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Leading Causes of Fatal and Nonfatal Unintentional Injury for Children and Teens and the Role of Lifestyle Clinicians

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Abstract

About 1 in 5 child deaths is a result of unintentional injury. The leading causes of unintentional injury death vary by age. This report provides national fatal and nonfatal data for children and teens by age, sex, and race/ethnicity. Prevention strategies for the most common causes are highlighted. Opportunities for lifestyle clinicians to effectively guide their patients and their parents are discussed.

Keywords

injury; children; adolescents

Introduction

Every hour a child in the United States dies from an unintentional injury. For each death, there are 29 hospitalizations and nearly 1000 emergency department (ED) visits. In total, about 1 in 5 child deaths is a result of an unintentional injury.¹ Fortunately, these deaths and injuries are largely preventable.

The data show progress. In just a 5-year period from 2010 to 2014, there was a 13% decline in the number of unintentional injury deaths among children and teens; the previous decade saw a 36% decline. For nonfatal injury, there was a similar 13% decline from 2010 to 2014, with an 11% decline over the previous decade.¹

This information indicates 2 important points; first, the public health burden of unintentional injury among children and teens remains unacceptably high, and second, significant improvements are possible. How to sustain and exceed these gains requires an understanding of what puts children and teens at risk, what evidence-based strategies are available to address these risks, and how to improve implementation of effective strategies. Child development and behavior are 2 essential contributors to injury risk.

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Clinicians have a keen understanding of child development and developmental milestones. These milestones are noted, for example, at well-child visits and help guide the type of anticipatory guidance given to parents. Young children have a limited ability to recognize hazards, an attraction to potential hazards, a limited ability to escape danger (both cognitive and mobility challenges), limited experience with consequences, and a lack of fear.^{2,3} Teens, although at a much higher level of development, may still have a limited ability to recognize hazards and limited experience with consequences (new drivers come to mind).⁴ Behavioral risks for young children include curiosity and an urge to explore, increased level of activity/energy, and mouthing objects as a way of exploring their environment. For older children and teens, decisions are influenced by a variety of factors, including emotions, complex cognitive processes, culture, peers, parents, and other influences.⁴⁻⁷

This article provides an epidemiological assessment of unintentional deaths and nonfatal injury among children and teens with the aim to provide the following: (1) detailed, up-to-date information about unintentional injury among children and teens; (2) disparities by age, sex, and race/ethnicity; and (3) effective injury prevention strategies for clinicians that address high-risk groups.

Methods

Injuries are commonly categorized by mechanism (eg, suffocation, drowning, falls, fires and burns, poisoning, transport) and intent (eg, unintentional, suicide, and homicide). This article provides an in-depth look at the leading causes of fatal and nonfatal unintentional injury (ie, no intent to cause harm) among children and teens in the United States through age 19 years from 2010 to 2014. Priority was given to presenting the most common causes and those that are amenable to intervention. For example, within unintentional injury, the largest number of deaths among children and teens was the result of transport. There are also many known effective prevention strategies that address these transportation-related injuries.

The numbers of unintentional deaths and nonfatal injuries in 2014 are provided by year of age. This enables a closer look at the ages where different causes of death and injury are concentrated. In addition, it removes any differences masked by reporting by age group.⁸ For instance, the leading cause of unintentional injury death among 1- to 4-year-olds was drowning; however, the leading cause of unintentional injury death among 4-year-olds was transport. This result was masked by the excessive rates of drowning among those aged 2 and 3 years.

Presentation of nonfatal injury and death rates from 2010 to 2014 allows comparisons across different demographic groups and across mechanisms of injury. For instance, infants die by suffocation at higher rates than teens die in transportation-related events. Luckily, both are preventable. These comparisons can identify at-risk groups and help focus interventions.

Deaths

Data describing deaths come from a national mortality database compiled by CDC's National Center for Health Statistics. This database contains information from death certificates filed in state vital statistics offices and includes causes of death reported by attending physicians, medical examiners, and coroners. It also includes demographic information about decedents reported by funeral directors, who obtain that information from family members and other informants. The mortality data has been coded using the *International Classification of Diseases-10th Revision* (ICD-10). Mechanism and cause of injury are based on ICD-10 external cause of injury codes (<https://www.cdc.gov/injury/wisqars/index.html>). CDC's National Center for Injury Prevention and Control (NCIPC) uses these data to build the online query system WISQARS. CDC's WISQARS (Web-based Injury Statistics Query and Reporting System) is an interactive, online database that provides data related to fatal and nonfatal injury, violent death, and cost of injury from a variety of sources. The most recent data available were for the year 2014.¹

Deaths are described by year of age, sex, and race/ethnicity. The racial and ethnic categories include the following: non-Hispanic white, black, American Indian/Alaska Native, Asian/Pacific Islander, and a separate category for Hispanics of all races. When death rates are reported, they are calculated per age group and 100 000 population.

Nonfatal Injuries

Data describing nonfatal injury were obtained from the same source, the WISQARS query system; however, these data originated from the Consumer Product Safety Commission (CPSC). The nonfatal data were obtained from CPSC's National Electronic Injury Surveillance System–All Injury Program (NEISS-AIP), a collaborative effort by the NCIPC and CPSC, which collects data about all types and external causes of nonfatal injuries and poisonings treated in US hospital EDs, whether or not they were associated with consumer products. The NEISS-AIP data are collected at 66 hospitals, which represent the nation's range of hospital settings, including very large inner-city hospitals with trauma centers as well as large urban, suburban, rural, and children's hospitals (<https://www.cdc.gov/injury/wisqars/index.html>). Data from approximately 500 000 injury-related ED cases are collected each year, providing nationally representative estimates of nonfatal injury by cause. Cause of injury is coded from the narrative provided in the medical record. The most recent data available were for the year 2014.¹

The 2 most common causes of nonfatal unintentional injury were falls and struck by/against. Fall injury was defined as "injury received when a person descends abruptly due to the force of gravity and strikes a surface at the same or lower level." For example, the injury sustained by a child who rolled off a couch onto the floor and was injured would be an unintentional fall injury. Struck by/ against injury was defined as "injury resulting from being struck by (hit) or crushed by a human, animal, or inanimate object or force other than a vehicle or machinery; injury caused by striking (hitting) against a human, animal, or inanimate object or force other than a vehicle or machinery." For example, the injury sustained by a child who was hit by a baseball and injured would be a struck by/against injury. More information on

unintentional injury definitions can be found here: http://www.cdc.gov/injury/wisqars/nonfatal_help/definitions_nonfatal.html#nonfatalcause.

Results

Deaths by Age

Table 1 displays the top 10 leading causes of all deaths by each year of age from 0 to 19 years in 2014. Most of the deaths among children and teens in the United States are the result of unintentional injury and violence (suicide and homicide), cancer (malignant neoplasms in the tables), birth defects (congenital anomalies in the tables), and heart disease. Unintentional injury was the number one cause of death at every year of age except in infants (<1 year old), where it was the fifth leading cause. Generally, among those 1 to 19 years old, unintentional injury was responsible for more deaths than the 2 or 3 next most common causes combined. Overall, unintentional injury represented 5% (1161/23 215) of all deaths among infants, and 34.5% (6432/18 666) of all deaths among 1- to 19-year-olds.

The number of deaths among children and adolescents from unintentional injuries ranged from a low of 101 at age 10 to a high of 1246 at age 19 (Table 1). The largest numbers corresponded with the youngest (infants 1161 deaths) and oldest ages (18 years 1017 deaths; 19 years 1246 deaths), for a U-shaped distribution. Unintentional injury consists of a variety of injury mechanisms. Table 2 lists 4 of the most common mechanisms of unintentional injury death in this category: drowning, poisoning, suffocation, and transport. The proportion of unintentional deaths is provided for each of these 4 mechanisms by year of age.

