



Toy-Related Deaths and Injuries Calendar Year 2009

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Executive Summary

In this report, U.S. Consumer Product Safety Commission (CPSC) staff presents the latest available statistics on deaths and injuries associated with toys.

- For toy-related deaths and injuries, it is important to note that many of the incidents were associated with, but not necessarily caused by, a toy.

Reported Fatalities

- The CPSC staff received 12 reports of toy-related deaths that occurred in 2009 among children less than 15 years old.
- Riding toys were associated with 58 percent of the reported deaths in 2009: 3 deaths were associated with tricycles, 2 with powered riding toys, and 2 with nonmotorized riding toys or unspecified riding toys.
- Most deaths were from drowning, motor vehicle involvement, or airway obstruction from a small toy or small part of a toy.

Emergency Department Treated Injuries

- In 2009, there were an estimated 250,100 toy-related injuries treated in U.S. hospital emergency departments. The annual average of estimated toy-related injuries from 2005 to 2009 is 228,200.
- A statistically significant increasing trend in the estimated numbers of toy-related injuries was detected for both children less than 15 years of age and all ages from 2005 to 2009.
- Most (46 percent) of the estimated emergency department treated injuries are classified as lacerations, contusions, or abrasions. Forty-five percent of the estimated injuries were to the head and face area, the most common affected area of the body.
- Ninety-six percent of the emergency department treated toy-related injury victims were treated and released.
- Of the 250,100 estimated emergency department treated toy-related injuries, an estimated 185,900 (or 74 percent) occurred to children less than 15 years of age, while an estimated 90,600 (36 percent) occurred to children younger than 5 years of age.
- For children less than 15 years old, nonmotorized scooters continued to be the known category of toys associated with the most injuries (27 percent). The upward trend in estimated injuries associated with nonmotorized scooters in the last five years is statistically significant.
- For children less than 15 years old, toys that were not specifically classified contributed to 38 percent of the estimated toy-related emergency department treated injuries.
- Data collection for future analysis is underway to facilitate the characterization and the identification of the associated hazard patterns for toys where the type of toy is not known.

Introduction

This report provides updated summary information on toy-related fatalities for the years 2007 and 2008, while giving detailed information on toy-related fatalities for 2009. These fatality counts are based on reports received by U.S. Consumer Product Safety Commission (CPSC) staff. Also included in this report is the estimated number of emergency department treated injuries for the 2009 calendar year with 2005–2009 injury estimates. In Appendix A, historical estimated emergency department treated injuries are given with their 95 percent confidence interval estimates.

Toy-Related Deaths¹

Fatalities for children less than 15 years of age reported to CPSC staff from 2007 to 2009 are summarized in Table 1 and Table 2. Table 1 summarizes the fatality reports from 2007 to 2009. The reported death totals for each year are listed at the top of the table, with each year's reported deaths detailed by the type of toy (hazard) in the rows below. The data from 2007 and 2008 have been updated with new incident reports received by CPSC staff; thus, they differ from reported fatality tabulations reported in previous memos for those respective years.² Toys that are associated with more than one fatality across these years are listed in the table to highlight the toys (and associated hazard) that have historically posed a greater danger to children. For other types of toys associated with only one fatality across the given years, the information is summarized in the final row of the table.

**Table 1: Reported Toy-Related Deaths Among Children Less Than 15 Years of Age
2007–2009**

Type of Toy (Hazard)	2007 ³	2008 ³	2009
TOTAL	24	24	12
Tricycles (drowning, motor vehicle involvement, fall)	5	4	3
Rubber balls (airway obstruction, aspiration, suffocation, choking)	5	2	
Balloons (airway obstruction, aspiration)	4	1	1
Nonmotorized scooters (motor vehicle involvement)	2	2	1
Nonmotorized riding toys/unspecified riding toys (fall, motor vehicle involvement, drowning)		4	1
Stuffed toys (suffocation)	1	1	1
Powered riding toys (drowning, strangulation, motor vehicle involvement)	1		2
Toy box		1	1
Rubber darts (aspiration)	2		
Balls, other (motor vehicle involvement, blunt force, drowning)		2	
Other toys with a single reported fatality in the year (airway obstruction, drowning, hanging, gastroesophageal hemorrhage, toy pierced eye/brain/throat)	4	7	2

Source: In-Depth Investigations (INDP), Injury and Potential Injury Incidents (IPII), Death Certificates (DTHS), and the National Electronic Injury Surveillance System (NEISS) from 1/1/2007 to 12/31/2009; CPSC. Data was extracted in July 2010.

