Unintentional Injuries

In 2012, there were just over nine million unintentional injuries among children and youth younger than 20 that were serious enough to warrant a trip to the emergency room. In addition, there were 8,067 unintentional injuries in this age group that were fatal.

Importance

The toll of childhood injuries on society is staggering. Over 8,000 children—more than 20 a day—die annually in the U.S. because of such injuries. However, it is estimated that for every child death resulting from injuries, more than 1,000 children receive medical treatment or consultation for non-fatal injuries. (Appendix 1 and Appendix 2) In 2000, associated medical and other costs, including lost time at work by family members caring for injured children, totaled more than $87 billion. Annual costs rise to more than $200 billion when including reduced quality of life for injured children and their families. (1)

Unintended injuries are the leading cause of death and disability for children and adolescents in the U.S. Among people ages 1-19 years, they account for more than a third (36 percent) of all deaths; for newborns and infants under the age of one year, they are the fifth leading cause. (2)

Although child injuries occur under diverse circumstances, motor vehicle crashes are the leading cause of fatal injuries, while falls account for the greatest proportion of non-fatal injuries. (Appendix 1)

Trends

Data on fatal and non-fatal injuries tend to follow different patterns, so we discuss them separately below.

Fatal Injuries

Between 1981 and 1992, the rate of deaths due to injuries among all children ages birth through 19 fell by nearly 36 percent. Over this period, rates of fatal injury among males decreased more than rates among females, although both declined (by 39 and 28 percent, respectively). (Figure 1)

Rates declined at a slower pace between 1992 and 2007, falling from 17 to 14 deaths per 100,000 population. However, between 2007 and 2010 there were greater declines—a drop of 25 percent over three years. After 2010, fatalities from unintentional injuries continued to decline, but at a slower rate. In 2012, there were 10 child and youth deaths per 100,000 population caused by unintentional injuries. Approximately equal percentage-declines occurred for males and females between 2000 and 2012. (Figure 1)

Declining death rates related to motor vehicles accounted for the single largest portion of the decline in fatal injuries. The steepest decline has been in the last decade: rates of motor-vehicle-related deaths fell 51 percent between 2002 and 2012, although this remains the leading cause of injury-related deaths among all persons younger than 20. Rates associated with most other causes of fatal injuries also declined significantly in the past decade, with the exception of suffocation and poisoning, each of which increased significantly (by 27 and 17 percent, respectively). (Appendix 1) Eighty-five percent of child and adolescent deaths by poisoning in 2012 were due to drug overdoses or alcohol
poisoning, and rates of non-drug poisoning did not change between 2002 and 2012. [3]

**Non-Fatal injuries**

Rates of non-fatal injuries requiring a trip to the emergency department decreased by 13 percent between 2000 and 2009, from 12,202 to 10,556 injuries per 100,000 population. However, in 2010 the rate increased to 11,008, and remained virtually unchanged until 2013. In 2013, the rate decreased to 10,094, the lowest on record. (Figure 2) Accounting for the greatest proportions of the decade’s decline were motor-vehicle-related injuries (down by 38 percent between 2003 and 2013), bicycle accidents (down by 31 percent), and fire (down by 20 percent). (Appendix 2)

**Differences by Age**

**Fatal injuries**

Unintentional fatal injuries are most common among infants. The 2012 rates per 100,000 population range from a high of 30 among children younger than one year, to a low of 3.6 among those ages five to nine. The second-highest rate was for adolescents ages 15 to 19 (20 deaths per 100,000). Fatal injuries have been trending downward for all age groups except infants, which, after rising between 1998 and 2008, have been generally flat since that time. (Appendix 1)

The most common causes of fatal injuries differ among age groups. For instance, although suffocation is the most common type of fatal injury among infants (83 percent, in 2012), it accounts for only one percent of unintentional fatalities among adolescents ages 15 to 19. While only six percent of fatal injuries among infants are due to motor vehicle crashes, they account for 66 percent among adolescents. While drowning is the most common cause of fatal injury among children ages one to four (31 percent), for adolescents drowning accounts for seven percent of fatal injuries. Other notably common types of injury are poisoning among adolescents (accounting for 15 percent of fatal injuries), and fire and burn injuries among one- to four- and five- to nine-year-olds (seven and ten percent of fatal injuries, respectively). (Figure 3)

