10,000 population with males having a rate of death over one and a half times that of females (Figure 22.).

Figure 21.

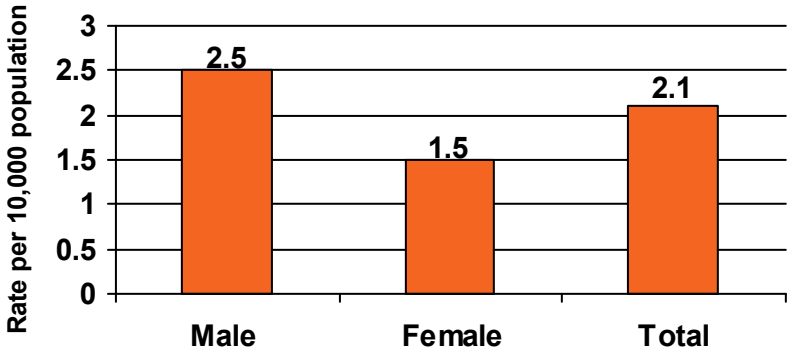
Injury Mortality Rate* by Age Groups for Kentucky Children; Year 2004



*Rates are per 10,000 specified population
For further explanation of rates, refer to the Technical Notes section in the Appendix

Figure 22.

Injury Mortality Rate* by Sex to Kentucky Children 0-17 Years of Age; Year 2004



*Rates are per 10,000 specified population
For further explanation of rates, refer to the Technical Notes section in the Appendix

A. Unintentional Injuries

There are two main types of injury related fatalities; unintentional and intentional. Of the total injury child fatalities in Kentucky, 84% were unintentional in nature with transportation related incidents contributing the most deaths. The leading causes of unintentional injury child deaths for 2004 included transportation, suffocation/strangulation, drowning, and smoke/fire. The remaining unintentional causes included falls, electrical incidents, mechanical forces, medical incidents, and poisoning.

Since the majority of injuries are preventable, it is important to place a strong emphasis on education and awareness of risk factors associated with injuries in order to help increase prevention and reduce incidence.

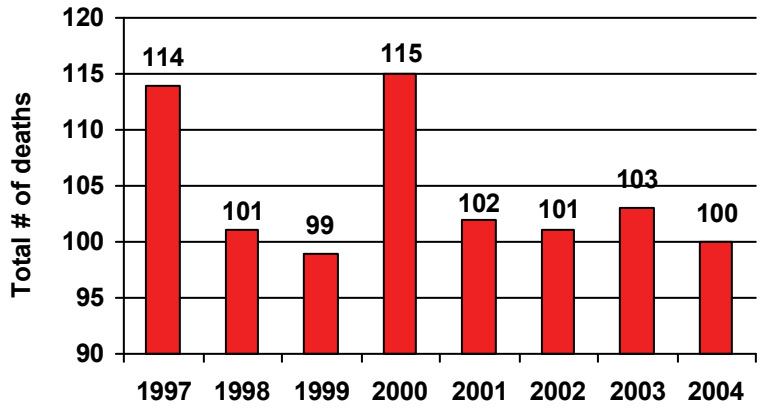
a. Transportation Fatalities

Incidents involving transportation vehicles continue to remain the leading cause of child injury deaths in the Commonwealth. Transportation vehicles may be either motorized or non-motorized. A greater number of child deaths are caused by motorized vehicles including automobiles, trucks, motorcycles, farm equipment, and all terrain vehicles (ATV's). A smaller number of transportation related deaths involve non-motorized vehicles such as skate boards, roller blades, skates, and pedal bicycles.

Transportation related fatalities have not changed dramatically over the past eight years in Kentucky. The total number of deaths due to transportation accidents has declined 10% since 1997 (Figure 23.).

Figure 23.

Total Number of Transportation Related Deaths to Kentucky Children Aged 0-17; 1997-2004



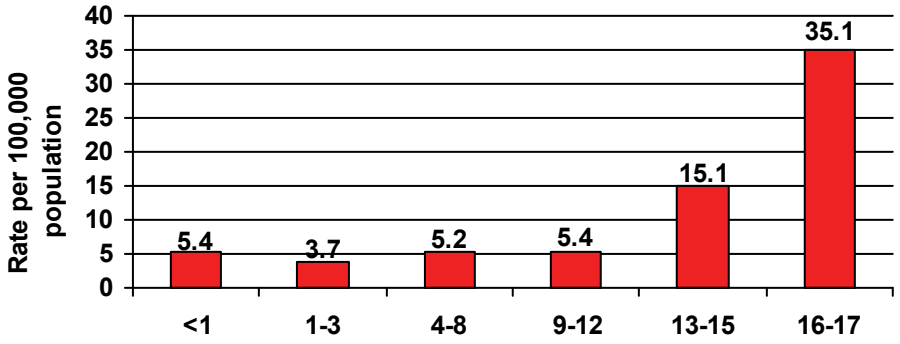
When assessing transportation related deaths, age plays a major role with the majority of the deaths occurring in the teen population and fewer deaths among those less than 12 years of age. Those aged 16-17 had the highest age specific death rate (35.1/100,000) than any other age group with those aged 13-15 having the second highest rate (15.1/100,00) (Figure 24.). These data clearly indicate that newly licensed teen drivers are at high risk for transportation injuries and death.

Continued public health education regarding proper use of safety belts for teens and adults is needed in order to help reduce fatal injuries involving transport vehicles.

The graduated drivers license program has been shown to reduce fatal crashes among 16 year olds by 31% in a 1997-2000 study conducted by researchers at the Kentucky Transportation Center and the Kentucky Injury Prevention and Research Center. Graduated drivers licensing includes restrictions that protect young drivers from hazardous situations while learning to drive including an extended supervised learning period to improve driving skills and decision making. The newly passed Kentucky Graduated Driver's License law will help ensure a decrease in the number of deadly crashes involving teens.

Figure 24.

Kentucky Age Specific Death Rates*
due to Transportation Fatalities; Year 2004

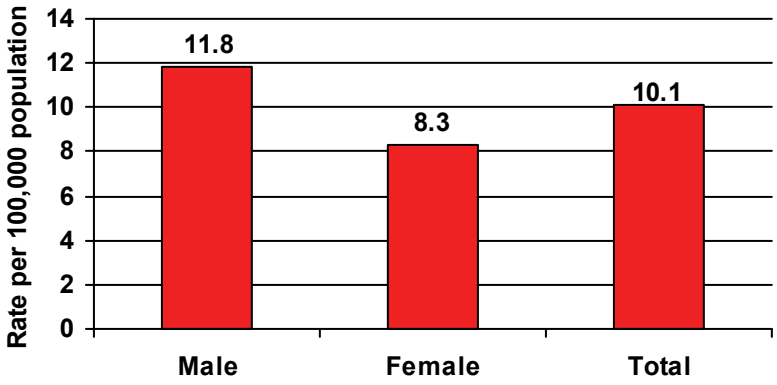


*Rates are per 100,000 specified population
For further explanation of rates, refer to the
Technical Notes section in the Appendix

The rate of transportation deaths was higher among males than females (Figure 25.) indicating the possibility that males may engage in more risk taking behaviors than females. Of the total transportation related fatalities, 92% were to those of white race while 7% were to those of black race (Figure 26.).

Figure 25

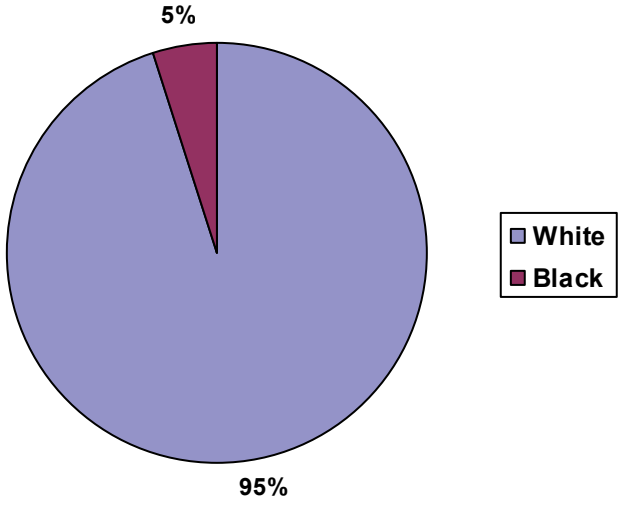
Rate* of Kentucky Transportation Related Fatalities by Sex; Year 2004



*Rates are per 100,000 specified population
For further explanation of rates, refer to the Technical Notes section in the Appendix

Figure 26.