¹ These fatalities do not represent a sample of known probability of selection. They may not include all of the toy-related deaths that occurred during the time period, in part because at the time of data extraction, death certificate reporting was 85 percent, 70 percent, and 37 percent complete for 2007, 2008, and 2009, respectively.

² R. Chowdhury, "Toy-Related Deaths and Injuries, Calendar Year 2007," CPSC, November 2008.

S. Garland, "Toy-Related Deaths and Injuries, Calendar Year 2008," CPSC, November 2009.

³ Two new toy-related fatalities were reported to CPSC staff occurring in the 2007 calendar year; and five new toy-related fatalities were reported occurring in the 2008 calendar year, increasing the number of reported deaths to 24 in both of these years.

Table 2 details the fatalities associated with toys for children younger than 15 years of age in 2009 that were received by CPSC staff. The toy types and associated hazards involved in these reported fatalities are presented in descending order of the frequency of reports. There are two toys each of which was associated with one death summarized in the last row of Table 1 with “other toys.” There were five other types of toys associated with a single death in 2009; however, because they were associated with other deaths in either 2007 and/or 2008, they are detailed in other rows of Table 1.

**Table 2: Reported Toy-Related Deaths Among Children Less Than 15 Years of Age
2009**

Type of Toy	Deaths
TOTAL	12
Tricycles (drowning)	3
Powered riding toys (drowning)	2
Stuffed toys (suffocation)	1 ⁴
Nonmotorized scooter (motor vehicle involvement)	1
Nonmotorized riding toy, wagon (motor vehicle involvement)	1
Balloon (asphyxia via aspiration)	1
Toy box (mechanical asphyxia)	1
Marbles (asphyxia)	1
Battery from electronic handheld game (gastroesophageal hemorrhage)	1

Source: INDP, IPII, DTHS, and NEISS from 1/1/2009 to 12/31/2009; CPSC. Data was extracted in July 2010.

In 2009, there were 12 reported deaths related to toys. Of the 12 fatalities, 9 victims were females. The age range for the 12 reported deaths is from 4 months to 13 years. The scenario specific details of some of these incidents are detailed below.

Tricycles

There were three fatalities involving tricycles. All victims were females between the ages of two and four. They drowned in separate incidents when they fell into a swimming pool while on their tricycles.

Powered Riding Toys

A four year old girl (passenger) and a three year old boy (driver) drowned when the powered riding toy they were riding plunged into a water filled drainage ditch.

Stuffed Toys⁴

A four month old boy was found facing down in soft bedding and stuffed animals, and died of positional asphyxia.

Nonmotorized Scooters

A 13 year old male died after his scooter slid into the path of a dump truck.

Nonmotorized Riding Toys

A one year old female was killed when the wagon she was on was struck by a sports utility vehicle.

⁴ This fatality is possibly related to stuffed animals. The confirmation is pending the result of an ongoing investigation. The updated information will be provided in the next annual report.

Balloons

A six month old female died of asphyxia from choking due to swallowing a balloon.

Toy Box

A 22 month old girl died of positional asphyxiation after she was trapped at the neck under the lid of a toy box with her sibling sitting on top of the lid.

Marbles

A three year old girl died of asphyxia due to upper airway obstruction after she swallowed two small marbles (1.3 cm) from a children's game.

Battery from Electronic Handheld Game

A two year old female died of gastroesophageal hemorrhage after she ingested a coin shaped battery removed by an adult from an electronic handheld game.