Drowning—Drowning represented 2.5% of unintentional injury deaths among infants, and 31.9% among 1-year-olds, a 12-fold increase. Among 2-year-olds, there were more drowning deaths than transport deaths; this was reversed for 3-year-olds. Drowning represented between 25% and 39% of unintentional injury deaths for ages 1 to 4 years.

Poisoning—Poisoning accounted for less than 5% of unintentional injury deaths from infancy to age 14; for 16- and 17-year-olds, poisoning was less than 10%. However, 18- and 19-year-olds had considerably more unintentional poisoning deaths: 16% (163 deaths) and 21.1% (263 deaths), respectively. Among 18-year-olds, 148 of the 163 poisoning deaths were drug related; among the 19-year-olds, 246 of the 263 poisoning deaths were drug related. Of the 394 drug-related deaths (148 + 246) among 18- and 19-year-olds, 111 or 28% were related to prescription opioids.

Suffocation—For infants, 85.4% (991 deaths) of unintentional injury deaths were a result of suffocation. There was no other instance in which a single cause represented such a large proportion of the unintentional injury deaths. At 1 year of age, this proportion had dropped to 16.8%, and by 12 years and older, less than 5% of unintentional injury deaths were caused by suffocation.

Transport—At 1 year of age and above, transport-related deaths represented between 28.6% and 76.3% of all unintentional injury deaths. Beginning at age 5 years, transport

accounted for at least half of these deaths. At licensure age (15–16 years), 7 out of 10 unintentional injury deaths were transport related. For 18- and 19-year-olds, transport accounted for more than 1500 deaths in 2014.

Figure 1 displays the leading causes of unintentional injury death by age group and cause in a different way; this figure shows the rise in importance of transport deaths with age, the appearance of poisoning in the 15- to 19-year-old age group, the declining proportion of drowning deaths with age, and the significant problem of suffocation among infants.

Unintentional death rates by age group are shown in Figure 2 for the years 2010 through 2014. The highest death rates were found in the youngest (<1 year) and oldest (15–19 years) age groups. The lowest death rates were found in the 5 to 9 and 10 to 14 age groups. Over the 5-year period, these positions remained constant.

Deaths by Sex

Tables 3 and 4 provide the leading causes of death for males and females by year of age in 2014. Only the top 5 leading causes are shown because of the small numbers of deaths beyond that point. For male infants, unintentional injury represented 5.1% (663/12 886) of all deaths, and for male children aged 1 to 19 years, unintentional injury represented 36.4% (4409/12 128) of all deaths. For female infants, unintentional injury represented 4.8% (498/10 329) of all deaths, and for female children aged 1 to 19 years, unintentional injury represented 30.9% (2023/6538) of all deaths. Unintentional injury was the leading cause for all ages except those <1 year old, 8-year-old girls (40 deaths caused by malignant neoplasms, 39 deaths caused by unintentional injury), and 13-year-old girls (59 deaths by suicide, 47 deaths caused by unintentional injury). The tables indicate that at each year of age, males have more deaths than females, and at age 14 years and older, males have more than double the deaths of females. This relationship holds for the largest types of unintentional injury too; males have more drowning, poisoning, suffocation, and transport deaths.

Figure 3 provides unintentional death rates by sex from 2010 through 2014. Death rates for males were consistently twice as high as those for females; the solid line represents males and females combined.

Deaths by Race/Ethnicity

The highest unintentional injury death rates were found among the American Indian/Alaska Native population; their death rate was double the rate for whites and blacks, and more than 4 times higher than Asian/Pacific Islanders, who had the lowest death rates. Death rates for whites and Asian/Pacific Islanders declined modestly, and rates for blacks rose between 2010 and 2014; rates for American Indian/Alaska Natives declined, and then began to rise in 2013; Figure 4. Results by race and sex were similar to the all-race results; for each race, there were more deaths among males than females.

Nonfatal Injuries

The leading causes of ED-treated nonfatal injury differed from the leading causes of injury deaths. Table 5 provides the top 5 causes of nonfatal injury by year of age. Unintentional falls ranked first from infants through 10 years, then unintentional “struck by/against” was first for 11 to 16 years, and age 19 years. Transport injury was responsible for about half of all deaths among children and teens. However, it did not emerge as one of the 5 leading causes of nonfatal injury until age 3 years and was the leading cause of nonfatal injury only among 17- and 18-year-olds.

The size of the nonfatal unintentional injury problem was substantial. For falls alone, there were an estimated 129 404 injuries among infants, 246 553 injuries among 1-year-olds, and 224 028 injuries among 2-year-olds. In total, for all ages, 0 to 19 years, there were an estimated 7 960 123 unintentional injuries seen in EDs in 2014—that is, nearly 22 000 each day.

Discussion

A staggering 40 000 children and teens lost their lives to unintentional injury from 2010 to 2014. Among those 1 to 19 years of age, unintentional injury was the leading cause of death for every year of age and was responsible for more than one-third of all deaths. The largest contributor to these deaths was transport, which resulted in about half of all unintentional injury deaths. However, the leading causes varied by age.

For infants, health conditions arising during pregnancy or present at birth ranked higher than injury as a cause of death; yet nearly 1000 infants died of suffocation a year. For children ages 1 to 4 years, drowning and transport were the most common causes of unintentional injury deaths. As children aged, transport became a larger contributor peaking at 70% of all unintentional injury deaths among those 15 to 19 years old. Between ages 15 and 16 years, when teens typically begin to drive, there was a 90% increase in the number of unintentional injury deaths; predictably, this was a result of an increase in the number deaths associated with transport.

A different picture emerged when assessing nonfatal injury. The leading causes of nonfatal unintentional injury were falls, being struck by/against, overexertion, and transport. The 2 most common causes—falls and struck by/ against—accounted for more than 4.3 million ED-treated injuries in 2014; transport accounted for an additional 843 000 injuries. At much greater than 5 million unintentional injuries for just these 3 causes, we are undercounting burden. These numbers reflect ED-treated injuries only, and injuries treated in other settings such as urgent care or doctors’ offices would substantially increase this estimate.

What keeps these numbers from being overwhelming is our capacity for prevention. There are many known effective strategies that may be implemented to protect children and teens.^{9–11} Moreover, differences in deaths and injuries among demographic subgroups and causes of unintentional injury not only demonstrate that more is possible, but also signal where to focus our efforts for greater efficiency. Clinicians are trusted advisers with a significant role to play in child injury prevention.^{12–14} Clinicians provide anticipatory guidance regarding a

host of issues, so that parents are aware of risks and prevention strategies.¹⁵ A significant challenge for clinicians is the ability to provide resources and guidance during a busy patient encounter. Ready tools for parents that can be given out in the clinical setting can help. Modifications to the electronic health record can deliver prompts to action that are appropriate for the age of the patient. Clinicians may also have the opportunity to participate in direct risk reduction through programs that provide bike helmets, car seats, bassinets, cribs, and smoke/carbon monoxide alarms or even working with Child Passenger Safety Technicians through their practices or affiliated hospitals. Finally, as trusted health experts, clinicians can educate decision makers at all levels to support child injury prevention interventions.

To assist clinicians in targeting their injury prevention efforts for maximal impact, we provide information about robust injury prevention strategies related to infant suffocation, drowning, and transportation safety for children and teen drivers. Finally, we note recent findings surrounding the issue of prescription opioid use among adolescents. Lifestyle medicine clinicians are poised to play important roles in these areas.

