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Not-in-Traffic Surveillance (NiTS) System

NiTS 2007: Noncrash Injury Database User's Manual

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<p>The Not-in-Traffic Surveillance (NiTS) system is a virtual data collection system designed to provide counts and details regarding fatalities and injuries that occur in nontraffic crashes and in noncrash incidents. The NiTS 2007 system provided information about an estimated 1,159 fatalities and 98,000 injuries that occurred in nontraffic crashes on private roads, on driveways and in parking facilities. The NiTS 2007 system also provided information about an annual average of 588 fatalities and 743,000 injuries in noncrash incidents that occurred inside of or otherwise involved a passenger vehicle.</p> <p>This document describes the creation of the noncrash injury database using a special file of medical records containing information on a statistical sample of injuries seen in emergency departments in 2003 through 2006. The file was provided by the Consumer Product Safety Commission's National Electronic Injury Surveillance System All Injury Program. Frequent types of noncrash injury incidents included injuries while entering or exiting vehicles (boarding or alighting), injuries from closing doors, overexertion while unloading cargo from a vehicle or pushing a disabled vehicle, cuts from parts of the vehicle, striking a vehicle or struck by a part of the vehicle, falls from or against vehicles, incidents involving jacks or hoists, and radiator or antifreeze burns. This document also describes the noncrash injury database, which is available as a Microsoft Excel file.</p>			
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1. Not-in-Traffic Surveillance and Noncrash Injuries

Motor-vehicle-related fatalities and injuries can occur in a variety of situations. The three major categories of motor-vehicle-related fatalities and injuries are traffic crashes, nontraffic crashes, and noncrash incidents. Since 1975 the National Highway Traffic Safety Administration has collected extensive information on fatalities that occur in traffic crashes through the Fatality Analysis Reporting System (FARS). Additionally, NHTSA's National Automotive Sampling System (NASS) has provided national estimates of the number and nature of traffic crash injuries since 1979. Data regarding fatalities and injuries that occur in nontraffic crashes, which can occur on private roads, driveways, and parking lots, and in noncrash incidents, such as fatalities involving children left in hot vehicles or injuries that occur while repairing a vehicle, have not routinely been collected by NHTSA. Congress required NHTSA to collect and maintain information about fatalities and injuries in nontraffic and noncrash incidents in Public Law Number 109-59, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Section 10305 of SAFETEA-LU states:

(a) IN GENERAL. — In conjunction with the study required in section 10304 [Vehicle Backover Avoidance Technology Study], the National Highway Traffic Safety Administration shall establish a method to collect and maintain data on the number and types of injuries and deaths involving motor vehicles with a gross vehicle weight rating of not more than 10,000 pounds in non-traffic incidents.

(b) DATA COLLECTION AND PUBLICATION. — The Secretary of Transportation shall publish the data collected under subsection (a) no less frequently than biennially.

Congress also required the Secretary of Transportation to establish and maintain a database of motor-vehicle-related fatalities and injuries that occur in nontraffic and noncrash incidents in Public Law Number 110-189, the Cameron Gulbransen Kids Transportation Safety Act of 2007 (K.T. Safety Act). Section 2(f) of the K.T. Safety Act states:

(1) IN GENERAL. — Not later than 12 months after the date of the enactment of this Act, the Secretary shall establish and maintain a database of injuries and deaths in nontraffic, noncrash events involving motor vehicles.

(2) CONTENTS. — The database established pursuant to paragraph

(1) shall include information regarding—

(A) the number, types, and causes of injuries and deaths resulting from the events described in paragraph (1);

(B) the make, model, and model year of motor vehicles involved in such events, when practicable; and

(C) other variables that the Secretary determines will enhance the value of the database.

(3) AVAILABILITY. — The Secretary shall make the information contained in the database established pursuant to paragraph (1) available to the public through the Internet and other means.

In addition, Section 2(e) of the K.T. Safety Act defines a motor vehicle to exclude motorcycles, trailers, and any vehicle with gross vehicle weight rating (GWVR) of more than 10,000 pounds. For the purpose of the act, motor vehicles are therefore synonymous with passenger vehicles, which include passenger cars, pickup trucks, utility vehicles, and vans.

