



Not-in-Traffic Surveillance—Non-Crash Injuries

This issue of Crash•Stats focuses on updated information in the National Highway Traffic Safety Administration's Not-in-Traffic Surveillance (NiTS) system regarding injuries involving passenger vehicles that occur in non-crash incidents. As part of the NiTS system, NHTSA has joined with the Consumer Product Safety Commission (CPSC) to collect information on non-crash injuries involving passenger vehicles that are reported to emergency departments. From 2008 to 2010, there was an estimated annual average of 607,000 non-crash injuries involving passenger vehicles seen in emergency departments. The three most common injury patterns were injuries from closing vehicle doors such as doors closed on fingers or hands (22% of all injuries), falls while entering or exiting vehicles (13%), and overexertion such as when unloading cargo from trunks or the backs of pickups (10%). An estimated 95 percent of the patients were treated and released, and an estimated 57 percent of all injuries occurred at home. An estimated 92,000 non-crash injuries involving passenger vehicles, or about 15 percent of the total, affected children 14 and younger. The three most common injury patterns for children were injuries from closing doors (53%), falls while entering or exiting vehicles (9%), and falls from the exteriors of vehicles (8%). An estimated 69 percent of the injuries involving children occurred at home.

Background

NiTS is a virtual data collection system designed to provide counts and details of fatalities and injuries that occur in non-traffic crashes and in non-crash incidents. NHTSA published its first report on the NiTS system in January 2009 (Report No. DOT HS 811 085) and later published a special report on children in June 2009 (Report No. DOT HS 811 116). This issue of Crash•Stats updates the non-crash injury sections of the two previous reports. To collect information on non-crash injuries involving passenger vehicles, NHTSA joined with CPSC to conduct a special study of emergency department records contained in the National Electronic Injury Surveillance System All Injury Program (NEISS-AIP).

Since January 1, 2008, all NEISS-AIP motor vehicle and car-seat-related injuries have been reviewed by trained coders at the approximately 60 sampled hospitals to identify passenger-vehicle-related non-crash cases for inclusion in the NHTSA special study. Injuries resulting from crashes or related to car seats outside of motor vehicles were excluded by use of a screening question asking, "Was the victim injured in a collision/rollover or in a car seat away from a vehicle?"

NEISS-AIP collects information about emergency department visits from a national probability sample of hospitals and provides sample weights for calculating national estimates. In the three years 2008 to 2010, the special study identified 25,629 non-crash incidents involving passenger vehicles. Based on this statistical sample, there are an estimated 607,000 injuries per year. The estimated number of injuries reflects only injuries that were serious enough to warrant trips to emergency departments, and it is not a complete count of all injuries since it does not capture injuries treated in doctors' offices or ones that do not require professional medical care. NEISS-AIP is based exclusively on emergency department records and does not provide information about outcomes after the patients leave the emergency departments. Fatalities where the patients were either dead on arrival or died in the emergency departments were excluded from the count of injuries.

Injuries in Non-Crash Incidents

Table 1 contains all specific injury mechanisms with an estimate of at least 1,000 emergency department visits per year. (All other injuries are captured in the category labeled "Other or Unknown.") These specific injury patterns account for 95 percent of the non-crash injuries with the remaining 5 percent occurring in other or unspecified situations. Striking a vehicle or being struck by a vehicle part accounted for an estimated one-third of all the non-crash injuries seen in emergency departments. Striking a vehicle includes people who struck or hit vehicles with their hands or fists, people who kicked

vehicles, and people who ran into stationary vehicles while running, skating or sledding, etc. Being struck by a vehicle part includes being struck by a closing or opening door, a hood, a trunk lid, a tailgate or a closing window, or struck by a vehicle part while repairing a vehicle. In fact, the most common non-crash injury scenario was an injury from a closing vehicle door on a finger, hand, or other body part, which accounted for an estimate of

136,000 injuries per year or 22 percent of the non-crash injuries. Entering or exiting vehicles accounted for about 24 percent of the non-crash injuries. This injury mechanism occurred in three main scenarios: a fall, striking a door or door frame, and other situations such as a sprain or strain while exiting a vehicle. Falls while entering or exiting vehicles were the second most common injury pattern, accounting for 77,000 injuries per year or about