Estimated Toy-Related Injuries⁵

In 2009, there were an estimated 250,100 toy-related injuries treated in U.S. hospital emergency departments. These injuries were related to, but not necessarily caused by, toys. The trend in estimated toy-related injuries for all ages from 2005 to 2009 (202,300 to 250,100) is statistically significant.⁵ The injury estimates across all ages for 2005 to 2009 are given in Table 3. For more historical estimates, refer to the attached Appendix A.

Corresponding assessments of the injury estimates for children less than 15 years of age indicated a similar statistically significant trend in the numbers of estimated injuries for 2005 to 2009. These estimates are presented in Table 3. For more historical estimates and for the 95 percent confidence intervals for estimates regarding children less than 15 years of age, see Appendix A.

**Table 3: Toy-Related Emergency Department Treated Injury Estimates
2005–2009**

Calendar Year	Estimated Injuries		
	All Ages	Less Than 15	Less Than 5
2005	202,300	152,400	72,800
2006	220,500	165,100	78,400
2007	232,900	170,100	80,200
2008	235,300	172,700	82,300
2009	250,100	185,900	90,600
2005–2009 Annual Average	228,200	169,200	80,900

Source: NEISS, CPSC. Estimates rounded to the nearest 100.

⁵ The source of these data is the U.S. Consumer Product Commission's National Electronic Injury Surveillance System (NEISS), which is based on a statistical sample of hospital emergency department treated injuries.

⁶ Throughout this report, a change (increase/trend/etc.) in estimated injuries over the given years is declared statistically significant where the p-value for the statistic that tests for trend is less than 0.05.

Of the 250,100 estimated emergency department treated injuries related to toys in 2009, 74 percent (185,900) were to children less than 15 years of age, and 36 percent (90,600) were to children less than five. Males accounted for 58 percent (144,700) of the treated injuries. Most of the victims (96 percent) were treated and released from the hospital.

Forty-five percent of the estimated 250,100 emergency department treated injuries in 2009 (113,200), occurred to the head and face area (head, face, eye, mouth, and ear). The arm, from the shoulder to finger, accounted for 23 percent of the injuries (56,400). The leg (upper leg, lower leg, knee, ankle, foot, and toes) accounted for 18 percent (46,100). The remaining 14 percent of injuries were to other parts of the body not reported above. The individual body parts with the most estimated injuries overall were the face (48,800) and the head (34,500).

In 2009, 27 percent of estimated emergency department treated injuries were diagnosed as lacerations, while an estimated 19 percent were diagnosed as contusions/abrasions. Fractures represented an estimated 13 percent of injuries, while strains/sprains represented 12 percent. The remaining 29 percent of estimated injuries were spread across several other diagnoses, such as foreign body, internal injury, ingestion, dislocation, concussion, and puncture injuries, among others.

In 2009, riding toys, including nonmotorized scooters, continued to be associated with more emergency department treated injuries among all ages (83,400 or 33 percent) than any other category of toy. Nonmotorized scooters were associated with 59,400 (71 percent) of the estimated riding toy-related injuries. The toy category with the next largest estimated number of injuries (9,900 or 4 percent) was flying toys.

Table 4 displays the emergency department treated toy-related injury estimates among children less than 15 years of age during 2005–2009. Along with estimated injuries, the percentage of estimated injuries associated with nonmotorized scooters (the single toy associated with the most injuries) is also presented. There is a statistically significant trend in the estimated numbers of injuries associated with nonmotorized scooters between 2005 and 2009 in this age group.

In addition to the estimated number of injuries and the percentage associated with nonmotorized scooters for those less than 15 years of age, Table 4 shows the percentage of estimated injuries associated with the product category titled “Toys, Not Elsewhere Classified.” There was no evidence of a significant trend from 2005 to 2009 in the total estimated injuries in the “Toys, Not Elsewhere Classified” category. See Appendix B for historical estimates for this age group, as well as for all ages involving this category.

