



Toy-Related Deaths and Injuries Calendar Year 2008

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Executive Summary

In this report, the 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 19 reports of toy-related deaths that occurred in 2008 among children less than 15 years old.
- Riding toys were associated with the most deaths: 4 deaths associated with tricycles and 4 associated with non-motorized 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 2008, there were an estimated 235,300 toy-related injuries treated in U.S. hospital emergency departments. The annual average of estimated toy-related injuries from 2006 to 2008 is 229,600.
- A statistically significant increasing trend in the estimated numbers of toy-related injuries for all ages is detected for 2004 – 2008. A statistically significant trend is not detected for children less than 15 years of age in the corresponding timeframe.
- Most (47%) 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.
- Of the 235,300 estimated emergency department treated toy-related injuries, an estimated 172,700 (or 73%) occurred to children less than 15 years of age, while an estimated 82,300 (35%) were to children younger than 5 years of age.
- Considering children less than 15 years old, non-motorized scooters continued to be the known category of toys associated with the most injuries (25%). The trend in estimated injuries associated with non-motorized scooters in the last three years is not statistically significant.
- Considering children less than 15 years old, toys that were not specifically classified contributed to 43% of the estimated toy-related emergency department treated injuries.
- Data collection for future analysis is underway to facilitate the characterization of toys that are not classified and the identification of the associated hazard patterns.

Introduction

This report provides updated summary information on toy-related fatalities for the years 2006 and 2007, while giving detailed information on toy-related fatalities for 2008. These fatality counts are based on reports received by the U.S. Consumer Product Safety Commission (CPSC) staff. Also included in this report are the estimated number of emergency department treated injuries for the 2008 calendar year with 2004 – 2007 injury estimates. In Appendix A, historical estimated emergency department treated injuries are given with their 95% confidence intervals.

Toy-Related Deaths¹

Fatalities for children less than 15 years of age reported to the CPSC staff from 2006 to 2008 are summarized in Table 1 and Table 2. Table 1 summarizes the fatality reports from 2006 to 2008. 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 2006 and 2007 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 in at least one year are listed in the table so as 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 in any year (or 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
2006 - 2008**

Type of Toy (Hazard)	2006 ³	2007 ³	2008
TOTAL	28	22	19
Tricycles (drowning, motor vehicle involvement, fall)	5	5	4
Rubber balls (airway obstruction, aspiration, suffocation, choking)	4	4	1
Balloons (airway obstruction, aspiration)	3	4	1
Non-motorized scooters (motor vehicle involvement)	3	2	1
Powered riding toys: (drowning, strangulation, motor vehicle involvement)	3	1	
Non-motorized riding toys/unspecified riding toys (fall, motor vehicle involvement, drowning)			4
Toy nails/pegs (airway obstruction, aspiration)	3		
Rubber darts (aspiration)	1	2	
Stuffed toys (suffocation)	2	1	
Balls, other (motor vehicle involvement, blunt force, drowning)	2		2
Other toys with a single reported fatality in the year (airway obstruction, drowning, hanging, toy pierced eye/brain)	2	3	6

Source: In-Depth Investigations (INDP), Injury and Potential Injury Incidents (IPII), Death Certificates (DTHS), and the National Electronic Injury Surveillance System (NEISS) from 1/1/2006 to 12/31/2008; CPSC. Data was extracted July 2009.

¹ These fatalities do not represent a sample of known probability of selection. They may not include all the toy-related deaths that occurred during the time period, in part because at the time of data extraction death certificate reporting was 98%, 73%, and 32% complete for 2006, 2007, and 2008, respectively.

² R. Chowdhury, "Toy-Related Deaths and Injuries, Calendar Year 2006", CPSC, December 2007.

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

³ One new toy-related fatality was reported to CPSC staff occurring in the 2006 calendar year, and four new toy-related fatalities were reported occurring in the 2007 calendar year, increasing the number of reported deaths in these years to 28 and 22, respectively.

Table 2 details the fatalities associated with toys for children less than 15 years of age in 2008 that were received by CPCS staff. The toy types and associated hazards involved in these reported fatalities are presented in descending order of the frequency of reports. There are six toys each of which was associated with one death summarized in the last row of Table 1 with "other toys". There were three other types of toys associated with a single death in 2008; however, since they were associated with other deaths in either 2006 and/or 2007, they are detailed in other rows of Table 1.