Table 1: Annual Estimate of Non-Crash Injuries by Incident Type

Incident Type	Estimated Subtotal	Estimated Total
Struck by Vehicle Part or Struck Vehicle		199,000
<i>Injured by Closing Door</i>	136,000	
<i>Struck by Trunk Lid</i>	8,000	
<i>Struck by Hood</i>	5,000	
<i>Injured by Closing Window</i>	2,000	
<i>Struck by Other Vehicle Part or Struck Vehicle (i.e., hitting or kicking vehicle)</i>	49,000	
Entering or Exiting Vehicle		145,000
<i>Fall</i>	77,000	
<i>Door Injury</i>	31,000	
<i>Other Injury (i.e., sprain or strain)</i>	38,000	
Overexertion	59,000	59,000
Fall Other Than Entering or Exiting		59,000
<i>Fall From Exterior of Vehicle</i>	33,000	
<i>Fall Against Exterior of Vehicle</i>	23,000	
<i>Fall Inside Vehicle</i>	4,000	
Cut by Part of Vehicle	56,000	56,000
Foreign Body		16,000
<i>While Working on Vehicle (i.e., sanding vehicle or working under vehicle)</i>	13,000	
<i>While Driving Vehicle (i.e., object coming through open window)</i>	1,000	
<i>Other Injury</i>	2,000	
Fire or Burn		13,000
<i>Radiator/Antifreeze Burn</i>	6,000	
<i>Vehicle Fire Incident</i>	2,000	
<i>Muffler/Exhaust Pipe Burn</i>	1,000	
<i>Battery Acid Burn</i>	1,000	
<i>Other Heat-Related Burn</i>	2,000	
<i>Other Chemical Burn</i>	1,000	
Hoist/Jack Incident		11,000
<i>While Changing Tire</i>	2,000	
<i>Other Injury</i>	9,000	
Tire Incident (i.e., lacerations while changing tires or tire explosions while inflating)	7,000	7,000
Struck by Other Object (usually cargo)	5,000	5,000
Wheelchair Incident (i.e., fall from wheelchair while entering or exiting vehicle)	4,000	4,000
Poisoning		3,000
<i>Carbon Monoxide From Vehicle Exhaust</i>	2,000	
<i>Other Injury</i>	1,000	
Heat Exhaustion	1,000	1,000
Other or Unknown (i.e., unspecified injury while repairing vehicle)	27,000	27,000
Total	607,000	607,000

Source: National Electronic Injury Surveillance System All Injury Program, 2008–2010

Note: The sum of the row entries may not equal the row total due to independent rounding.

13 percent of all non-crash injuries. Overexertion was the third most common injury scenario, accounting for an estimated 59,000 injuries per year or 10 percent of the non-crash injuries. These often occurred while unloading cargo from the backs of pickups or trunks or while pushing disabled vehicles. Falls that occur other than while entering or exiting vehicles accounted for an estimated 10 percent of the non-crash injuries. This injury mechanism included falls from the exteriors of vehicles such as from tailgates or trunk lids and falls against the exteriors of vehicles such as when slipping on ice or while washing vehicles. Radiator and antifreeze burns accounted for an estimated 6,000 non-crash injuries per year and often occurred while removing hot radiator caps or while repairing vehicles. Heat exhaustion accounted for an estimated 1,000 non-crash injuries per year and included both people inside hot vehicles and heat-related injuries while repairing vehicles.

Injury severity in NEISS-AIP is measured by the disposition of the case. For an estimated 95 percent of the non-crash injuries, the patients were treated and released. For an estimated 4 percent, the patients were admitted to hospitals or transferred to other hospitals. In these more serious injuries involving hospitalization, the most common injury pattern was a fall while entering or exiting a vehicle (39%) and a fall from the exterior of a vehicle (12%). The remaining 1 percent left without being treated. A general incident locale is known in about 55 percent of the cases. When the location is known, an estimated 59 percent occurred at home (house, townhouse, apartment, etc.). Two other common locations were streets and highways (17%) and other public property such as parking lots and businesses (19%).