**Table 4: Toy-Related Emergency Department Treated Injury Estimates
for Children Less Than 15 Years of Age
2005–2009**

Calendar Year	Estimated Injuries Among Children < 15 Years of Age	Estimated Injuries (%) Associated with Nonmotorized Scooters	Estimated Injuries (%) with “Toys, Not Elsewhere Classified”
2005	152,400	33,300 (22%)	70,700 (46%)
2006	165,100	37,600 (23%)	75,600 (46%)
2007	170,100	41,900 (25%)	75,100 (44%)
2008	172,700	42,900 (25%)	75,000 (43%)
2009	185,900	49,500 (27%)	71,300 (38%)

Source: NEISS, CPSC. Estimates rounded to the nearest 100.

Many toys that cannot be placed under already established toy product codes are likely to be coded under the category titled “Toys, Not Elsewhere Classified.” CPSC staff conducted a special study in 2008, to assess the toys that were put into this category. This study and analysis on a sample of 2009 NEISS data revealed that about 50 percent of the toys that are placed in this category could be classified through existing product codes, the reinstatement of a few discontinued product codes, or the creation of a few new product codes. The remaining 50 percent of the toy products lack any type of specificity. Also, several product codes were determined to be obsolete. As a result, several codes have been created, while some were removed, and others were reinstated; and data collection is under way for 2010. Future analysis will facilitate the characterization of toys that have unknown classifications and the associated hazard patterns.

In 2009, toy balls were separated from the category “Toys, Not Elsewhere Classified” and given a new product code. The estimated injuries associated with toy balls during 2009 were 10,300 and 7,400 for all ages and children younger than 15 years of age, respectively. This reclassification is associated with the decrease in the number of estimated injuries associated with the “Toys, Not Elsewhere Classified” category in 2009 in Table 4.

Appendix A

Estimated Number of Injuries from 1994 to 2009

The emergency department treated injury estimates associated with toys since 1994 are presented in Table 5, as well as in Figure 1. Statistically significant upward trends are observed in the data for all ages from 1994 to 2009. In this same period, the estimated numbers of injuries associated with toys for children less than 15 years of age have also increased; however, there is not a statistically significant trend.

Table 5 and Figure 1 show large increases in the estimated number of injuries from 1999 to 2000 and from 2000 to 2001. These increases are attributed primarily to rises in injuries associated with nonmotorized scooters (from 3,300 injuries in 1999, to 42,500 and 99,800 injuries in 2000 and 2001, respectively, for all ages).^{7,8} During the most recent five years, 2005 to 2009, there has been a statistically significant increase in the estimated number of injuries related to nonmotorized scooters for all ages. A similar significant upward trend is also detected for children less than 15 years of age in the same period (see Table 4). From 1999 to 2000, and from 2000 to 2001, the increase in estimated toy-related injuries for this age group is associated with the rise in estimated nonmotorized scooter injuries (from 2,700 in 1999, to 36,200 in 2000, and to 85,900 in 2001 for children younger than 15 years of age).⁹ In 2009, 55 percent of the increase in the estimated number of injuries associated with toys was due to the rise in the injuries related to nonmotorized scooters for all ages, and that number is 50 percent for children younger than 15 years of age.

Table 5: Toy-Related Emergency Department Treated Injury Estimates for All Ages and Children Less Than 15 Years of Age 1994–2009

Calendar Year*	Estimated Injuries: All Ages	95 % Confidence Interval: All Ages	Estimated Injuries: < 15 Years of Age	95 % Confidence Interval: < 15 Years of Age
1994	152,700	123,600 – 181,900	122,600	97,600 – 147,700
1995	138,700	111,200 – 166,200	110,900	87,300 – 134,500
1996	130,000	104,700 – 155,300	102,200	81,000 – 123,500
1997	141,300	125,100 – 157,600	108,600	94,900 – 122,300
1998	153,400	134,400 – 172,500	121,600	106,000 – 137,200
1999	152,600	133,400 – 170,800	118,300	103,000 – 133,700
2000	191,000	161,500 – 220,500	150,800	125,100 – 176,600
2001	255,100	221,100 – 289,100	202,500	171,700 – 233,300
2002	212,400	182,800 – 242,100	165,200	139,600 – 190,800
2003	206,700	177,500 – 235,900	155,400	132,000 – 178,900
2004	210,300	179,800 – 240,700	161,100	135,900 – 186,200
2005	202,300	175,100 – 229,500	152,400	129,700 – 175,100
2006	220,500	190,300 – 250,800	165,100	139,900 – 190,200
2007	232,900	200,000 – 265,700	170,100	144,600 – 195,700
2008	235,300	202,400 – 268,200	172,700	146,800 – 198,600
2009	250,100	214,100 – 286,000	185,900	156,600 – 215,100