Percentage of Kentucky Transportation Related Fatalities by Race; Year 2004



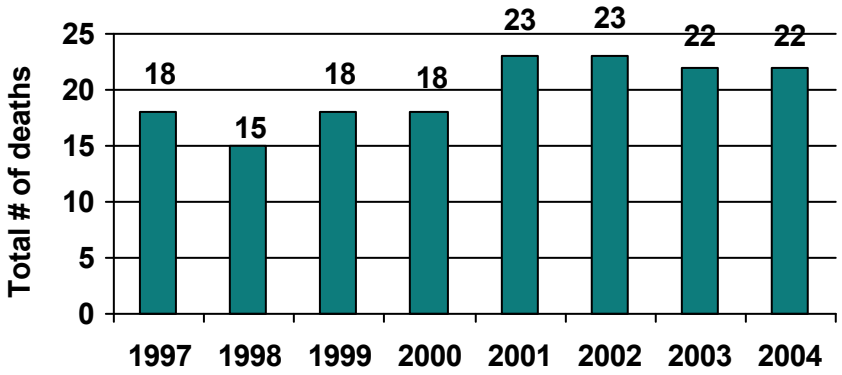
b. Suffocation/Strangulation Fatalities

Fatalities involving threats to breathing were the second most common unintentional injury deaths in Kentucky for 2004. Child fatalities due to suffocation increased 22% from a total number of 18 in 1997 to 22 in 2004 (Figure 27.). There are many different hazards that can pose a threat to breathing such as suffocation, choking, aspiration, and strangulation. Infants and children under age three are particularly vulnerable to these hazards.

A specific area of concern for infant suffocation is the sleeping environment. Soft bedding, fluffy pillows and blankets, loose-fitting sheets, improper fitting mattresses, and stuffed toys all pose a suffocation risk and should not be utilized in an infant's sleeping environment. A rising concern in the U.S. is the practice of babies sleeping in an adult bed with a parent or caregiver, commonly referred to as co-sleeping. Although this practice is common in other cultures, it is highly controversial in the U.S. Proponents claim there are benefits to co-sleeping such as longer periods of breastfeeding and more restful sleep for the parents. While this may be true, there are dangers to the infant associated with the practice including suffocation, falls, getting trapped between the bed and a wall, the head board or foot board, and bed sharers rolling over onto the infant. These dangers should be recognized by care-givers and parents and infants should only be placed in appropriate sleep environments.

Figure 27.

Total Number of Child Fatalities due to Suffocation; 1997-2004

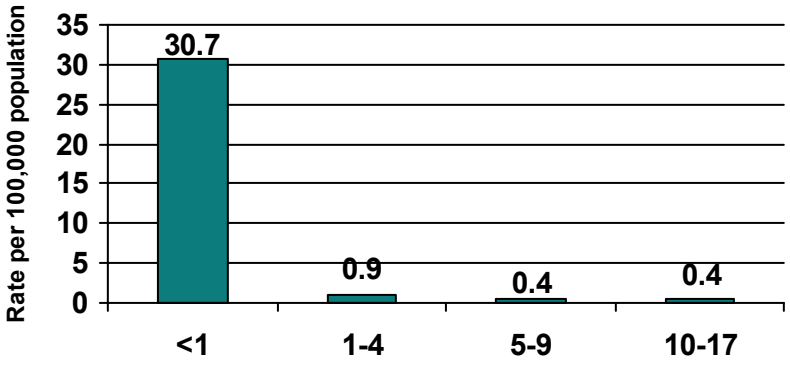


Suffocation fatalities were highest among those less than one year of age with an age specific rate of 30.7/100,000 population (Figure 28.). Infants are at greater risk of suffocation fatalities due to limited physical coordination and cognitive abilities. Extra care should be taken to ensure the safety of an infant's sleeping environment to help reduce deaths. For example:

- Do not place infants to sleep on the stomach; place on the back instead
- Do not place infants to sleep on soft bedding surfaces such as fluffy pillows, blankets, stuffed animals, couches, waterbeds, or other foam surfaces
- Do not use improper bedding such as loose fitting sheets or blankets; ensure infants crib has proper fitting mattresses and bed linens
- Do not place infant to sleep in an adult bed
- Remove any extra blankets or toys from infants bed before placing the infant in bed

Figure 28.

Age Specific Death Rates* due to Suffocation; Year 2004

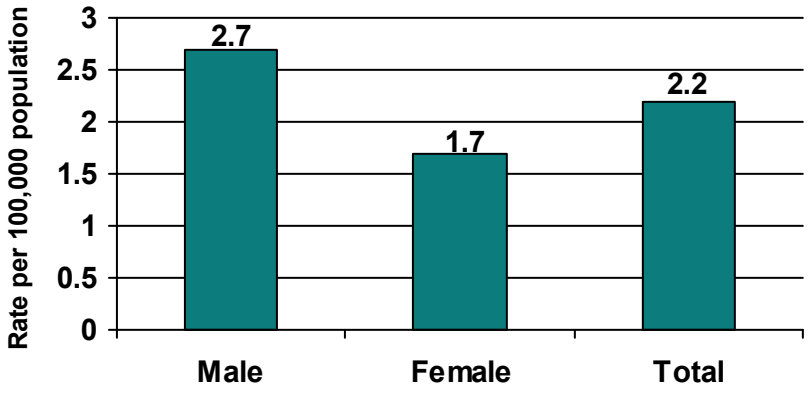


*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

Males had a higher rate of suffocation deaths than females (Figure 29.) and a greater percentage of whites died from suffocation than blacks (Figure 30.). However, suffocation deaths had the second highest percentage of black child deaths. Thus, education and outreach efforts for reducing health disparities need to focus on this area.

Figure 29.

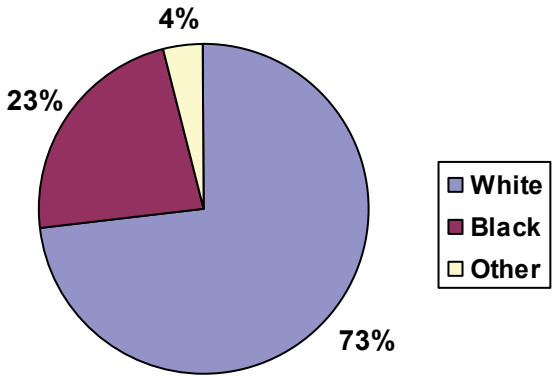
Child Death Rates* due to Suffocation by Sex; Year 2004



*Rates are per 100,000 specified population
For further explanation of rates, refer to the Technical Notes section of the Appendix

Figure 30.

Percent of Suffocation Deaths to Children 0-17 Years of Age by Race; Year 2004

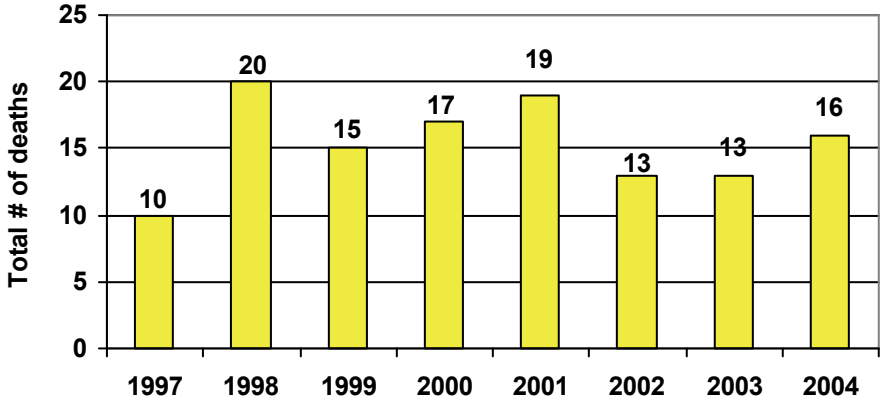


c. Drowning Fatalities

Drowning is the second leading cause of injury-related death for children aged 1-14 in the United States. Nationally, there were a total of 943 deaths due to drowning in children less than 15 in year 2000.[8] Lack of adult supervision, inability to swim, and alcohol intoxication are only a few of the contributing factors leading to this preventable fatality. Deaths due to drowning were the third leading cause of unintentional injury deaths in Kentucky for 2004. Drowning fatalities increased 60% from 1997-2004 (Figure 31.) emphasizing the need for ongoing public education on water safety.