We all recognize that infants are demanding on caregivers. The need to eat frequently and the inability to clearly communicate their needs are disruptive to normal adult sleeping patterns and can lead to exhaustion. In 2014, 855 of the 991 infant suffocation deaths were a result of accidental suffocation and strangulation in bed. Clinicians can help reduce the tragic loss of life to infant suffocation by helping parents and caregivers understand the need for a safe sleep environment.¹⁶ Key recommendations include putting the baby on his or her back to sleep at all naps and bedtime, using a firm sleep surface, room sharing without bed sharing, avoiding soft objects and loose bedding, and preventing overheating.¹⁷ Clinicians working with birthing hospitals or Neonatal Intensive Care Units should model these recommendations from birth or as soon as the infant is medically stable. Well-care providers should ask about safe infant sleep behaviors at well-child visits until the first birthday and help those families without a safe sleep environment connect with programs providing low- or no-cost cribs or play yards.¹⁶ Providers can point parents to helpful resources from the National Institutes of Health's Safe to Sleep educational campaign at <http://www.nichd.nih.gov/sts/Pages/default.aspx> or to the Healthy Children site developed by the American Academy of Pediatrics at <http://www.healthychildren.org>.

As children age and become mobile, the risk of suffocation decreases and the risk of drowning increases. Drowning death rates are highest among toddlers 1 and 2 years of age.¹⁸ Swim skill has been shown to reduce drowning risk.¹⁹⁻²¹ Swim lessons to teach water competency are recommended for all children and may begin as young as 1 year of age.²² However, wide racial disparities in drowning deaths, especially in swimming pools, suggests that many minority children may lack basic swim skills well into their teens.¹⁸ Clinicians have a role in drowning prevention beginning in infancy by educating parents and caregivers of the varying drowning risks as children grow and effective age-appropriate prevention strategies.^{23,24} Infants most commonly drown in bathtubs where constant supervision is the primary prevention goal. Toddlers and preschool children drown in water hazards in their home environment such as backyard pools, hot tubs, and even buckets. At this age, barriers such as 4-sided pool fencing to prevent unsupervised access and, when they are supposed to

be in the water, constant supervision and swim skill attainment reduce risk. As children age, natural water hazards become more common drowning locations. Additional strategies in this setting may include encouraging lifejacket use, avoiding alcohol, increasing water competency, and swimming in lifeguarded settings.⁴ Clinicians' efforts to raise awareness of this commonly overlooked threat can improve safety behaviors and reduce drowning risks.²⁵

Children are also at risk on the road. Before they were old enough to drive, nearly 1300 children lost their lives in transport incidents in 2014.¹ For child passengers, child safety seats and booster seats are effective interventions. Child safety seats reduce the risk of fatal injury by 71% for infants and 54% for toddlers 1 to 4 years old.^{26,27} Booster seats for children 4 to 8 years old reduced the risk of serious injury by 45% compared with seat belts alone.²⁸ Unfortunately, not all children are able to take advantage of this protection. Sauber-Schatz et al²⁹ reported that more black and Hispanic children who died in car crashes were not buckled up compared with white children, and crash death rates were higher for black children than white children, 0 to 12 years old. Recent data from the National Highway Traffic Safety Administration indicated that when drivers were unrestrained, 70% of children were unrestrained.²⁷ One strategy shown time and again to increase restraint use is state policy.

Child passenger safety legislation has a long history in the United States. Tennessee was the first state to pass a child passenger safety law, which took effect in 1979. It took until 1986 for all 50 states to adopt a requirement for some type of child restraint device. Later, with improvements in science and technology, states have modified their laws on average 6 times. The laws were adopted and modified at different speeds and with different features. For example, states had a variety of exemptions that could apply such as out-of-state vehicles, out-of-state drivers, rental vehicle drivers, and many others.³⁰ In 2014, the policy landscape remains diverse. One state requires a child restraint for children aged 4 years and younger; several states require age 5 years and younger and several 6 years and younger; most states require age 7 years and younger, and 2 states (Tennessee and Wyoming) require child restraints for children 8 years and younger.³¹ Because adult seat belts generally do not fit properly until most children are older than 8 years, parents and caregivers may restrain their children in age- and size-appropriate car seats and booster seats for maximal protection; this may exceed the requirements of their state law, which parents may assume is adequate protection.²⁹ Current information about each state law can be found at <http://www.iihs.org/iihs/topics/laws/safetybeltuse?topicName=child-safety>. Clinicians can become familiar with their state law and include child safety seat education for new parents at all pediatric visits. Parent Central is a NHTSA site that provides useful information for parents on the right child safety seat fit and how to install and register seats, and keeps up to date on seat recalls (<http://www.safercar.gov/parents>). If parents are interested in a hands-on inspection of their seat and its installation, they can visit the Safe Kids Worldwide site to find an event near them (<http://www.safekids.org/events>).

The issues around teen safety on the road are quite different from those of children; the risks include being a young (new) driver, being the passenger of a young driver, and being in another vehicle in a crash with a young driver; 40% of the deaths in fatal young driver crashes are among the young drivers themselves and 60% among others. Fatal crashes

involving young drivers declined by 48% between 2005 and 2014; however, in 2014, young drivers remained overrepresented in crashes, they made up 6% of all licensed drivers, 9% of all drivers involved in fatal crashes, and 12% of all drivers involved in police-reported crashes.³² In addition to the risks from inexperience, young drivers also engage in behaviors that make crashes more likely. For example, a survey of high school students found that 1 in 10 students aged 16 years and older reported drinking and driving in the previous 30 days; for the United States as a whole, that translates to about 2.4 million episodes of drinking and driving a month—and among students too young to legally purchase alcohol.³³ Furthermore, drivers are less likely to buckle up when they have been drinking, which increases the risk of injury given that a crash has occurred.³² Other special risks for young drivers are nighttime driving and carrying passengers. These 2 risks in particular are addressed by state graduated driver licensing (GDL) requirements.

GDL encourages young drivers to gain experience driving in lower-risk conditions prior to obtaining an unrestricted license. Lower-risk conditions include limited unsupervised nighttime driving; limited passengers, specifically teen passengers; and providing for adequate supervised practice on the road. Current best practice includes nighttime restrictions beginning at or before 10:00 PM and a limit of no more than 1 passenger (several states allow zero passengers).^{34,35} Research has indicated a 10% reduction in fatal nighttime crashes for 16- and 17-year-old drivers, and a 13% reduction in their fatal nighttime drinking driver crashes as a result of nighttime driving restrictions. Passenger restrictions were estimated to reduce 16- and 17-year-old driver involvements in fatal crashes with teen passengers by 9%.³⁶

These statistics are sobering, yet point the way to effective safety strategies that lifestyle clinicians can support. First, parallel to child passenger safety, clinicians can become familiar with their state GDL law and include teen driver safety advice for parents and their teens. Current information about each state law can be found at <http://www.iihs.org/iihs/topics/laws/graduatedlicenseintro?topicName=teenagers>. Due to differences in state provisions, parents may wish to go beyond their state requirements. For example, because 57% of the fatal nighttime crashes of 16- and 17-year-old drivers happen before midnight, parents may choose to enforce an earlier curfew.³⁷ Several organizations have produced parent-teen driver agreements, which have been shown to decrease high-risk driving and increase limits on new drivers.^{38,39} A study of health care providers who saw patients at or near driving age found that less than 10% reported that they used these agreements.⁴⁰ The CDC has an agreement adapted from the American Academy of Pediatrics for download at https://www.cdc.gov/parentsarethekey/pdf/patk_2014_teenparent_agreement_aap-a.pdf. This agreement customizes the rules of the road for each teen, and parents pledge to drive safely and be excellent role models. Other tools useful for clinicians interested in teen driver safety can be found at https://www.cdc.gov/motorvehiclesafety/teen_drivers/index.html.