Source: NEISS, CPSC. Estimates rounded to the nearest 100.

*Tabulated estimates with confidence intervals for 1994 – 2009 were produced in July 2010.

Estimates for 1998, 1999, and 2003 vary slightly from what was reported previously, due to rounding differences.

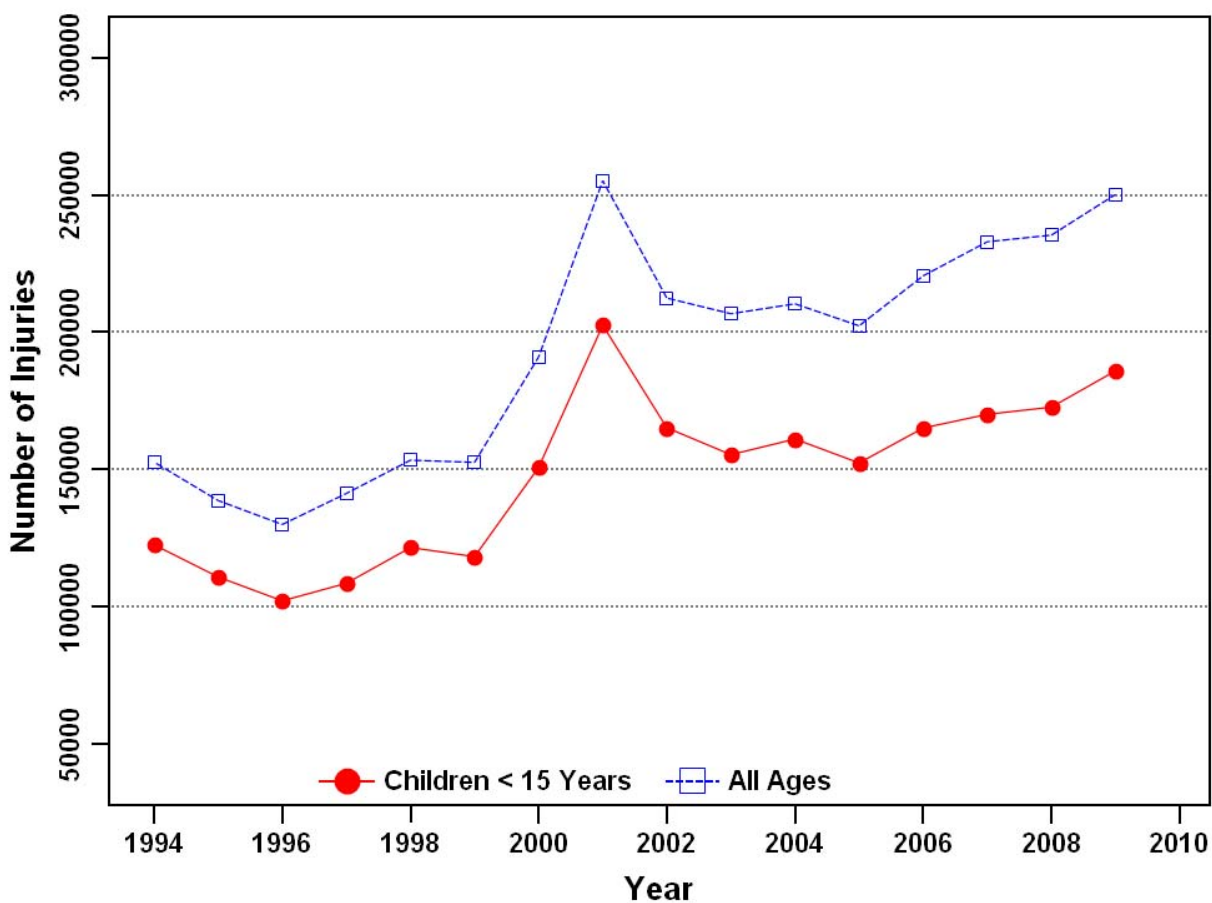
CVs: The CVs for the estimated injuries range from 0.05 to 0.10 for all ages and from 0.06 to 0.11 for children under 15 years.