Figure 31.

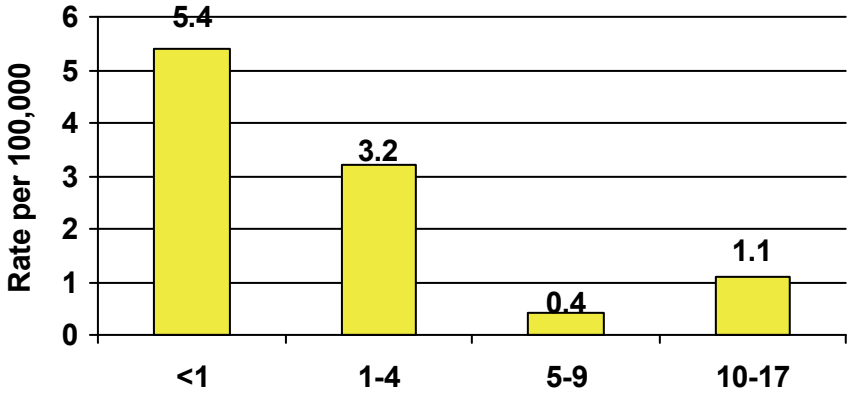
Total Number of Kentucky Child Fatalities due to Drowning; 1997-2004



Age is a major contributing factor related to fatal drowning. Typically, the very young (<5) and the teen-age group have the most occurrences of drowning deaths. In Kentucky, the age group with the highest rate of drowning fatalities were the <1 year olds with a rate of 5.4/100,000 population (Figure 32.) indicating the need for proper adult supervision at all times for small children. The age group with the second highest death rate (3.2/100,000) due to drowning was the 1 - 4 year olds again indicating the need for proper adult supervision of small children at all times around a water source.

Figure 32.

Age Specific Death Rates* due to Drowning; Year 2004

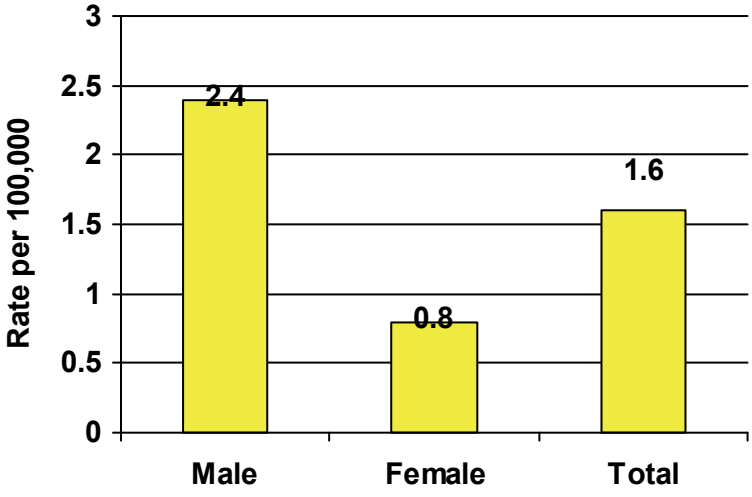


*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

The rate of drowning was 3 times higher for males than females with males having a rate of 2.4/100,000 population (Figure 33.).

Figure 33.

Child Death Rates* due to Drowning by Sex; Year 2004

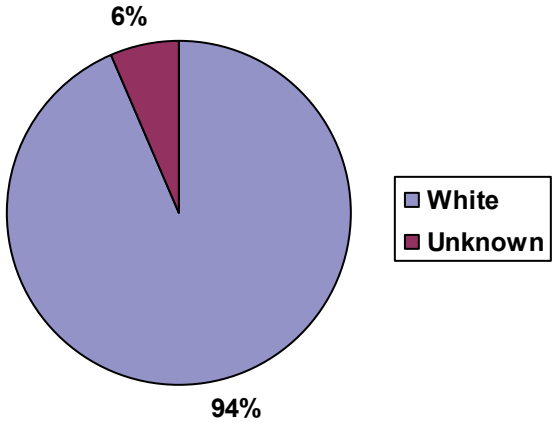


*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

In 2004, most of the drowning fatalities (94%) were to those children of white race (Figure 34.).

Figure 34.

Percent of Child Fatalities due to Drowning by Race; Year 2004



The most common source of water for fatal drowning in Kentucky included natural sources of water such as rivers, lakes, and swimming pools (see Table 2.). The majority of fatal drownings occurred in an unspecified water source followed by swimming pools and lake/ rivers. There were two fatal drownings occurring in the bathtub for year 2004.

Table 2.

Total Number of Kentucky Resident Deaths due to Drowning by Source of Water; 2004

Source of Water	Total # of Drownings
Unspecified Drowning	7
Swimming Pool	3
Lake/River	3
Bathtub	2
Other	1
State Total	**16**

The importance of proper adult supervision of children around water sources cannot be stressed enough. Adults must supervise small children at all times in and around water sources to help prevent fatal drowning accidents from occurring. In 2001, 26% of the drowning deaths that occurred in Kentucky were attributed to a lack of adult supervision and or neglect[9]. Proper prevention measures and water safety rules should be followed at all times in order to prevent fatal drowning from occurring among Kentucky's children.

Prevention Measures:
The National Center for Injury Prevention and Control addressed the issue of childhood drowning with the following recommendations:

You can greatly reduce the chances of you or your children becoming drowning or near-drowning victims by following a few simple safety tips:

- Whenever young children are swimming, playing, or bathing in water, make sure an adult is **constantly** watching them. By definition this means that the supervising adult should not read, play cards, talk on the phone, mow the lawn, or do any other distracting activity while watching children.
- Never swim alone or in unsupervised places. Teach children to always swim with a buddy.
- Keep small children away from buckets containing liquid: 5-gallon industrial containers are a particular danger. Be sure to empty buckets when household chores are done.
- Never drink alcohol during or just before swimming, boating, or water skiing. Never drink alcohol while supervising children. Teach teenagers about the danger of drinking alcohol and swimming, boating, or water skiing.
- To prevent choking, never chew gum or eat while swimming, diving, or playing in water.
- Learn to swim. Enroll yourself and/or your children aged 4 and older in swimming classes. Swimming classes are not recommended for children under age 4.
- Learn CPR (cardio-pulmonary resuscitation). This is particularly important for pool owners and individuals who regularly participate in water recreation.
- **Do NOT use** air-filled swimming aids (such as "water wings") in place of life jackets or life preservers with children. These can give parents and children a false sense of security and increase the risk of drowning.
- Check the water depth before entering. The American Red Cross recommends 9 feet as a minimum depth for diving or jumping.

If you have a swimming pool at your home:

- Install a four-sided, isolation pool-fence with self-closing and self-latching gates around the pool. The fence should be at least 4 feet tall and completely separate the pool from the house and play area of the yard.
- Prevent children from having direct access to a swimming pool.
- Install a telephone near the pool. Know how to contact local emergency medical services. Post the emergency number, 911, in an easy-to-see place.
- Learn CPR.