The emerging issue of prescription opioid use and misuse among adolescents is of concern. Mazer-Amirshahi et al⁴¹ found that between 2001 and 2010, opioid use for pain-related pediatric ED visits increased, particularly among the adolescent group, and a recent study by Gaither et al⁴² showed a nearly 2-fold increase in hospitalizations for opioid poisonings among children and adolescents. These results, coupled with the findings from Miech et al,

⁴³ which indicated that opioid use as prescribed before high school graduation was independently associated with a 33% increase in the risk of opioid misuse after high school, point to the need to carefully consider the clinical benefits of opioid versus nonopioid pain relief for adolescents.

Conclusion

The frequency and preventability of unintentional injury underscores the importance of child and teen injury as a public health problem. We know what works, but there are a variety of challenges to overcome. Because injuries are common, they may be thought of as inevitable and “just part of growing up.” Many injuries are relatively minor, and so parents may not feel compelled to prevent them. There are many causes of injury, and each poses different risks and has different prevention strategies that change as children grow and develop. Safety behaviors can be difficult to maintain for the child (eg, wearing a bike helmet every ride) and for the supervising parent or caregiver (eg, never taking your eyes off your swimming child). Finally, risk taking can be a healthy part of growing up; healthy development requires that the child or teen be physically, mentally, and emotionally challenged. We cannot and should not aim to prevent every bump and bruise. However, we can identify the behaviors and environments most likely to contribute to severe, devastating, or fatal injuries and teach children, teens, and parents how to avoid them. Similar to other issues in public health, clinicians play a central role in influencing the knowledge, attitudes, beliefs, and behaviors that will keep their patients safe.

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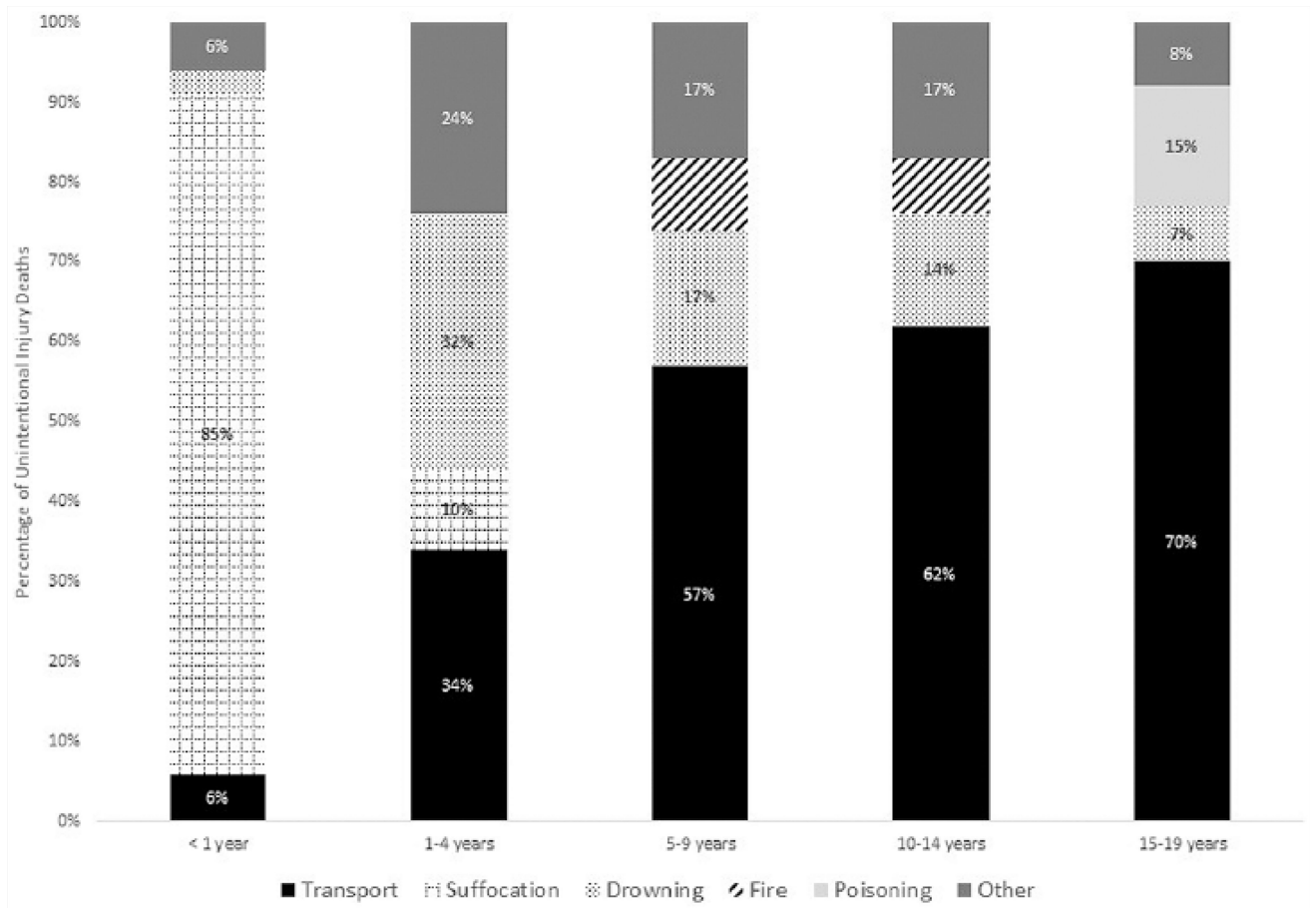


Figure 1. Leading Causes of Unintentional Injury Death by Age Group, 2014.

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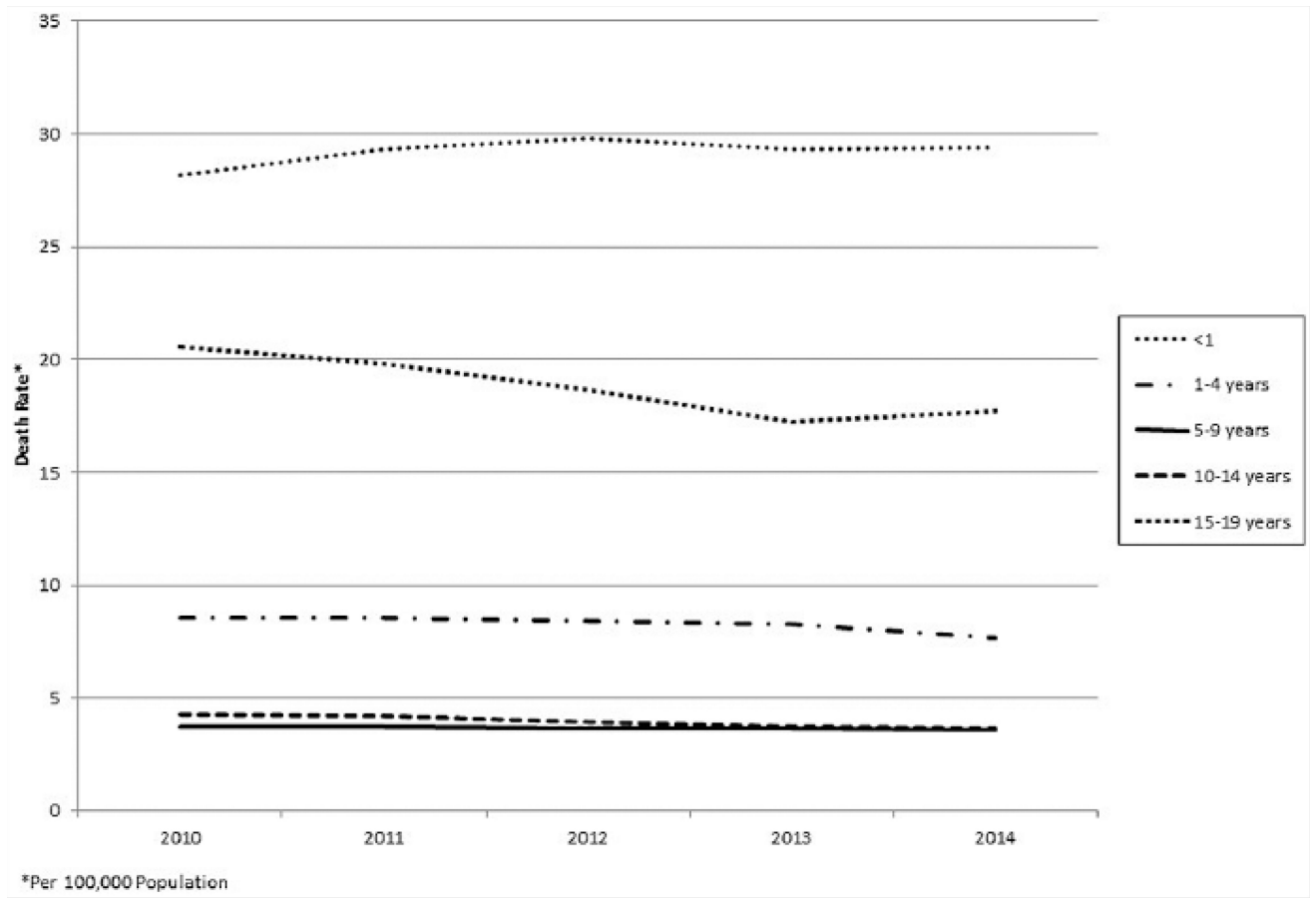