**Table 2: Reported Toy-Related Deaths Among Children Less Than 15 Years of Age
2008**

Type of Toy	Deaths
TOTAL	19
Tricycles (2 motor vehicle involvement, 2 drowning)	4
Non-motorized riding toys/unspecified riding toys: Non-motorized 4-wheeled riding toy (1 fall), wagon (1 motor vehicle involvement), unspecified riding toy (1 drowning, 1 motor vehicle involvement)	4
Balls, other (1 motor vehicle involvement, 1 drowning)	2
Rubber balls (choking)	1
Balloons (airway obstruction)	1
Non-motorized scooters (motor vehicle involvement)	1
Unspecified toy caught in bathtub drain (drowning)	1
Flying disks (drowning)	1
Launching disk toys (choking)	1
Toy box (asphyxiation)	1
Foam blocks (drowning)	1
Bow and arrow toys (arrow pierced eye/brain)	1

Source: INDP, IPII, DTHS, and NEISS from 1/1/2008 to 12/31/2008; CPSC. Data was extracted in July 2009.

In 2008, there were 19 reported deaths related to toys. Of those 19, 16 victims were males. The age range for the 19 reported deaths is from eight months to nine years. The scenario specific details of some of these incidents are detailed below.

Tricycles

There were four fatalities involving tricycles. Two children, one six year old female and one two year old male, died in separate incidents as a result of a motor vehicle hitting them while on their tricycles. Two males, one aged 23 months and one two year old, drowned in separate incidents when they fell into a swimming pool while on their tricycles.

Non-motorized riding toys/unspecified riding toys

Four children died while playing with riding toys. One three year old male drowned after riding his unclassified riding toy into a pond. The second fatality was a two year old male who fell on a four-wheeled non-motorized riding toy at his daycare while trying to stand on the seat. He sustained a liver laceration and died of internal bleeding. The third fatality in this category was a five year old female who lost control of a wagon she was riding. It rolled out onto the highway, where she was hit by a motor vehicle. The fourth fatality reported was a two year old male. While riding his unclassified toy motorcycle, he was struck by a motor vehicle.

Balls, other

Two fatalities, one four year old male and one ten month old male, involved balls. The four year old male ran out in the street chasing a ball and was struck by a motor vehicle. The second fatality occurred when a ball blocked the drain of a bathtub while the shower was running, allowing the water to fill the bathtub. A ten month old male drowned as the water filled the bathtub.

Rubber balls

A five year old male choked on a rubber ball during the night after taking the ball with him to bed.

Balloons

An eight month old female died as a result of airway obstruction due to swallowing a balloon.

Non-motorized scooters

A nine year old male died after being hit by a motor vehicle while on his scooter.

Unspecified toy in bathtub drain

A twelve month old male drowned while in the bathtub after the drain plug was pulled. An unspecified toy blocked the drain and prevented the water from draining.

Flying disk toy

A two year old male drowned while trying to retrieve a flying disk from a wading pool.

Launching disk toy

A six year old male died from choking on a dime-sized suction cup that became detached from the toy.

Toy box

A 21 month old male died of positional asphyxiation after he was caught between the lid and the box of a toy box that was part of a boat bed.

Foam blocks

A three year old male drowned trying to retrieve a foam block that had fallen into a swimming pool.

Bow and arrow toy

A five year old male died after he tripped while playing with a bow and arrow toy set. The arrow pierced his eye and became lodged in his brain.

Estimated Toy-Related Injuries⁴

In 2008, there were an estimated 235,300 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 2004 to 2008 (210,300 to 235,300) is statistically significant.⁵ However, the estimated numbers of injuries for 2007 and 2008 are not statistically different. The injury estimates across all ages for 2004 to 2008 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 no significant trend in the numbers of estimated injuries for 2004 – 2008; these estimates are presented in Table 3. For more historical estimates and for the 95% confidence intervals for estimates regarding children less than 15 years of age, see Appendix A.

⁴ The source of these data is the U.S. Consumer Product Safety Commission's National Electronic Injury Surveillance System (NEISS), which is based on a statistical sample of hospital emergency department treated injuries.

⁵ Throughout this report, a change (increase/trend/etc.) in estimated injuries over the given years is declared statistically significant when the p-value for the statistic that tests for trend is less than 0.05.

**Table 3: Toy-Related Emergency Department Treated Injury Estimates
2004 - 2008**

Calendar Year	Estimated Injuries		
	All Ages	Less Than 15	Less Than 5
2004	210,300	161,100	72,800
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
2006-2008 Annual Average	229,600	169,300	80,300

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

Of the 235,300 estimated emergency department treated injuries related to toys in 2008, 73% (172,700) were to children less than 15 years of age and 35% (82,300) were to children less than five. Most of the victims (96%) were treated and released from the hospital.