Additional Tips for Open Water

- Know the local weather conditions and forecast before swimming or boating. Thunderstorms and strong winds can be extremely dangerous to swimmers and boaters.
- Restrict activities to designated swimming areas, which are usually marked by buoys.
- Be cautious, even with lifeguards present.
- Use U.S. Coast Guard-approved personal flotation devices (life jackets) when boating, regardless of distance to be traveled, size of boat, or swimming ability of boaters.
- Remember that open water usually has limited visibility, and conditions can sometimes change from hour to hour. Currents are often unpredictable -- they can move rapidly and quickly change direction. A strong water current can carry even expert swimmers far from shore.
- Watch for dangerous waves and signs of rip currents -- water that is discolored, unusually choppy, foamy, or filled with debris.
- If you are caught in a rip current, swim parallel to the shore. Once you are out of the current, swim toward the shore.

d. Smoke/Fire Fatalities

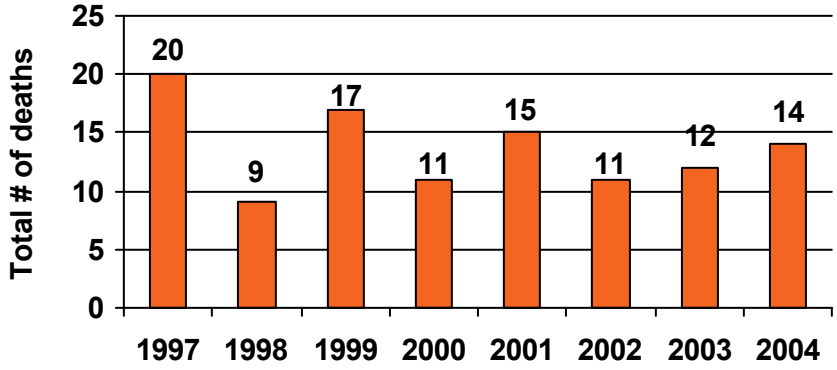
Every year in the U.S., thousands of children are either injured or die in fire related accidents. Nationally, residential fires account for 79% of all fire deaths, and children aged four and under are at greatest risk of fire related deaths[6]. Some children are unaware of the dangers of playing with matches, candles, lighters, or other devices that lead to fire until it is too late. All children should be properly educated in fire safety issues and should never be left unsupervised.

An area of great concern related to fire deaths is either not having a smoke alarm or having a non-working smoke alarm in the home. A survey of Kentucky residents conducted in 1999 revealed that of those surveyed, 32% reported testing their home smoke alarm within the past six months, and 9% reported testing them within the past year[10]. Smoke alarms have been proven to be beneficial as well as cost effective. In fact, for every $1.00 spent on smoke alarms, $69.00 is saved in fire related costs[6]. All residential homes should contain smoke alarms and routine testing of the alarms should be conducted at least once a year including replacing old batteries with new ones.

Fire related deaths to children have changed moderately in the Commonwealth over the past seven years. In 2004, there were 14 deaths to children due to smoke and or fire (Figure 35.) representing a 30% decrease since 1997.

Figure 35.

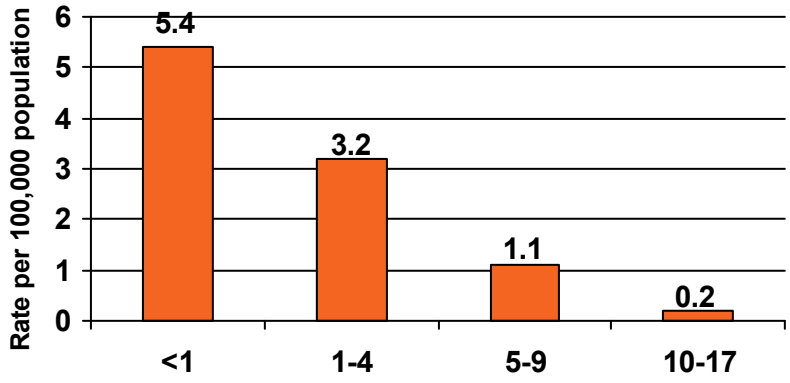
Total Number of Child Fatalities due to Smoke/Fire; Years 1997-2004



In Kentucky, the age group with the highest death rate due to smoke/fire were those < 1 year old with a rate of 5.4/100,000 population. The 1-4 age group had the second highest death rate due to smoke/fire (3.2/100,000 population) illustrating the need for proper fire safety education and adult supervision (Figure 36.).

Figure 36.

Age Specific Death Rate* due to Smoke/Fire; Year 2004

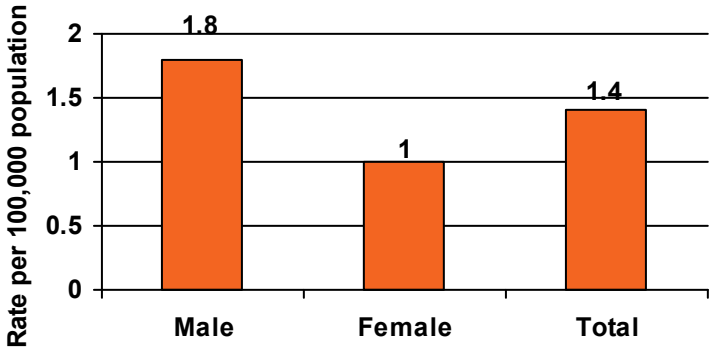


*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

The smoke/fire death rate was higher among males than females (Figure 37.) which may indicate that boys are more likely than girls to be involved with fires large enough to warrant calling the fire department[11]. All the fire related deaths were to children of white race (100%).

Figure 37.

Rate* of Child Fatalities due to Smoke/Fire by Sex; Year 2004



*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

B. Intentional Injuries

Intentional injuries are executed with the intent to either inflict forceful injury or death upon another person or to oneself. If the event is inflicted upon another person, and results in death, it is termed homicide, if it is inflicted upon oneself, it is termed suicide. Of the total injury related child fatalities in Kentucky, 14% were intentional in nature. There were a total of 19 homicide deaths and 10 suicide deaths in the Commonwealth during 2004.

a. Child Abuse and Neglect Fatalities

The Cabinet for Health and Family Services, Division of Protection and Permanency (DPP) is the agency in Kentucky responsible for receiving and investigating cases where child abuse or neglect is alleged to have resulted in a child fatality. Kentucky Revised Statutes 600.020(1) defines an abused or neglected child as "a child whose health or welfare is harmed or threatened with harm when his parent, guardian or other person exercising custodial control or supervision of the child:

(a) Inflicts or allows to be inflicted upon the child physical or emotional injury as defined in this section by other than accidental means;
(b) Creates or allows to be created a risk of physical or emotional injury as defined in this section to the child by other than accidental means;
(c) Engages in a pattern of conduct that renders the parent incapable of caring for the immediate and ongoing needs of the child including, but not limited to, parental incapacity due to alcohol and other drug abuse as defined in KRS 222.005;
(d) Continuously or repeatedly fails or refuses to provide essential parental care and protection for the child, considering the age of the child.

When an allegation is made that a child's death may be due to one of the aforementioned causes, by a caregiver, an investigation is conducted by a social services worker with DPP. Through the course of each child fatality investigation evidence is gathered including interviews with caregivers and collaterals including first responders and hospital staff. The social services worker then makes a finding of substantiated or unsubstantiated based on the evidence that was gathered. Although the finding made by a social service worker is neither a legal or judicial finding, the burden of proof required to substantiate child abuse or neglect is defined by 922 KAR 1:1330 as:

(a) An admission of abuse, neglect or dependency by the person responsible;
(b) A judicial finding of child abuse, neglect or dependence; or
(c) A preponderance of evidence exists that abuse, neglect or dependency was committed by the person alleged to be responsible.