Figure 2. Unintentional Injury Death Rates for Children and Teens by Age Group, 2010–2014.

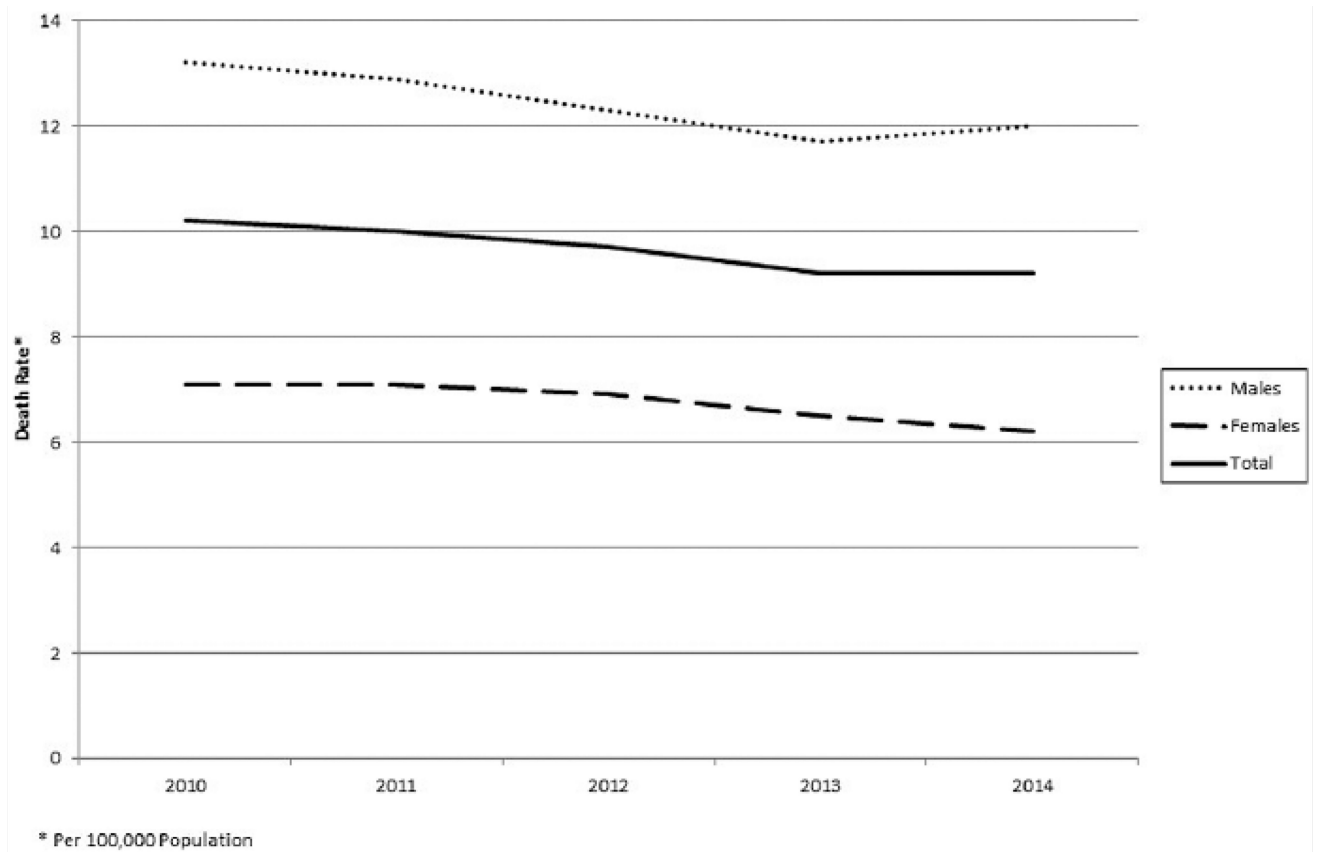


Figure 3. Unintentional Injury Death Rates for Children and Teens by Sex, Ages 0 to 19, 2010 to 2014.