⁷ J. McDonald, “Toy-Related Deaths and Injuries, Calendar Year 2000,” CPSC, November 2001.

⁸ J. McDonald, “Toy-Related Deaths and Injuries, Calendar Year 2001,” CPSC, October 2002.

⁹ S. Garland, “Toy-Related Deaths and Injuries, Calendar Year 2008,” CPSC, November 2009.

Figure 1: Toy-Related Emergency Department Treated Injury Estimates for All Ages and Children Less Than 15 Years of Age 1994–2009



Appendix B

Estimated Number of Injuries for the “Toys, Not Elsewhere Classified” Category from 2002 to 2009

Table 6 summarizes the estimated number of emergency department treated injuries associated with the “Toys, Not Elsewhere Classified” category of toys for children less than 15 years of age, as well as for all ages. As previously noted, many toys that cannot be placed under already established toy product codes are likely to be coded under the category titled “Toys, Not Elsewhere Classified.” Table 4 presents the estimated number of injuries associated with “Toys, Not Elsewhere Classified” for children less than 15 years of age from 2005 to 2009. Table 6 presents historical estimated numbers of injuries (2002 to 2009) for the “Toys, Not Elsewhere Classified” category for children less than 15 years of age, as well as for all ages.

Prior to 2002, the estimated number of injuries associated with the “Toys, Not Elsewhere Classified” category fluctuated. When looking at the estimated number of emergency department treated injuries associated with “Toys, Not Elsewhere Classified” from 2002 to 2008, for children less than 15 years of age, the estimated numbers of injuries increased from 2002 to 2006, and decreased slightly from 2006 to 2008. For all ages, the estimated number of injuries associated with this category of toys increased from 2002 to 2008.¹⁰ For 2009, the estimated emergency department treated injuries related to the “Toys, Not Elsewhere Classified” appear to decrease for both children younger than 15 years of age and all ages in Table 6. However, as stated earlier, the declines observed are associated with removing toy balls from this category.

The statistical tests detected no significant change in the estimated emergency department treated injuries associated with the “Toys, Not Elsewhere Classified” category for children less than 15 years of age and for all ages from 2005 to 2009.¹¹ That is, there is insufficient evidence to declare a trend in emergency department treated injuries associated with the “Toys, Not Elsewhere Classified” category from 2005 to 2009, for either children younger than 15 years of age or for all individuals.

**Table 6: Toy-Related Emergency Department Treated Injury Estimates for
“Toys, Not Elsewhere Classified”
2002–2009**

Calendar Year	Estimated Injuries with “Toys, Not Elsewhere Classified” (< 15 Years of Age)	Estimated Injuries with “Toys, Not Elsewhere Classified” (All Ages)
2002	58,900	79,700
2003	61,000	84,300
2004	67,000	90,500
2005	70,700	94,500
2006	75,600	103,600
2007	75,100	106,600
2008	75,000	106,700
2009	71,300	101,400

¹⁰ S. Garland, “Toy-Related Deaths and Injuries, Calendar Year 2008,” CPSC, November 2009.

¹¹ Toy balls were put back into the category “Toys, Not Elsewhere Classified” for 2009, to make the data comparable to those in that category from 2005 to 2008, while performing the trend tests.

As previously mentioned, after studying the product codes and the 2009 data, CPSC staff has added, deleted, and reinstated several product codes associated with toys beginning in 2010. As a result, it is expected that the “Toys, Not Elsewhere Classified” category will change substantially in future reports.