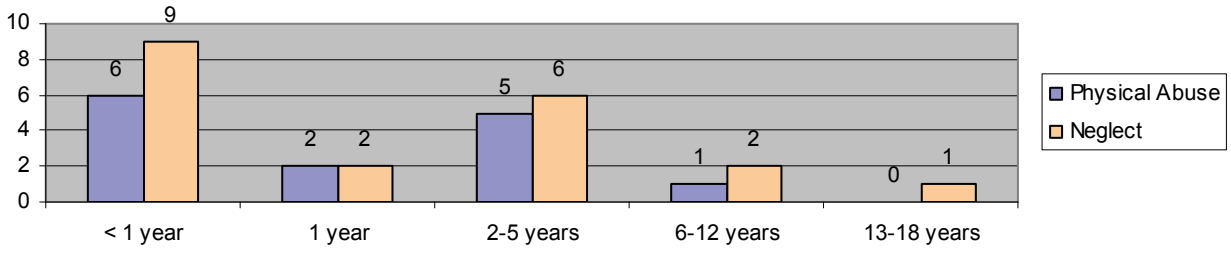
Given these definitions and within these parameters the Division of Protection and Perma-

nency investigates abuse/neglect related child fatalities and substantiates abuse or neglect when the burden of proof is met. Each investigation is reviewed by a policy analyst in Central Office. Per KRS 620.050(12), an internal review is conducted on each child fatality that resulted from abuse or neglect, where the family has had prior involvement with DPP. The information gathered during the internal review process is used to strengthen policy and procedure, develop staff training and identify needed community resources and is submitted to the Governor, the LRC and Public Health.

During the 2004 calendar year, the Division of Protection and Permanency (DPP) received 46,428 reports of child abuse or neglect* involving 64,779 children. Of those reports, child abuse or neglect was found in 12,056 cases (26%) involving 18,413 children, 34 of which were child fatalities (.002%).

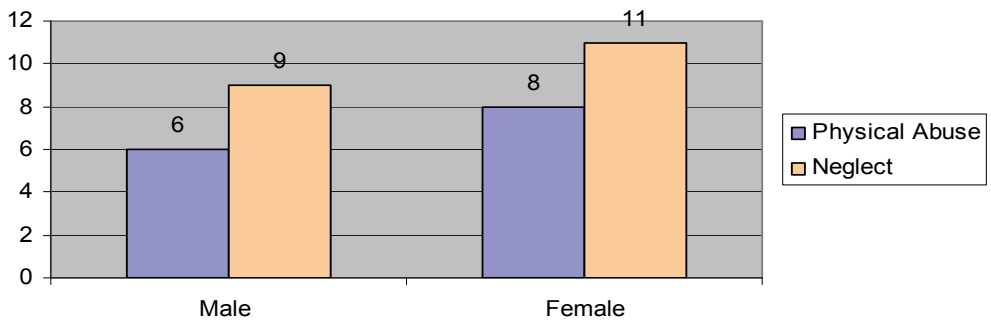
As in previous reporting periods, there continues to be a strong correspondence between the age of the child victim and the risk for serious or fatal injury. For child fatalities occurring in the 2004 calendar year, of the 34 child victims 26 were age 3 or younger (76%) and 19 were 1 year of age or younger (56%). These data are consistent with trends seen previously in Kentucky as well as nationally.

Age of Child Victims



Of the 34 cases of child fatality during 2004 calendar year, there were 15 male children and 19 female children who were victims of a child fatality.

Gender of Child Victims

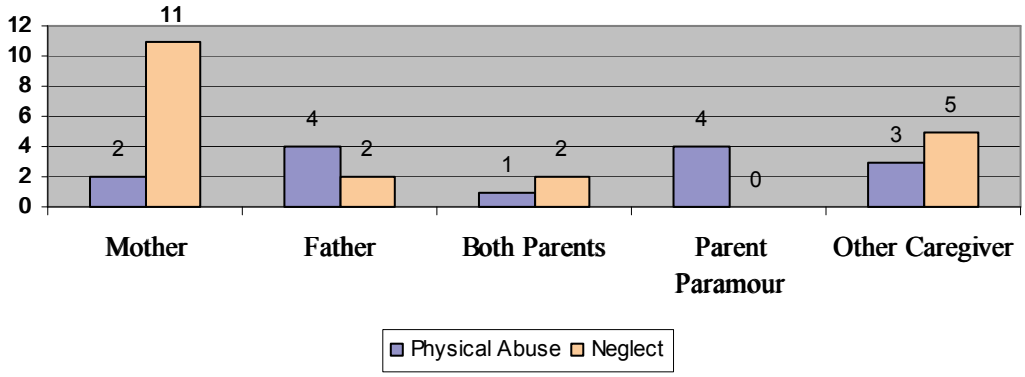


*Based on
data from TWIST Y084

The distribution of race among the 34 child victims during 2004 was as follows: 26 children were Caucasian (76%), 5 were African American (15%), 2 were bi-racial (6%) and 1 child's race was undetermined (3%). Of all child abuse and neglect reports, approximately 76% of children were Caucasian.

In child abuse or neglect fatalities from the 2004, biological parents, either alone or together, were responsible for 22 of the 34 child fatalities (65%). The parent paramour was responsible in 4 cases (11%), other relatives or caregivers were responsible for the remaining 8 child fatalities (24%).

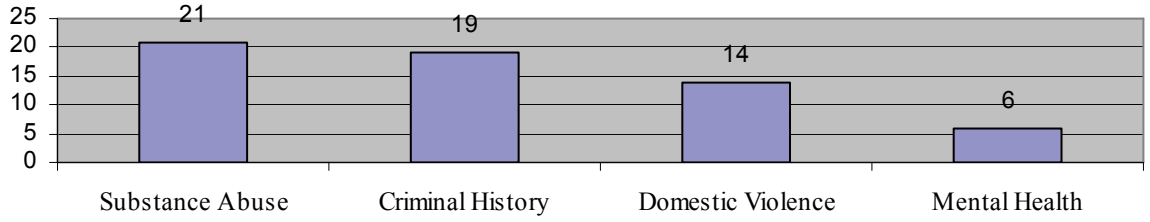
Relationships of Perpetrators to Child Victims



Among all cases with substantiated child abuse and neglect, approximately 34% have substance abuse identified as a risk factor in the family, 42% have domestic violence identified and 25% have mental health issues identified with one or both caregivers.

In the 34 child fatality cases from 2004, 21 cases (62%) identified substance abuse as a risk factor that often directly contributed to the death of the child. Specific substance utilized in these cases ranged from alcohol to narcotics and often involved multiple substances. The second most common risk factor found in abuse or neglect related child fatality case review is criminal history. Of the 34 child deaths in the 2004 calendar year, 19 caregivers had a criminal history (56%). The third most common risk factor found in child fatality and near fatality case review is the presence of domestic violence in the family. Domestic violence was documented as being present in 14 of the 34 fatality cases (41%). Mental illness was documented as a current risk factor in 6 of the 34 child fatality cases (17%). Mental health issues are difficult to define; therefore it is likely that this number is an underestimate of the actual number of caregiver struggling with these issues.

Common Risk Factors

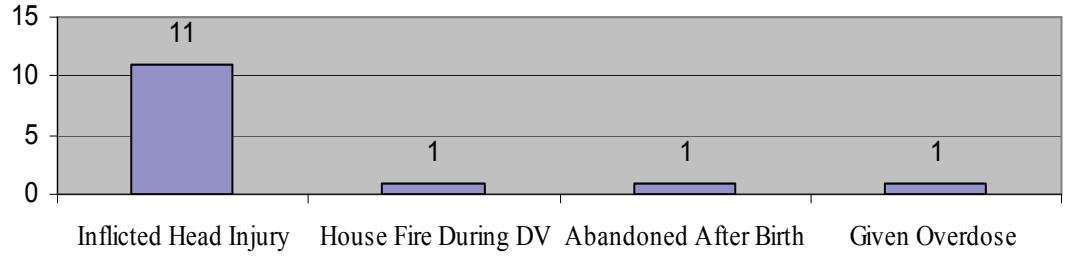


While each of these risk factors plays a role in child abuse and neglect fatalities, often two or more risk factors are present in a family who experiences an abuse or neglect related child fatality. During this reporting period, 20 of the 34 fatality cases (59%).

Physical abuse and neglect are very different types of maltreatment and expectedly, the trends for these two forms of maltreatment present quite differently.