**Non-Fatal injuries**
Rates for non-fatal injuries are highest among children ages one to four (12,350 injuries per 100,000 population, in 2013), followed by adolescents ages 15 to 19 (11,148 per 100,000), children ages 10 to 14 (9,758 per 100,000), children ages five to nine (8,355 per 100,000), and infants less than a year old (6,167 per 100,000). (Appendix 4)

Marked age-related differences are also evident in the causes of non-fatal injuries. Falls are the most common cause between birth and age nine, and tied for most common among 10- to 19-year-olds. However, the proportion of injuries that is associated with falls decreases with age. Among infants, 55 percent of serious non-fatal injuries were from falls in 2013, compared with 17 percent of non-fatal injuries among adolescents ages 15 to 19. Non-fatal injuries that result from being struck by or against an object or person comprised 22 percent of injuries among 15- to 19-year-olds (the single largest category), and 12 percent among infants. (Figure 4)

Differences by Gender

Males are more likely than females to sustain both fatal and non-fatal injuries. The 2012 rate of fatal injuries among males was 13 per 100,000 population—nearly double the rate among females (7 per 100,000). (Figure 1) For serious non-fatal injuries, the 2013 rate among males was 11,392 per 100,000, while the rate among females was 8,736 per 100,000. (Figure 2)

Differences by Race and Hispanic Origin

Rates of fatal injury are highest among American Indian and Alaska Native children (14 per 100,000 population, in 2012), and lowest for Asian and Pacific Islander children (four per 100,000). In between are rates for white and black children (11 and 12 per 100,000, respectively), and Hispanic children (seven per 100,000). (Appendix 1) White and black children have nearly the same rates of injury-related death, except in the case of drowning, where the rate for black children is higher.

While information is not available on rates of non-fatal injury for American Indians and Alaska Natives or for Asian and Pacific Islanders, in 2013 white children were more likely than either black or Hispanic children to go to an emergency department with a non-fatal injury (10,738 injuries per 100,000 population, versus 7,979 and 5,477 per 100,000, respectively). (Appendix 2)

State and Local Estimates

The Centers for Disease Control and Prevention has published state-level rates of deaths due to unintentional injury among persons ages birth through 19, for 2000-2009.

2007 state-level data on non-fatal injuries (ages birth to five) that required medical attention are available from the National Survey of Children's Health. These parent-reported data can be tabulated by race, family income, and other variables.

International Estimates

Estimates of injury-related death rates for selected developed countries are in UNICEF's League Table of Child Deaths by Injury in Rich Nations.

National Goals

The federal government, through the Healthy People 2020 initiative, has set a number of goals to reduce unintentional injuries. They include a goal to reduce suffocation deaths.
among infants up to a year old from 22.5 per 100,000 (in 2007) to 20.3 deaths per 100,000 by 2020. There are also goals, although not specifically for children, to reduce fatal and non-fatal injuries in general, prevent an increase in poisonings (fatal and non-fatal), and reduce injuries and deaths due to motor vehicle crashes, drowning, and fire.

More information is available here.

**What Works to Make Progress on This Indicator**

Owing to the diverse causes of injuries in children, it is not practical to give a comprehensive summary of effective prevention practices. However, consistent use of protective equipment (e.g., bicycle helmets, seat belts and car seats, stair gates, cabinet locks, and smoke detectors) can reduce the risk of serious injury. For example, mandatory helmet legislation is strongly association with reduced bicycle-related head injuries in children.[6]

The Trust for America's Health has identified 10 indicators of evidence-based strategies for injury prevention, including state policies related to intimate partner violence, sports-related concussions, and prescription drug monitoring.

**Related Indicators**

- Infant, Child, and Teen Mortality
- Teen Homicide, Suicide, and Firearm Deaths
- Seat Belt Use
- Motor Vehicle Deaths
- Drunk Driving
- Distracted Driving
- Binge Drinking

**Definition**

Deaths due to unintentional injuries are those in which the attending physician, medical examiner, or coroner ruled that the death was neither a homicide, suicide, nor due to legal intervention (i.e., self defense or police action). Non-fatal unintentional injuries are defined as &Delta;0bodily harm resulting from severe exposure to an external force or substance (mechanical, thermal, electrical, chemical, or radiant) or a submersion[7] which was not intended. More information is available here.