Injuries to Children in Non-crash Incidents

The special study identified 5,569 non-crash incidents involving children 14 and younger. Based on this statistical sample, there are an estimated 92,000 injuries per year involving children. Table 2 contains the annual estimates of injuries to children by injury pattern. Children injured by closing doors accounted for over half (53%) of the non-crash injuries. A fall while entering or exiting a vehicle was the second most common injury scenario for children with an estimated 8,000 injuries per year. The third most common injury scenario involving children was a fall from the exterior of a vehicle usually while playing on the outside of a vehicle or a fall from a tailgate or the bed of a pickup, which accounted for an estimated 7,000 injuries per year. Other common injury scenarios involving children included a cut from a part

of a vehicle, usually involving a bumper or license plate, and striking a vehicle (such as kicking a tire or striking a stationary vehicle while playing) or being struck by a vehicle part being opened (such as a tailgate or door).

Heat exhaustion involving children in vehicles is a particular area of interest for NHTSA. From 2008 to 2010, the special study identified 16 cases of heat exhaustion involving children in vehicles. In one case, the child was riding in a hot car with the mother. In six cases, the children were accidentally locked in the vehicles with the keys inside. In the remaining nine cases, the children were found alone in the vehicles or were left in the vehicles. In all cases, the patients were treated and released.

Table 2: Annual Estimate of Non-Crash Injuries to Children by Incident Type

Incident Type	Estimated Subtotal	Estimated Total
Struck Vehicle or Struck by Vehicle Part		56,000
<i>Injured by Closing Door</i>	49,000	
<i>Struck by Trunk Lid</i>	1,000	
<i>Struck by Hood</i>	<500	
<i>Injured by Closing Window</i>	1,000	
<i>Struck Vehicle or Struck by Other Vehicle Part</i>	5,000	
Entering or Exiting Vehicle		14,000
<i>Fall</i>	8,000	
<i>Door Injury</i>	4,000	
<i>Other Injury (such as sprain or strain)</i>	1,000	
Fall Other Than Entering or Exiting		11,000
<i>Fall from Exterior of Vehicle</i>	7,000	
<i>Fall Against Exterior of Vehicle</i>	3,000	
<i>Fall Inside Vehicle</i>	1,000	
Cut by Part of Vehicle	6,000	6,000
Overexertion	1,000	1,000
Foreign Body	1,000	1,000
Fire or Burn	1,000	1,000
Heat Exhaustion	<500	<500
Other	1,000	1,000
Total	92,000	92,000

Source: National Electronic Injury Surveillance System All Injury Program, 2008–2010

Note: The sum of the row entries may not equal the row total due to independent rounding.

Overall an estimated 97 percent of the children were treated and released. An estimated 2 percent left without being treated, and only an estimated 1 percent were treated and hospitalized or transferred to other hospitals. In these more serious injuries involving hospitalization, the most common injury patterns were falls from the exterior of vehicles (36%), injury from closing doors (22%), and falls while entering or exiting vehicles

(15%). An estimated 69 percent of the injuries involving children occurred at home, and an estimated 17 percent occurred on streets or highways. Another 9 percent occurred in other public areas, and an estimated 3 percent occurred at schools.

While the January 2009 Crash•Stats produced an annual estimate of 743,000 non-crash injuries as compared to the annual estimate of 607,000 in this Crash•Stats, we believe that the decrease is due to refinement in the data collection protocol rather than representing an actual decrease in the number of injuries. The previous study relied upon the text available in a brief narrative to exclude motor vehicle incidents that involved either a crash or a motor vehicle other than a passenger vehicle. In the special study's improved data collection protocol,

trained coders determine whether the case qualifies as a non-crash incident involving a passenger vehicle. This review of each case reduces the chance of inadvertently including crash-related injuries or injuries involving motor vehicles other than passenger vehicles.

The NiTS system provides information about fatalities and injuries in non-traffic crashes and in non-crash incidents that has not routinely been collected by NHTSA in the past. All documents and databases are available through the NHTSA Web site (www.nhtsa.gov) under "Data." Additionally, NHTSA has created a Web site, "Parents Central," to provide parents and caregivers with information about the potential dangers to children in and around motor vehicles, which may be accessed through www.safercar.gov/parents.



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