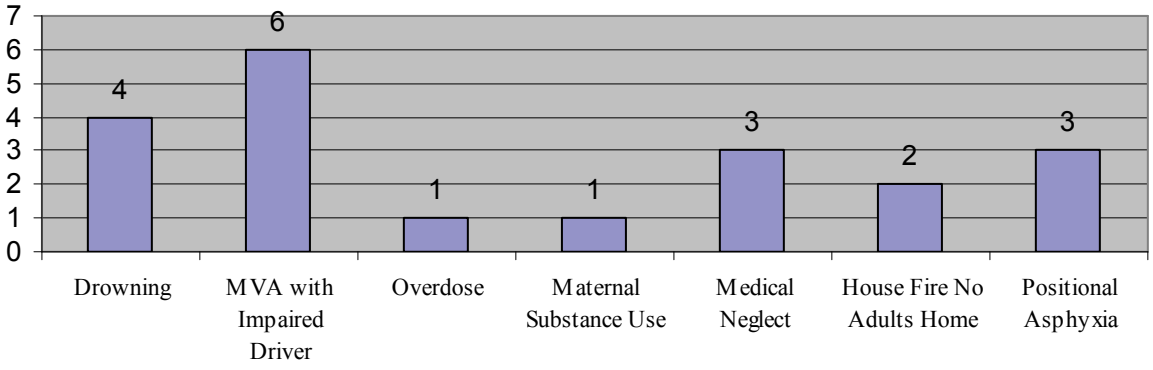
Physical abuse resulted in a child fatality in 14 of the 34 child deaths in the 2004 calendar year (41%). Thirteen of the 14 child fatalities that were attributed to physical abuse involved children 5 years of age and younger (93%). Inflicted head injury resulted in death in 11 of the 14 physical abuse fatalities (79%), for the 3 remaining child deaths; 1 child died as a result of a house fire set during a domestic violence episode (7%) , 1 child was given an overdose of medication (7%) and 1 child was discarded shortly after birth (7%). Perpetrators of fatal child physical abuse are more often male than female in this reporting period with 9 of the physical abuse fatalities perpetrated by a male caregiver (64%) while 4 were perpetrated by a female caregiver (29%) and one perpetrator is unknown (7%).

Type of Physical Abuse Fatalities



Child neglect resulted in a fatality in 20 of the 34 child deaths occurring in this reporting period (59%). In contrast to physical abuse cases, the age of the child victim varies more in neglect related cases. In 2004 calendar year the age of the child victim ranges from newborn to 17 years. In 14 of the 20 neglect child deaths (70%) the child victim was 3 years of age or younger. In 13 of the 20 cases, lack of child supervision resulted in the child's death (65%), 13 cases involved substance abuse (65%).

Type of Child Neglect Fatalities



Kentucky Statute KRS 620.030 mandates that anyone who has reasonable cause to believe that a child is abused or neglected shall immediately make a report to proper authorities including local law enforcement, the cabinet or the commonwealth or county attorney. The 24 hour abuse or neglect hotline number to call to make a report of abuse or neglect is 1-800-752-6200.

The Division of Protection and Permanency receives and investigates these cases and continues to work to understand the differences between the cases that result in a child fatality and the cases that do not. Risk factors such as substance abuse, criminal history, and domestic violence continue to be analyzed as family predictors of lethality; as does the age and vulnerability of the child victim and type of maltreatment that resulted in the fatality.

All information and data in the Child Abuse and Neglect section of the Annual Child Fatality Review Report was complied and provided by the Division of Protection and Permanency, Director's office.

Prevention Measures:

In efforts to prevent or reduce the number of child abuse and neglect fatalities and other serious injuries due to abuse and neglect, the Cabinet examines every child abuse and neglect fatality through a comprehensive review process. Societal trends and common family risk factors such as age of child, history of involvement with DPP, substance abuse, domestic violence, and mental health issues are studied to learn more about families who experience a child abuse/neglect death. During this review, current DPP social work practice and procedure, staff training, and community resources are evaluated and modified to assist DPP workers and community partners in meeting the complex needs of today's families and reduce risk to families and children.

Current statistical data supports that children ages 3 and under who reside in a home where one or more adult family member is struggling with substance abuse, domestic violence, or mental health issues are at an increased risk for serious physical injury or death due to physical abuse or neglect. Families and DPP workers are struggling with the increasingly limited community resources available to assist families in dealing with the issues that are creating risk to the children within their home. It is clear that the prevention of child abuse and neglect fatalities lies in the family's ability to receive treatment for substance abuse, domestic violence, and mental health issues. Many of these families also struggle with finances and transportation so the ability of families to access affordable and geographically close services is critical.

General Caregiver Risk Factors:

- Depression, other mental illness or bizarre/dangerous behavior;
- A problem with drugs or alcohol- especially driving under the influence and being in a caretaker role for children;
- Being a victim or perpetrator of domestic violence;
- Poverty or severe financial hardship;
- Having unrealistic expectations for the child's development and behavior or seeing child in a very negative light;
- Having children age 3 and under;
- Having children with special behavioral or medical needs;
- Having several young children in the home;
- Leaving children with male caregivers who have no emotional attachment to the child; or
- Being very young at the birth of their first child.

Prevention Measures:

- Supporting the development and operation of multidisciplinary child fatality review teams to study abuse related deaths and develop local prevention strategies.
- Educating and supporting the medical community in identifying child abuse and neglect.
- Encouraging collaboration among human service agencies and other community resources that can provide support to families and children at risk for abuse and neglect.
- Developing affordable community resources to assist families with substance abuse, domestic violence, and mental health issues.

- Providing opportunities for parent education programs that model appropriate parenting behavior, especially for at risk parents of infants and young children.
- Encouraging public education and awareness programs regarding the signs and risks of abuse and neglect.

Kentucky statutes require that anyone who "has reasonable cause to believe" that a child is abused or neglected shall make a report to proper authorities which are DPP, County and Commonwealth Attorneys, or law enforcement. The number to call to make a report of abuse or neglect is 1-800-752-6200. All information and data in this section of the Child Abuse and/or Neglect Fatalities section of this report was compiled and provided by the Division of Protection and Permanency, Child Safety Branch at 502-564-2136.

b. Homicide Fatalities

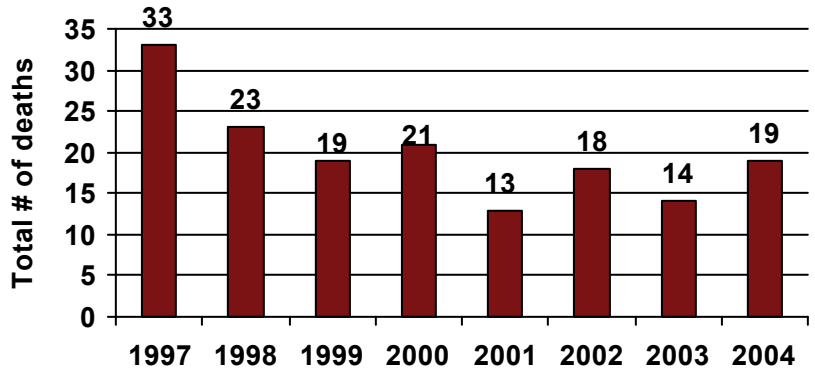
For approximately 30 years, Kentucky has had laws governing the monitoring, reporting and prosecution of homicide deaths related to child abuse or neglect. The process evolved to a multidisciplinary team approach in reviewing information from death scene investigations for use in determining the manner in which abuse or neglect was inflicted and affected a child death. The Kentucky Cabinet for Families and Children, Department for Community Based Services is responsible for implementation of these investigations by a multidisciplinary review system.

The Department for Community Based Services works in conjunction with the Department for Public Health in reporting child abuse or neglect cases and fatalities. The following section, Child Abuse and/or Neglect Fatalities reflects data from the Department for Community Based Services.[12]

Deaths due to homicide have declined in Kentucky from 1997-2004 There were a total of 19 homicide related deaths to children in 2004 compared to 33 deaths in 1997 (Figure 38.). This represents a 42% decline in the total number of homicide deaths to children over the five year period.

Figure 38.