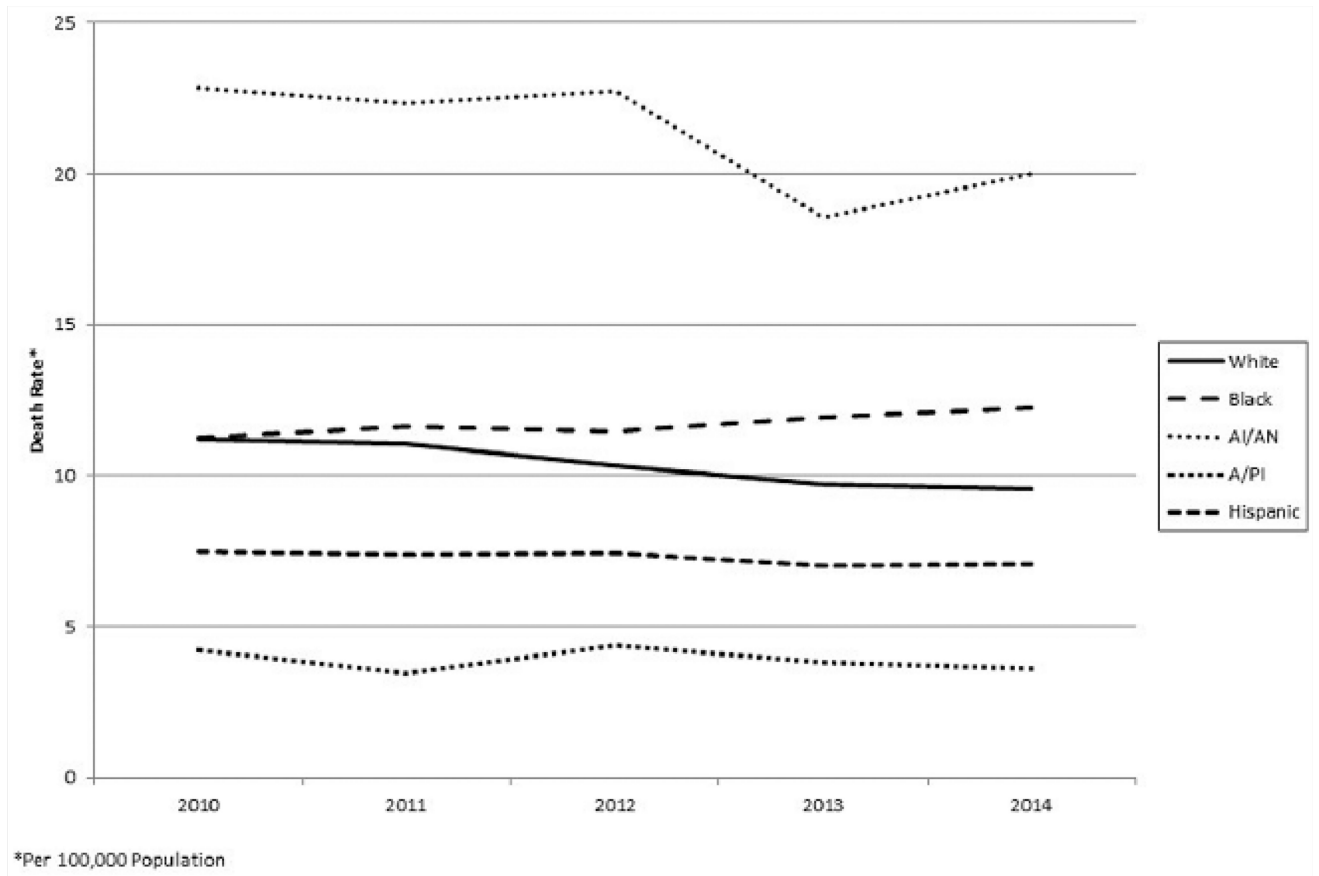


Figure 4. Unintentional Injury Death Rates for Children and Teens by Race/Ethnicity, Ages 0 to 19, 2010 to 2014.
Abbreviations: AI/AN, American Indian/Alaska Native; A/PI, Asian/Pacific Islander.

Table 1

Top 10 Leading Causes of Death^a for Children and Teens by Year of Age, United States, 2014.^b

Rank	<1	1	2	3	4	5	6	7	8	9
	23,216 ^C	1456 ^C	991 ^C	741 ^C	642 ^C	533 ^C	473 ^C	461 ^C	442 ^C	448 ^C
1	Congenital anomalies 4746	Unintentional injury, 346 (34.9%)	Unintentional injury, 345 (34.9%)	Unintentional injury, 251 (35.9%)	Unintentional injury, 274 (42.7%)	Unintentional injury, 175 (32.8%)	Unintentional injury, 146 (30.9%)	Unintentional injury, 151 (32.8%)	Unintentional injury, 111 (25.1%)	Unintentional injury, 147 (32.8%)
2	Short gestation, 4173	Congenital anomalies, 198	Homicide, 103	Homicide, 82	Malignant neoplasms, 96	Malignant neoplasms, 100	Malignant neoplasms, 84	Malignant neoplasms, 76	Malignant neoplasms, 89	Malignant neoplasms, 87
3	Maternal complications 1574	Homicide, 148	Congenital anomalies, 97	Malignant neoplasms, 79	Congenital anomalies, 38	Congenital anomalies, 55	Homicide, 29	Congenital anomalies, 37	Congenital anomalies, 43	Congenital anomalies, 31
4	SIDS, 1545	Heart disease, 73	Malignant neoplasms, 74	Congenital anomalies, 66	Homicide, 37	Homicide, 31	Congenital anomalies, 26	Homicide, 24	Chronic lower-respiratory disease 18	Homicide, 22
5	Unintentional Injury, 1161(5.0%)	Malignant neoplasms, 72	Heart disease, 35	Heart disease, 19	Heart disease, 22	Cerebrovascular disease, 12	Heart disease, 24	Chronic lower-respiratory disease, 15	Homicide, 17	Heart disease, 17
6	Placenta cord membranes, 965	Influenza and pneumonia, 58	Influenza and pneumonia, 21	Influenza and pneumonia, 17	Influenza and pneumonia, 13	Influenza and pneumonia, 12	Influenza and pneumonia, 17	Cerebrovascular, disease 11	Influenza and pneumonia, 11	Chronic lower-respiratory disease, 12
7	Bacterial sepsis, 544	Perinatal period, 26	Cerebrovascular, disease 13	Septicemia, 13	Chronic lower-respiratory disease, 12	Chronic lower-respiratory disease, 9	Chronic lower-respiratory disease, 14	Heart disease, 11	Cerebrovascular, disease, 9	Benign neoplasms, 8
8	Respiratory diseases, 460	Chronic lower-respiratory disease, 23	Septicemia, 13	Benign neoplasms, 9	Septicemia, 9	Heart disease, 9	Benign neoplasms, 8	Septicemia, 11	Heart disease 8	Cerebrovascular, disease 7
9	Circulatory system disease, 444	Septicemia, 18	Chronic lower-respiratory disease, 12	Cerebrovascular disease, 7	Anemias, 3	Septicemia, 7	Cerebrovascular disease, 6	Influenza and pneumonia, 10	Septicemia, 7	Influenza and pneumonia, 7
10	Neonatal hemorrhage, 441	Benign neoplasms, 17	Benign neoplasms, 10	Chronic lower-respiratory disease, 6; meningitis, 6	Perinatal period, 3	Benign neoplasms, 6	Septicemia, 5	Benign neoplasms, 9	Benign neoplasms, 5	Anemias, 5
Rank	10	11	12	13	14	15	16	17	18	19
	421 ^C	468 ^C	532 ^C	680 ^C	792 ^C	1021 ^C	1434 ^C	1802 ^C	2445 ^C	2884 ^C
1	Unintentional injury, 101 (24.0%)	Unintentional injury, 132 (28.2%)	Unintentional injury, 136 (25.6%)	Unintentional injury, 173 (25.4%)	Unintentional injury, 208 (26.5%)	Unintentional injury, 288 (28.2%)	Unintentional injury, 509 (35.5%)	Unintentional injury, 676 (37.5%)	Unintentional injury, 1017 (41.6%)	Unintentional injury, 1246 (43.2%)
2	Malignant neoplasms, 72	Malignant neoplasms, 64	Malignant neoplasms, 90	Suicide, 132	Suicide, 179	Suicide, 244	Suicide, 313	Suicide, 359	Suicide, 441	Homicide, 482
3	Congenital anomalies, 42	Suicide, 37	Suicide, 68	Malignant neoplasms, 96	Malignant neoplasms, 94	Homicide, 101	Homicide, 179	Homicide, 263	Homicide, 372	Suicide, 477
4	Chronic lower-respiratory disease, 20	Homicide, 21	Congenital anomalies, 32	Congenital anomalies, 36	Homicide, 60	Malignant neoplasms, 100	Malignant neoplasms, 100	Malignant neoplasms, 124	Malignant neoplasms, 146	Malignant neoplasms, 142
5	Heart disease, 19	Congenital anomalies, 20	Homicide, 22	Heart disease, 34	Heart disease, 48	Congenital anomalies, 42	Congenital anomalies, 42	Heart disease, 60	Heart disease, 66	Heart disease, 90

Rank	<1	1	2	3	4	5	6	7	8	9
	23 216 ^c	1456 ^c	991 ^c	741 ^c	642 ^c	533 ^c	473 ^c	461 ^c	442 ^c	448 ^c
6	Homicide, 19	Heart disease, 18	Heart disease, 21	Heart disease, 30	Congenital anomalies, 26	Congenital anomalies, 21	Heart disease, 35	Congenital anomalies, 45	Congenital anomalies, 35	Congenital anomalies, 36
7	Suicide, 9	Chronic lower-respiratory disease, 15	Chronic lower-respiratory disease, 10	Chronic lower-respiratory disease, 13	Chronic lower-respiratory disease, 13	Benign neoplasms, 11	Influenza and pneumonia, 16	Cerebrovascular disease, 10	Influenza and pneumonia, 19	Chronic lower-respiratory disease, 15
8	Influenza and pneumonia, 7	Benign neoplasms, 10	Four causes at 7 deaths each: Benign neoplasms Diabetes Influenza and pneumonia Cerebrovascular disease	Cerebrovascular disease, 12	Benign neoplasms, 11	Chronic lower-respiratory disease, 11	Cerebrovascular disease, 10	Influenza and pneumonia, 9	Cerebrovascular disease, 18	Cerebrovascular disease, 13
9	Cerebrovascular disease, 6	Septicemia, 10		Influenza and pneumonia, 9	Influenza and pneumonia, 11	Influenza and pneumonia, 8	Chronic lower-respiratory disease, 9	Septicemia, 9	Chronic lower-respiratory disease, 13	Influenza and pneumonia, 13
10	Benign neoplasms, 5	Cerebrovascular disease, 8		Benign neoplasms, 5; diabetes, 5	Cerebrovascular disease, 10	Cerebrovascular disease, 7	Anemias, 7; septicemia, 7	Chronic lower-respiratory disease, 7; diabetes, 7	Diabetes, 10	Septicemia, 12; complicated pregnancy, 12

Abbreviation: SIDS, sudden infant death syndrome.