Forty-five percent of the estimated 235,300 emergency department treated injuries in 2008 (105,900) occurred to the head and face area (head, face, eye, mouth, and ear). The arm, from the shoulder to finger, accounted for 24% of the injuries (55,500). The leg (upper leg, lower leg, knee, ankle, foot, and toes) accounted for 18% (42,200). The remaining 13% 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 (48,300) and the head (28,400).

In 2008, 27% of estimated emergency department injuries were diagnosed as lacerations, while an estimated 20% were diagnosed as contusions/abrasions. Fractures represented an estimated 13% of injuries, while strains/sprains represented 12%. The remaining 28% of estimated injuries were spread across several other diagnoses, such as foreign body, internal injury, ingestion, dislocation, concussion, and puncture injuries, among others.

In 2008, riding toys, including non-motorized scooters, continued to be associated with more emergency department treated injuries among all ages (61,700 or 26%) than any other category of toy. Non-motorized scooters were associated with 51,200 (83%) of the estimated riding toy-related injuries. The toy category with the next largest estimated number of injuries (9,600 or 4%) was flying toys.

Table 4 displays the emergency department treated toy-related injury estimates among children less than 15 years of age during 2004 – 2008. Along with estimated injuries, the percentage of estimated injuries associated with non-motorized scooters (the single toy associated with the most injuries) is also presented. No statistically significant trend is detected in the estimated numbers of injuries associated with non-motorized scooters between 2004 and 2008 in this age group.

In addition to the estimated number of injuries and the percentage associated with non-motorized 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 2004 to 2008 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**

2004 - 2008

Calendar Year	Estimated Injuries Among Children Less Than 15 Years	Estimated Injuries (%) Associated with Non-Motorized Scooters	Estimated Injuries (%) with "Toys, Not Elsewhere Classified"
2004	161,100	43,100 (27%)	67,000 (42%)
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%)

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 has begun a data collection effort to gain further insight into the toys that are currently in this category. Analysis on a sample of 2006 and 2007 NEISS data revealed that about 50% of the toys that are placed in this category could be classified through existing product codes, the re-instatement of a few discontinued product codes, or the creation of a few new product codes. The remaining 50% of the toy products lack any type of specificity. A continuing study of this category of toys for 2009 incidents is revealing similar results. Future analysis will facilitate the characterization of these specific toys and the associated hazard patterns.

Appendix A

Estimated Number of Injuries from 1994 to 2008

The emergency department treated injury estimates associated with toys since 1994 are presented in Table 5, as well as in Figures 1 and 2. Statistically significant upward trends are observed in the data for all ages from 1994 to 2008. 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. As previously noted, a significant trend is detected from 2004 – 2008 for all ages, but not for children less than 15 years of age.

Table 5 shows a large increase in the estimated number of injuries from 1999 to 2000. This increase is attributed primarily to a rise in injuries associated with non-motorized scooters (from 3,300 injuries in 1999 to 42,500 injuries in 2000 for all ages)⁶. Similarly, the increase in overall estimated injuries from 2000 to 2001 is directly correlated to an increase in injuries associated with non-motorized scooters (from 42,500 in 2000 to 99,800 in 2001 for all ages)⁷. During the most recent five years, 2004 to 2008, there has been a statistically significant increase in the estimated number of injuries related to non-motorized scooters for all ages. Similar increases can be seen for children less than 15 years of age. 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 non-motorized scooter injuries (from 2,710 in 1999 to 36,249 in 2000 and to 85,919 in 2001 for children less than 15 years of age). However, as previously noted, for children less than 15 years of age, there has not been a statistically significant increase in estimated injuries associated with non-motorized scooters from 2004 to 2008.

**Table 5: Toy-Related Emergency Department Treated Injury Estimates for All Ages and Children Less Than 15 Years of Age
1994 - 2008**

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	121,700	106,000 – 137,300
1999	152,600	133,400 – 171,900	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	177,600 – 235,800	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

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

*Tabulated estimates with confidence intervals for 1994 - 2008 were produced in July 2009.

An estimate for 2002 is slightly lower than previously reported, and estimates for 1998, 1999, 2002, and 2003 are slightly higher than previously reported 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.

⁶ J. McDonald, "Toy-Related Deaths and Injuries, Calendar Year 2000", CPSC, November 2001.

⁷ J. McDonald, "Toy-Related Deaths and Injuries, Calendar Year 2001", CPSC, October 2002.