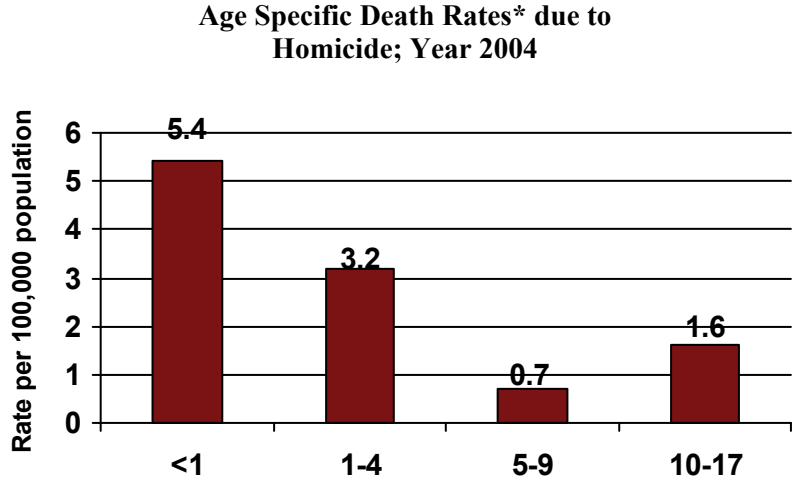
Total Number of Child Fatalities due to Homicide; Years 1997-2004



Infants and toddlers are the most vulnerable age group for homicide. For Kentucky, infants had the highest age specific death rate due to homicide (5.4/100,000) with those children aged 1-4 having the second highest (3.2/100,000) (Figure 39.).

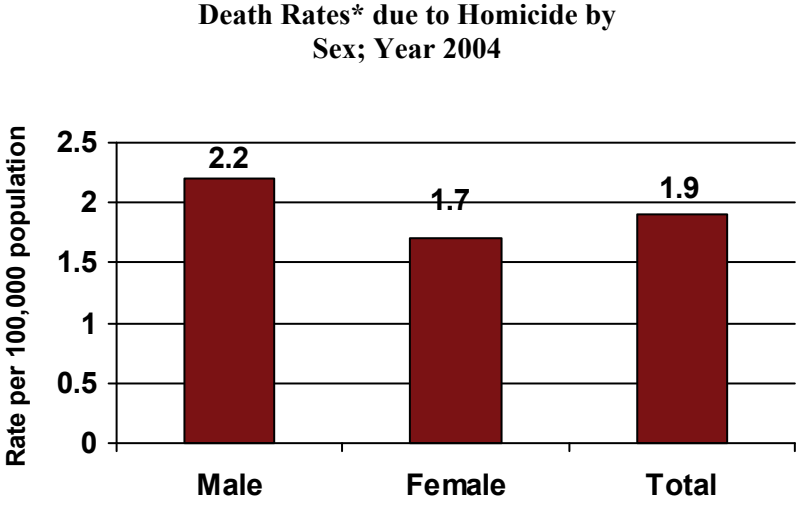
Males had a slightly higher risk of homicide deaths than females (Figure 40.) and deaths were more prevalent among those of black race compared to those of white race, with more than half of the homicides occurring among children of black race. (Figure 41.). Additionally, the highest percentage of black child deaths in 2004 were homicides.

Figure 39.



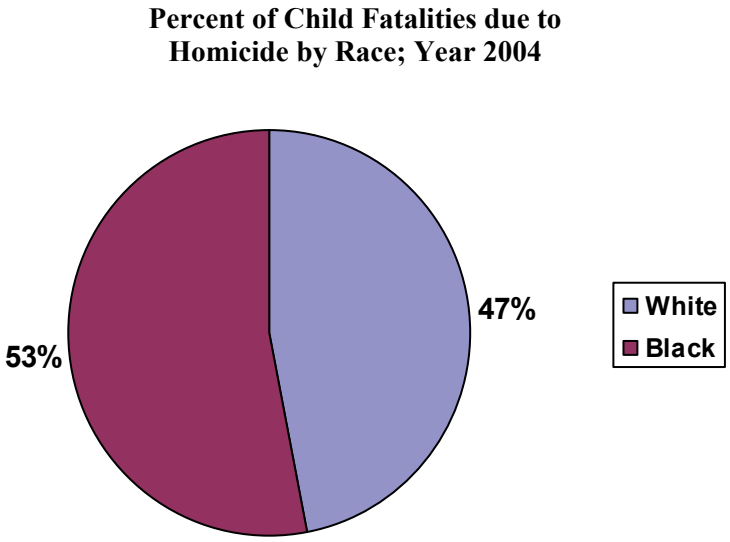
*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

Figure 40.



*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

Figure 41.

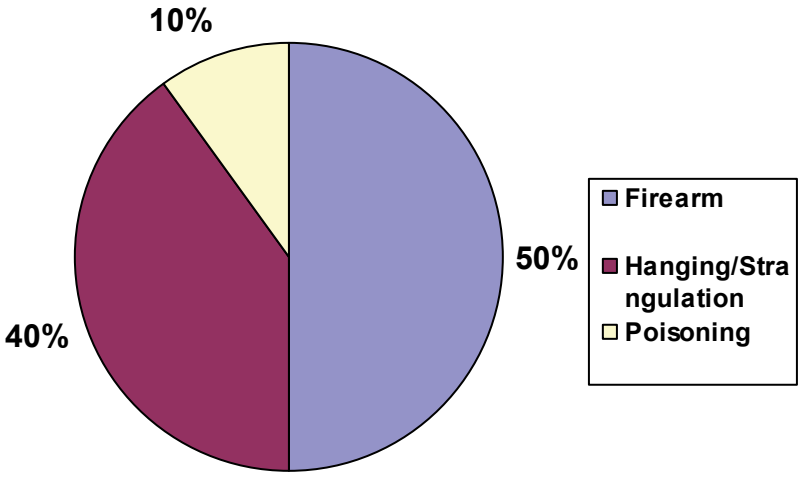

Percent of Child Fatalities due to Homicide by Race; Year 2004
47%
53%
White
Black

c. Suicide Fatalities

Suicide claims the lives of thousands of Americans every year. Nationally, suicide ranked as the 11th leading cause of death in 2004.[8] In Kentucky, there were a total of 10 child suicide deaths in 2004 with the majority (50%) due to firearms (Figure 42.).

Figure 42.

Child Fatalities due to Suicide by Method; Year 2004

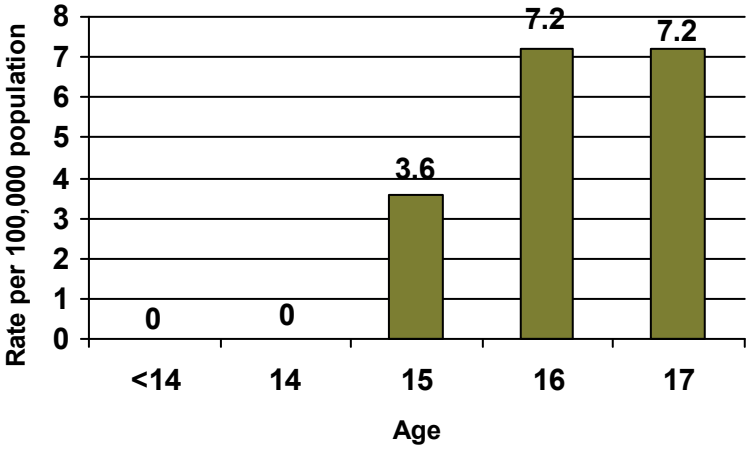


Suicide and attempted suicide among youth is a very complex issue that deals with an individuals thoughts, feelings, attitudes, and behavior. Data from the 2003 National Youth Risk Behavior Survey indicated that of those youth surveyed in grades 9-12, 28.6% reported feeling sad or hopeless during the 12 months preceding the survey, and 8.5% reported they had attempted suicide in the 12 months prior to the survey. Data specific for Kentucky showed that of those surveyed in grades 9-12, 30.1% reported feeling sad or hopeless during the 12 months preceding the survey, and 10.3% reported attempting suicide in the 12 months prior to the survey.[13]

All Kentucky child suicide deaths in 2004 occurred in the pre-teen and teen population ranging from 10-17 years old. The age groups with the highest age specific death rate for suicide was the 16 and 17 year olds both with a rate of 7.2/100,000 population (Figure 43.). These age groups had a rate 2 times that of the 15 year olds indicating that older teens are more likely to successfully complete suicide than younger teens.