**Data Sources**


**Raw Data Source**

Fatal injury data: National Vital Statistics System

www.cdc.gov/nchs/deaths.htm

Non-Fatal injury data: National Electronic Injury Surveillance System-All Injury Program (NEISS-AIP)

http://www.cdc.gov/ncipc/wisqars/nonfatal/datasources.htm#5.2

**Appendix 1 - Unintentional Fatal Injuries: Rates per 100,000 Population, Ages Birth to 19, by Selected Characteristics: Selected Years, 1981-2012**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Fatal Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>19,442</td>
</tr>
<tr>
<td>1985</td>
<td>16,087</td>
</tr>
<tr>
<td>1990</td>
<td>14,604</td>
</tr>
<tr>
<td>1995</td>
<td>13,122</td>
</tr>
<tr>
<td>2000</td>
<td>12,441</td>
</tr>
<tr>
<td>2002</td>
<td>12,035</td>
</tr>
<tr>
<td>2003</td>
<td>12,184</td>
</tr>
<tr>
<td>2004</td>
<td>11,778</td>
</tr>
<tr>
<td>2005</td>
<td>11,674</td>
</tr>
<tr>
<td>2006</td>
<td>11,560</td>
</tr>
<tr>
<td>2007</td>
<td>10,184</td>
</tr>
<tr>
<td>2008</td>
<td>9,143</td>
</tr>
<tr>
<td>2009</td>
<td>8,684</td>
</tr>
<tr>
<td>2010</td>
<td>8,473</td>
</tr>
<tr>
<td>2011</td>
<td>8,067</td>
</tr>
<tr>
<td>2012</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix 2 - Unintentional Injuries Requiring Attention at a Hospital

**Emergency Department, Rates per 100,000 Population, Ages Birth to 19, by Selected Characteristics: 2000-2013**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Non-Fatal Injuries</strong></td>
<td>9,818,946</td>
<td>9,699,473</td>
<td>9,180,998</td>
<td>9,087,625</td>
<td>9,111,354</td>
<td>8,935,898</td>
<td>9,072,870</td>
<td>8,844,651</td>
<td>8,780,938</td>
<td>8,790,851</td>
<td>9,166,112</td>
<td>9,185,139</td>
<td>9,038,763</td>
<td>8,302,347</td>
</tr>
<tr>
<td><strong>Non-Fatal Injuries</strong> (Rate per 100,000)</td>
<td>12,202</td>
<td>11,988</td>
<td>11,310</td>
<td>11,161</td>
<td>11,145</td>
<td>10,897</td>
<td>11,021</td>
<td>10,688</td>
<td>10,564</td>
<td>10,556</td>
<td>11,008</td>
<td>11,087</td>
<td>10,955</td>
<td>10,094</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14,475</td>
<td>14,075</td>
<td>13,150</td>
<td>12,884</td>
<td>12,943</td>
<td>12,634</td>
<td>12,855</td>
<td>12,448</td>
<td>12,314</td>
<td>12,213</td>
<td>12,698</td>
<td>12,753</td>
<td>12,436</td>
<td>11,392</td>
</tr>
<tr>
<td>Female</td>
<td>9,803</td>
<td>9,786</td>
<td>9,366</td>
<td>9,344</td>
<td>9,249</td>
<td>9,070</td>
<td>9,090</td>
<td>8,840</td>
<td>8,727</td>
<td>8,816</td>
<td>9,237</td>
<td>9,341</td>
<td>9,404</td>
<td>8,736</td>
</tr>
<tr>
<td><strong>Race/Hispanic origin</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>10,622</td>
<td>10,327</td>
<td>9,633</td>
<td>10,165</td>
<td>9,887</td>
<td>9,439</td>
<td>9,293</td>
<td>9,189</td>
<td>10,146</td>
<td>10,873</td>
<td>10,743</td>
<td>10,855</td>
<td>11,518</td>
<td>10,738</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>11,891</td>
<td>12,787</td>
<td>11,945</td>
<td>10,372</td>
<td>10,704</td>
<td>9,395</td>
<td>9,219</td>
<td>8,109</td>
<td>8,744</td>
<td>8,224</td>
<td>8,546</td>
<td>9,048</td>
<td>8,642</td>
<td>7,979</td>
</tr>
<tr>
<td>Hispanic&lt;sup&gt;2&lt;/sup&gt;</td>
<td>7,204</td>
<td>6,139</td>
<td>5,015</td>
<td>3,434</td>
<td>3,985</td>
<td>4,067</td>
<td>4,604</td>
<td>3,576</td>
<td>4,566</td>
<td>4,697</td>
<td>5,450</td>
<td>5,700*</td>
<td>5,647*</td>
<td>5,477</td>
</tr>
</tbody>
</table>

<sup>1</sup>Hispanics may be of any race.