Toy-Related Emergency Department Injury Estimates 1994-2008 (All Ages)

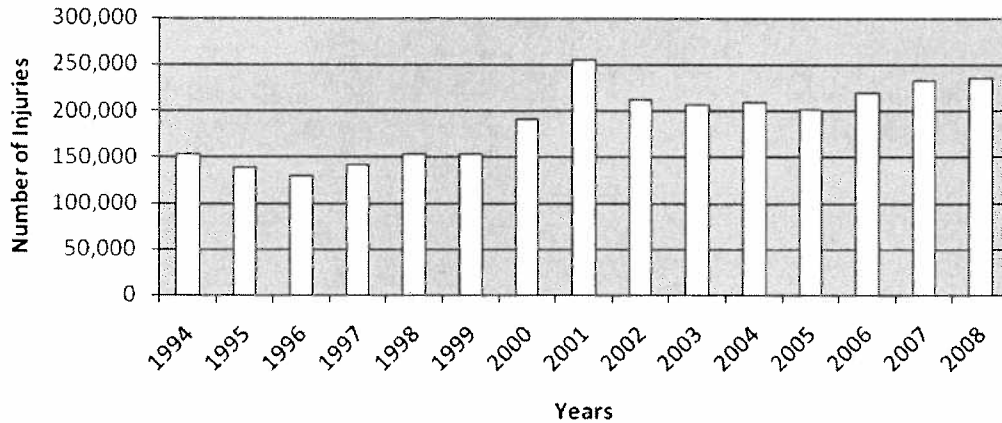


Figure 1: Toy-Related Emergency Department Treated Injury Estimates for All Ages, 1994 - 2008

Figure 1 presents the toy-related emergency department treated injury estimates for all ages. Figure 2 shows a subset of those estimated toy-related injuries, displaying the estimates for children less than 15 years of age. The trend in Figure 1 for all ages is statistically significant. However, there is no statistical trend in emergency department treated injuries associated with toys for children younger than 15 years of age (Figure 2).

Toy-Related Emergency Department Injury Estimates 1994-2008 (Children < 15 Years)

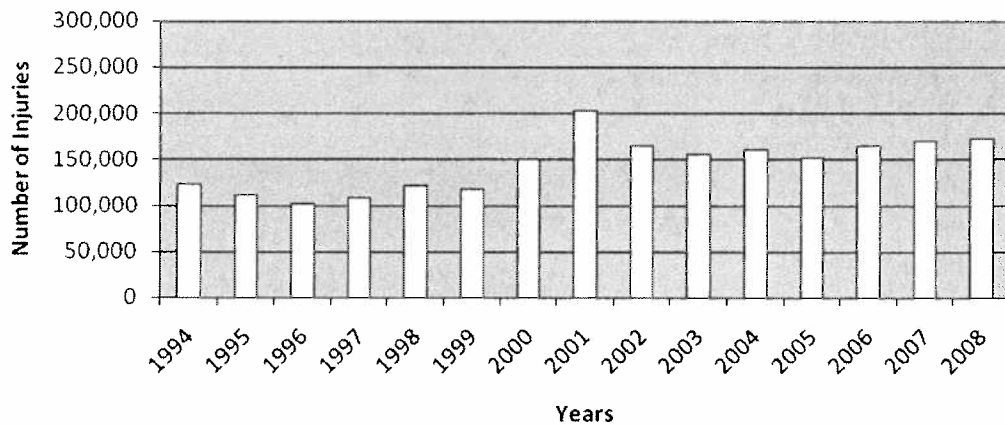


Figure 2: Toy-Related Emergency Department Treated Injury Estimates for Children Less Than 15 Years of Age, 1994 - 2008

Appendix B

Estimated Number of Injuries for the “Toys, Not Elsewhere Classified” Category from 2002 to 2008

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 2004 to 2008. Table 6 presents historical estimated numbers of injuries (2002 to 2008) for the “Toys, Not Elsewhere Classified” category for children less than 15 years of age and 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 increase from 2002 to 2006 and decrease slightly from 2006 to 2008. The overall increasing trend from 2002 to 2008 is statistically significant for children less than 15 years of age. Since 2002, the estimated numbers of injuries for this category of toys have increased for all ages. In 2002, the estimated number of toy-related injuries for all ages in this category was 79,700, while in 2008 it was 106,700. The increasing trend detected from 2002 to 2008 is statistically significant.

While the estimated emergency department treated injuries associated with the “Toys, Not Elsewhere Classified” category display a statistically significant trend for children less than 15 years of age and for all ages from 2002 through 2008, the same is not true for the five year period from 2004 to 2008. That is, there is insufficient evidence to declare a trend in emergency department treated injuries associated with the “Toys, Not Elsewhere Classified” category from 2004 to 2008 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 - 2008**

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