Figure 43.

Rate* of Suicide Deaths by Age Groups; Year 2004

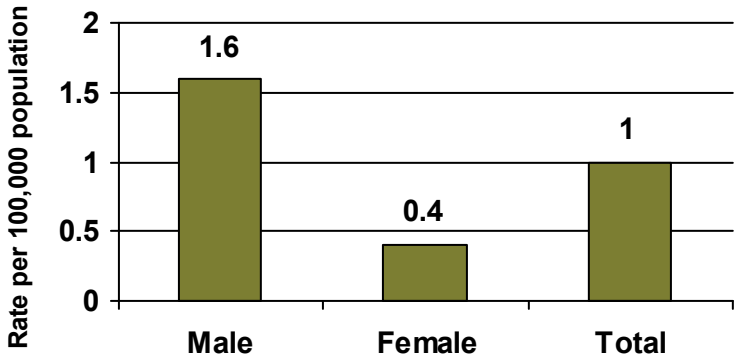


*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

Research previously conducted by the National Strategy for Suicide Prevention indicated that the male teen population was at a higher risk for suicide than female teens. In Kentucky, males had a rate of suicide deaths more than four times that of females (Figure 44.). Clearly, prevention efforts should be targeted to all teens but with special attention to the male teen population.

Figure 44.

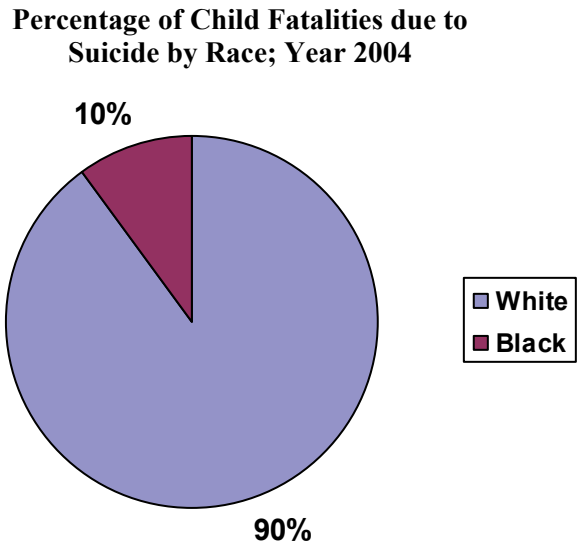
Rate* of Child Fatalities due to Suicide by Sex; Year 2004



*Rates are per 100,000 specified population
For further explanation of rates, refer to
the Technical Notes section in the Appendix

Of the total child suicide deaths in 2004, 90% were of white race compared to 10% of black race (Figure 45.). Special attention should be given to the ethnic differences that may exist regarding suicide risks and behaviors when implementing prevention efforts.

Figure 45.



It is important to be aware of the warning signs of suicide and where to seek help when a crisis arises. The following is not an all-inclusive list but represents the more "common" behaviors exhibited by individuals contemplating suicide.

Warning Signs:
Parents and adults who work with teens need to be able to recognize the danger signals associated with severe depression and ideation of suicide:

- Noticeable change in eating and sleeping habits
- Decline in school performance
- Violent or rebellious behavior
- Drug and/or alcohol abuse
- Unusual neglect of personal appearance
- Difficulty in concentration
- Radical personality changes
- Withdrawal from friends, family and regular activities
- Sudden, forced cheerfulness after a period of depression
- Verbal comments such as "I won't be a problem much longer…"

Prevention Measures:
Currently there is no definitive measure to predict suicide or suicidal behavior. Researchers have identified factors that place individuals at higher risk for suicide, but very few persons with these risk factors will actually commit suicide. Risk factors may or may not include mental illness, substance abuse, previous attempts at suicide, family history of suicide, history of sexual abuse, and impulsive or aggressive tendencies. Suicide is a relatively rare event and it is therefore difficult to predict which persons with these risk factors will ultimately commit suicide.[14] The following prevention measures should be considered when dealing with an individual contemplating suicide.

- Never agree to keep the discussion of suicide with a teen a secret. Agree to provide help and support in obtaining professional help.

- Talk about suicide in an open manner. Teens need to be given a chance to discuss suicide by voicing their thoughts and opinions. Candid discussion is important particularly when a teen suicide has occurred in a community.

- Let young people know about hotline telephone numbers and crisis intervention services that are accessible locally.

- Risk getting involved. If you suspect suicidal thoughts or behavior, ask the teen directly if he or she is considering suicide. Don't avoid the subject or wait for the teen to come to you.

- Be alert to the teen's feelings. The severity of the problem should be judged from the teen's perception, not by adult standards. If a teen perceives something as a problem, it is a problem for him or her.

- Model healthy behavior and positive problem-solving approaches. Adults can be models for young people by dealing with their own stress in a constructive manner.

- Use television shows, films, newspaper articles and other media as a trigger for a discussion of effective ways to deal with stress and depression.

Technical Notes & Data Sources

Data contained within this report are from the Preliminary Vital Statistics Death Certificate files for Kentucky residents for calendar years 2003 and 2004 and the 2003 and 2004 Child Fatality Coroner Report Form database. The data reflects only those deaths occurring to children ages 0-17. Data from the 2003 and 2004 Preliminary Vital Statistics Live Birth Certificate files were utilized for denominator data in calculating infant mortality rates. Causes of death are classified based on the International Classification of Diseases 10th revision (ICD-10). Whenever available, rates for the Nation were compared to rates for Kentucky. National rates were obtained from the National Vital Statistics Reports as published by the National Center for Health Statistics and the Centers for Disease Control and Prevention.

Certain limitations exist with death certificate data and should be acknowledged when interpreting results. First, problems exist in the completion of death certificates as well as the accuracy of completed information on the certificate. Physician interpretation of mortality causal events may differ which could lead to variation in coding the primary cause of death. Also, determining one specific underlying cause of death among decedents with multiple chronic diseases can become problamatic since the etiologic sequence of diseases may be unclear, and one single disease may not adequately describe the cause of death. Second, data reported in this publication are from the primary cause of death field only and do not include supplemental causes of death. This could lead to under-reporting of certain causes of death. For example, an infant with a congenital heart defect that is born pre-term may have listed prematurity as the primary cause of death on the certificate with congenital anomalies listed as a contributing cause of death; since this report is based only on the primary cause of death, this infant would be counted in the prematurity deaths but not in the congenital anomalies deaths. Therefore, reporting based solely on the primary cause of death can lead to under-reporting of certain causes.

Calculation of Rates:
Often times rates are used to relate the number of cases of a disease or outcome to the size of the source population in which they occurred. A rate is defined as a ratio in which there is a distinct relationship between the numerator and denominator, and some measure of time is included as part of the denominator. One example of a rate would be the number of newly diagnosed cases of breast cancer per 100,000 women during a given year.

Infant mortality rates are commonly used to measure the risk of dying during the first year of life. These rates are calculated by dividing the number of infant deaths in a calendar year for a given area by the number of live births registered for the same period and area and are presented as rates per 1,000 live births. In contrast to infant mortality rates based on live births, infant death rates are based on the estimated population under one year of age. Infant death rates presented in this report as age specific death rates are calculated by dividing the number of infant deaths by the 2003 and 2004 Population Estimates of persons under one year of age residing in Kentucky. These rates are presented as rates per either 10,000 or 100,000 population in this age group. Due to differences in the denominators, infant death rates may differ from infant mortality rates.

With the exception of infant mortality rates, rates presented within this report are on an annual basis per either 10,000 or 100,000 estimated population residing in Kentucky. The 2003 and 2004 Population Estimates for Kentucky as compiled by the Kentucky State Data Center Urban Studies Institute was utilized for denominator data in calculating death rates. Age specific death rates are calculated by dividing the total number of deaths for a specified age group for a given area and time frame by the total estimated persons within that same age group for the same area and time frame and expressed as a rate per either 10,000 or 100,000 specified population.

Rates were not calculated by race for this publication due to a lack of sufficient denominator data for specified race categories. Causes of death for race categories are presented as a percentage of the total number of deaths per specified cause.

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