^aNumbers represent number of deaths for that year of age and cause of death in 2014.

^bSource: WISQARS query system accessed at http://webappa.cdc.gov/sasweb/ncipe/leadcaus10_us.html; (%) refers to the percentage of all deaths represented by unintentional injury for that year of age in 2014.

^cTotal number of deaths for that year of age in 2014.

Table 2

Proportion of Unintentional Injury Deaths Caused by Drowning, Poisoning, Suffocation, and Transport^a for Children and Teens by Year of Age, United States, 2014.

Age	Drowning	Poisoning	Suffocation	Transport	Total Number of Unintentional Deaths
<1	2.5	0.8	85.4	6.0	1161
1	31.9	2.9	16.8	33.7	345
2	39.0	2.3	7.8	28.6	346
3	29.5	2.0	6.0	35.9	251
4	25.2	1.8	7.3	39.0	274
5	19.4	0.0	5.1	53.1	175
6	13.7	1.4	4.8	61.0	146
7	19.9	1.3	3.3	56.4	151
8	14.4	1.8	2.7	60.4	111
9	17.0	2.0	6.8	53.8	147
10	16.8	2.0	3.0	60.4	101
11	14.4	3.0	6.8	59.9	132
12	14.0	2.2	4.4	60.3	136
13	15.6	2.9	2.9	60.1	173
14	11.1	3.8	4.8	67.8	208
15	11.1	5.6	2.1	70.8	288
16	6.1	7.9	1.6	76.3	509
17	7.8	12.6	0.6	73.6	676
18	5.8	16.0	1.3	69.4	1017
19	5.6	21.1	0.9	64.7	1246

^aTransport includes motor vehicle traffic, pedestrian, pedal cyclist, other land transport, and other transport.

Top 5 Leading Causes of Death^a for Males by Year of Age, United States, 2014.^b

Table 3

Rank	<1	1	2	3	4	5	6	7	8	9
	12 886 ^c	793 ^c	566 ^c	429 ^c	384 ^c	292 ^c	271 ^c	273 ^c	254 ^c	267 ^c
1	Congenital anomalies, 2444 (37.6%)	Unintentional injury, 195 (24.6%)	Unintentional injury, 195 (37.8%)	Unintentional injury, 214 (37.1%)	Unintentional injury, 159 (45.8%)	Unintentional injury, 176 (37.3%)	Unintentional injury, 109 (33.6%)	Unintentional injury, 91 (34.1%)	Unintentional injury, 93 (28.3%)	Unintentional injury, 99 (37.1%)
2	Short gestation, 2370	Congenital anomalies, 106	Homicide, 56	Malignant neoplasms, 48	Malignant neoplasms, 48	Malignant neoplasms, 53	Malignant neoplasms, 53	Malignant neoplasms, 53	Malignant neoplasms, 45	Malignant neoplasms, 42
3	SIDS, 924	Homicide, 81	Congenital anomalies, 48	Homicide, 42	Congenital anomalies, 25	Congenital anomalies, 30	Heart disease, 13	Homicide, 18	Congenital anomalies, 25	Congenital anomalies, 11
4	Maternal pregnancy complication 916	Malignant neoplasms, 44	Malignant neoplasms, 42	Congenital anomalies, 40	Homicide, 17	Homicide, 11	Homicide, 12	Congenital anomalies, 14	Chronic lower-respiratory disease, 12	Heart disease, 11
5	Unintentional injury, 663(5.1%)	Heart disease, 34	Heart disease, 20	Heart disease, 10	Heart disease, 12	Chronic lower-respiratory disease, 7	Influenza and pneumonia, 11	Chronic lower-respiratory disease, 9	Homicide, 9	Homicide, 11
Rank	10	11	12	13	14	15	16	17	18	19
	256 ^c	279 ^c	310 ^c	421 ^c	505 ^c	654 ^c	995 ^c	1258 ^c	1800 ^c	2121 ^c
1	Unintentional injury, 62 (24.2%)	Unintentional injury, 87 (31.2%)	Unintentional injury, 78 (25.2%)	Unintentional injury, 126 (29.9%)	Unintentional injury, 151 (29.9%)	Unintentional injury, 200 (30.6%)	Unintentional injury, 360 (36.2%)	Unintentional injury, 473 (37.6%)	Unintentional injury, 747 (41.5%)	Unintentional injury, 917 (43.2%)
2	Malignant neoplasms, 45	Malignant neoplasms, 34	Malignant neoplasms, 52	Suicide, 73	Suicide, 124	Suicide, 159	Suicide, 225	Suicide, 280	Suicide, 352	Homicide, 418
3	Congenital anomalies, 27	Suicide, 27	Suicide, 42	Malignant neoplasms, 57	Malignant neoplasms, 58	Homicide, 81	Homicide, 151	Homicide, 219	Homicide, 332	Suicide, 388
4	Chronic lower-respiratory disease, 12	Congenital anomalies, 12	Congenital anomalies, 23	Homicide, 26	Homicide, 43	Malignant neoplasms, 53	Malignant neoplasms, 64	Malignant neoplasms, 59	Malignant neoplasms, 95	Malignant neoplasms, 87
5	Heart disease, 11	Chronic lower-respiratory disease, 11	Homicide, 15	Heart disease, 20	Congenital anomalies, 16	Heart disease, 28	Congenital anomalies, 21	Heart disease, 35	Heart disease, 43	Heart disease, 62

Abbreviation: SIDS, sudden infant death syndrome.

^aNumbers represent number of deaths for that year of age and cause of death for males in 2014.

^bSource: WISQARS query system accessed at http://webappa.cdc.gov/sasweb/ncipc/leadcaus10_us.html; (%) refers to the percentage of all deaths represented by unintentional injury for that year of age for males in 2014.

^cTotal number of deaths for that year of age for males in 2014.