### Appendix 3 - Fatal Injuries: Rates and Percentages by Type of Injury, By Age Group: 2012

<table>
<thead>
<tr>
<th>Age group</th>
<th>less than 1</th>
<th>1 to 4</th>
<th>5 to 9</th>
<th>10 to 14</th>
<th>15 to 19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate per 100,000</td>
<td>Rate percent¹ per 100,000</td>
<td>Rate per 100,000</td>
<td>Rate percent¹ per 100,000</td>
<td>Rate per 100,000</td>
</tr>
<tr>
<td>Fatal Injuries All fatal injuries</td>
<td>29.7</td>
<td>100.0</td>
<td>8.4</td>
<td>100.0</td>
<td>3.6</td>
</tr>
<tr>
<td>Motor vehicle traffic</td>
<td>1.7</td>
<td>5.8</td>
<td>2.2</td>
<td>26.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Suffocation</td>
<td>24.5</td>
<td>82.5</td>
<td>0.9</td>
<td>10.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Drowning</td>
<td>1.1</td>
<td>3.7</td>
<td>2.6</td>
<td>30.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Poisoning</td>
<td>-</td>
<td>-</td>
<td>0.2</td>
<td>2.5</td>
<td>0.1</td>
</tr>
<tr>
<td>Other transportation</td>
<td>-</td>
<td>-</td>
<td>0.8</td>
<td>9.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Fire/burn</td>
<td>-</td>
<td>-</td>
<td>0.6</td>
<td>7.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Fall</td>
<td>1.4</td>
<td>4.6</td>
<td>1.0</td>
<td>11.7</td>
<td>0.4</td>
</tr>
</tbody>
</table>

¹ May not add up to 100% due to rounding.


### Appendix 4 - Unintentional Injuries that Resulted in Emergency Department Visits: Rates and Percentage by Type of Injury, by Age Group: 2012
Age group | less than 1 | 1 to 4 | 5 to 9 | 10 to 14 | 15 to 19
--- | --- | --- | --- | --- | ---
Rate per 100,000 | Rate per 100,000 | Rate per 100,000 | Rate per 100,000 | Rate per 100,000
All unintentional injuries | 6,167 | 100.0 | 12,350 | 100.0 | 8,355 | 100.0 | 9,758 | 100.0 | 11,148 | 100.0
Fall | 3,405 | 55.2 | 5,355 | 43.4 | 3,038 | 36.4 | 2,703 | 27.7 | 1,929 | 17.3
Struck by/against object or person | 730 | 11.8 | 2,115 | 17.1 | 1,962 | 23.5 | 2,720 | 27.9 | 2,506 | 22.5
Overexertion | 126 | 2.1 | 512 | 4.1 | 455 | 5.4 | 1,427 | 14.6 | 1,705 | 15.3
Occupant of a motor vehicle | 84 | 1.4 | 190 | 1.5 | 283 | 3.4 | 357 | 3.7 | 1,247 | 11.2
Cut/Pierce | 181 | 2.9 | 525 | 4.2 | 548 | 6.6 | 553 | 5.7 | 854 | 7.7
Bite/sting | 356 | 5.8 | 1,198 | 9.7 | 736 | 8.8 | 474 | 4.9 | 461 | 4.1
Pedal Cyclist | - | - | 142 | 1.1 | 364 | 4.4 | 410 | 4.2 | 266 | 2.4
Other transportation | 15 | 0.2 | 151 | 1.2 | 218 | 2.6 | 297 | 3.0 | 450 | 4.0
Foreign Body | 270 | 4.4 | 877 | 7.1 | 308 | 3.7 | 113 | 1.2 | 127 | 1.1
Fire/burn | 249 | 4.0 | 332 | 2.7 | 104 | 1.2 | 73 | 0.7 | 127 | 1.1
Poisoning | 104 | 1.7 | 204 | 1.6 | 37 | 0.4 | 47 | 0.5 | 307 | 2.8
Unknown/unspecified | 145 | 2.4 | 259 | 2.1 | 172 | 2.1 | 410 | 4.2 | 446 | 4.0
All else | 500 | 8.1 | 489 | 4.0 | 131 | 1.6 | 173 | 1.8 | 724 | 6.5

1 may not add up to 100% due to rounding.


Endnotes


[5] In 2012, the crude drowning death rate for non-Hispanic black children ages 0-19 was 2.0 per 100,000 population; for non-Hispanic whites, it was 1.1. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Retrieved from http://www.cdc.gov/injury/wisqars/index.html


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