Table 4

Top 5 Leading Causes of Death^a for Females by Year of Age, United States, 2014.^b

Rank	1	2	3	4	5	6	7	8	9
<1	10 329 ^c	663 ^c	312 ^c	258 ^c	241 ^c	202 ^c	188 ^c	188 ^c	181 ^c
1	Congenital anomalies, 2302 (22.6%)	Unintentional injury, 150 (31.1%)	Unintentional injury, 132 (29.5%)	Unintentional injury, 92 (38.0%)	Unintentional injury, 98 (27.4%)	Unintentional injury, 66 (27.2%)	Unintentional injury, 58 (30.9%)	Malignant neoplasms, 40	Unintentional injury, 48 (26.5%)
2	Short gestation, 1803	Congenital anomalies, 92	Homicide, 40	Malignant neoplasms, 48	Malignant neoplasms, 31	Malignant neoplasms, 47	Malignant neoplasms, 31	Unintentional injury, 39 (20.7%)	Malignant neoplasms, 45
3	Maternal pregnancy complications, 658	Homicide, 61	Malignant neoplasms, 31	Homicide, 20	Congenital anomalies, 25	Congenital anomalies, 25	Congenital anomalies, 23	Congenital anomalies, 18	Congenital anomalies, 20
4	SIDS, 621	Heart disease, 39	Malignant neoplasms, 32	Congenital anomalies, 13	Homicide, 20	Homicide, 17	Cerebrovascular disease, 7	Homicide, 8	Homicide, 11
5	Unintentional injury, 498 (4.8%)	Heart disease, 15	Heart disease, 9	Heart disease, 10	Cerebrovascular Disease 8	Heart disease, 11	Homicide, 6	Influenza and pneumonia, 7	Heart disease, 6
Rank	10	11	12	13	14	15	16	17	18
	165 ^c	189 ^c	222 ^c	259 ^c	287 ^c	367 ^c	439 ^c	544 ^c	645 ^c
1	Unintentional injury, 39 (23.8%)	Unintentional injury, 45 (26.1%)	Unintentional injury, 58 (26.1%)	Suicide, 59 (19.9%)	Unintentional injury, 57 (24.0%)	Unintentional injury, 88 (33.9%)	Unintentional injury, 149 (37.3%)	Unintentional injury, 203 (41.9%)	Unintentional injury, 329 (43.1%)
	Malignant neoplasms, 27	Malignant neoplasms, 30	Malignant neoplasms, 38 (18.1%)	Suicide, 55	Suicide, 85	Suicide, 88	Suicide, 79	Suicide, 89	Suicide, 89
3	Congenital anomalies, 15	Homicide, 10	Suicide, 26	Malignant neoplasms, 39	Malignant neoplasms, 36	Malignant neoplasms, 47	Malignant neoplasms, 36	Malignant neoplasms, 65	Homicide, 64
4	Homicide, 9	Suicide, 10	Congenital anomalies, 9	Heart, disease, 19	Heart, disease, 20	Homicide, 28	Homicide, 44	Homicide, 40	Malignant neoplasms, 55
5	Chronic lower-respiratory disease, 8	Heart disease, 9	Heart disease, 8	Heart disease, 10	Homicide, 17	Congenital anomalies, 21	Heart disease, 25	Heart disease, 23	Heart disease, 28

Abbreviation: SIDS, sudden infant death syndrome.

^aNumbers represent number of deaths for that year of age and cause of death for females in 2014.

^bSource: WISQARS query system accessed at http://webappa.cdc.gov/sasweb/ncipc/leadcaus10_us.html; (%) refers to the percentage of all deaths represented by unintentional injury for that year of age for females in 2014.

^cTotal number of deaths for that year of age for females in 2014.

Table 5
 Top 5 Leading Causes of Nonfatal Injury for Children and Teens by Year of Age, United States, 2014.^a

Rank	<1	1	2	3	4	5	6	7	8	9
	234 572 [#]	526 980 ^b	523 696 ^b	450 616 ^b	378 853 ^b	361 127 ^b	340 168 ^b	334 605 ^b	318 006 ^b	314 313 ^b
1	Unintentional fall, 129 404	Unintentional fall, 246 553	Unintentional fall, 224 028	Unintentional fall, 190 198	Unintentional fall, 158 070	Unintentional fall, 152 032	Unintentional fall, 130 874	Unintentional fall, 125 481	Unintentional fall, 108 051	Unintentional fall, 105 788
2	Unintentional struck by/against, 28 577	Unintentional struck by/against, 77 537	Unintentional struck by/against, 77 678	Unintentional struck by/against, 86 832	Unintentional struck by/against, 75 602	Unintentional struck by/against, 77 599	Unintentional struck by/against, 77 938	Unintentional struck by/against, 75 709	Unintentional struck by/against, 75 812	Unintentional struck by/against, 79 693
3	Unintentional other bite/sting, 12 042	Unintentional other bite/sting, 44 948	Unintentional other bite/sting, 47 813	Unintentional other bite/sting, 38 403	Unintentional other bite/sting, 34 372	Unintentional other bite/sting, 31 507	Unintentional transport, 35 880	Unintentional transport, 35 384	Unintentional transport, 36 466	Unintentional transport, 38 950
4	Unintentional foreign body, 10 891	Unintentional overexertion, 26 882	Unintentional foreign body, 38 247	Unintentional foreign body, 33 501	Unintentional foreign body, 29 209	Unintentional transport, 26 009	Unintentional other bite/sting, 25 092	Unintentional other bite/sting, 24 478	Unintentional cut/pierce, 25 257	Unintentional overexertion, 26 843
5	Unintentional inhalation/suffocation, 10 441	Unintentional other specified, 22 459	Unintentional overexertion, 28 520	Unintentional transport, 20 924	Unintentional transport, 24 397	Unintentional foreign body, 20 356	Unintentional cut/pierce, 16 804	Unintentional cut/pierce, 20 910	Unintentional other bite/sting, 21 231	Unintentional cut/pierce, 18 975
Rank	10	11	12	13	14	15	16	17	18	19
	344 496 ^b	369 590 ^b	414 134 ^b	377 989 ^b	419 580 ^b	418 212 ^b	438 437 ^b	445 077 ^b	467 257 ^b	482 414 ^b
1	Unintentional fall, 110 168	Unintentional struck by/against, 106 351	Unintentional struck by/against, 112 415	Unintentional struck by/against, 123 311	Unintentional struck by/against, 114 258	Unintentional struck by/against, 117 061	Unintentional struck by/against, 104 420	Unintentional transport, 92 459	Unintentional transport, 102 423	Unintentional struck by/against, 106 351
2	Unintentional struck by/against, 88 402	Unintentional fall, 105 617	Unintentional fall, 110 474	Unintentional fall, 97 587	Unintentional fall, 91 224	Unintentional fall, 89 346	Unintentional fall, 82 835	Unintentional struck by/against, 88 416	Unintentional fall, 86 542	Unintentional fall, 105 617
3	Unintentional transport, 41 921	Unintentional overexertion, 56 403	Unintentional overexertion, 69 558	Unintentional overexertion, 74 698	Unintentional overexertion, 72 373	Unintentional overexertion, 74 535	Unintentional overexertion, 75 510	Unintentional fall, 79 667	Unintentional struck by/against, 78 125	Unintentional overexertion, 56 403
4	Unintentional overexertion, 35 180	Unintentional transport, 40 513	Unintentional transport, 47 531	Unintentional transport, 44 108	Unintentional transport, 52 003	Unintentional transport, 62 443	Unintentional transport, 76 831	Unintentional overexertion, 60 732	Unintentional overexertion, 57 570	Unintentional transport, 40 513

Rank	<1	1	2	3	4	5	6	7	8	9
	234 572 [#]	526 980 ^b	523 696 ^b	450 616 ^b	378 853 ^b	361 127 ^b	340 168 ^b	334 605 ^b	318 006 ^b	314 313 ^b
5	Unintentional cut/pierce, 21 862	Unintentional cut/pierce, 20 470	Unintentional cut/pierce, 25 246	Unintentional cut/pierce, 21 834	Unintentional cut/pierce, 24 450	Other assault ^c struck by/ against, 27 840	Unintentional cut/pierce, 28 878	Unintentional cut/pierce, 39 142	Unintentional cut/pierce, 42 120	Unintentional cut/pierce, 20 470

^aSource: WISQARS query system accessed at <https://www.cdc.gov/injury/wisqars/nonfatal.html>. Transport includes motor vehicle traffic, pedestrian, pedal cyclist, other land transport, and other transport.

^bTotal number of deaths for that year of age in 2014.

^cOther assault, struck by/against” category includes all assaults that are not classified as sexual assault; this represents the majority of assaults.