NHTSA designed and implemented the Not-in-Traffic Surveillance (NiTS) system to fulfill the requirements of SAFETEA-LU Section 10305 and the K.T. Safety Act Section 2(f). NHTSA considered several methods for collecting information about nontraffic crashes and noncrash incidents including police reports, trauma registries and hospital records, insurance company data, and newspaper stories. The available sources were reviewed and evaluated by the degree to which they could provide accurate national counts as well as useful information. The assessment indicated that the most appropriate source of data depended upon whether the event was a nontraffic crash or noncrash incident and whether it was a fatality or nonfatal injury. Therefore, the NiTS system was developed as a virtual system comprised of four major components. One component is a database of fatalities and injuries in nontraffic crashes based predominantly on police reports. A second component is a database of noncrash fatalities based upon death certificate information, and the third component is a database of noncrash injuries based upon a nationally representative sample of emergency department records. The fourth component, conducted by NHTSA's Special Crash Investigations (SCI) program, is a collection of detailed investigations of particular types of crash and noncrash events such as backovers where a driver reverses into a pedestrian or pedalcyclist, power window strangulation, children left in hot vehicles (hyperthermia), and trunk entrapment.

This document focuses on the noncrash injury component. The noncrash injury database was based upon emergency department records contained in the Consumer Product Safety Commission's National Electronic Injury Surveillance System (NEISS) All Injury Program (NEISS-AIP). This manual begins with an overview of NEISS-AIP. The manual then provides an overview of how the noncrash injury database was created and describes its content. The database was created using special data files obtained from CPSC's NEISS-AIP for 2003, 2004, 2005, and 2006. NHTSA's data use agreement with CPSC prohibits the release of any part of the NEISS-AIP files. Therefore, NHTSA created an aggregate database that provides the number and type of noncrash motor-vehicle-related injuries. The database also contains information about the age of the victim.

NHTSA determined that it was not practicable to collect information about the make, model, or model year of the vehicles involved. As described above, NHTSA considered several methods for collecting information about noncrash injuries. After examining the available information, NHTSA determined that emergency department records were the best method for collecting information about noncrash injuries for a variety of reasons. The first reason is that NHTSA could use the existing data collection and file creation infrastructure of NEISS-AIP to provide national counts. The second reason is that the emergency department information in the NEISS-AIP is likely to offer the most-complete coverage of injuries that were serious enough to result in a trip to the emergency department. NHTSA determined that it was not feasible to collect systematic information about injuries that were either treated in other medical facilities or that were not treated by a medical professional.

However, emergency department records do not usually contain information about the vehicle beyond a general vehicle body type such as car or truck. In fact, NHTSA conducted a pilot study through ten of the NEISS-AIP emergency departments to attempt to collect make and model information. Overall, specific information on the vehicle's make and model was available less

than 10 percent of the time, and most of the hospitals provided this information less than 5 percent of the time. This limitation is also true of other potential sources of noncrash injuries.

2. NEISS-AIP Overview

For over 35 years CPSC has operated a statistically valid injury surveillance and follow-back system known as the National Electronic Injury Surveillance System. The primary purpose of NEISS has been to provide timely data on consumer product-related injuries occurring in the United States. In 2000, CPSC and the Centers for Disease Control and Prevention initiated an expansion of the system to collect data on all injuries. With this expansion from the original NEISS to the NEISS All Injury Program, the system became an important public health research tool for injury researchers throughout the United States and around the world.

NEISS injury data are gathered from the emergency departments of approximately 100 hospitals selected as a probability sample of all 5,000 U.S. hospitals with emergency departments. The system's foundation rests on a core set of emergency department surveillance data variables. The NEISS-AIP data is collected from a probability subsample of 63 out of the 100 NEISS hospitals. These 63 hospitals use an expanded set of rules and a slightly larger set of codes to capture data on all injuries treated in their emergency departments. The remaining aspects of the NEISS-AIP are identical to the NEISS except that the estimating process must be adjusted to account for the smaller hospital sample.

The data collection process begins when a patient is admitted to the emergency department (ED) of a NEISS hospital. An ED staff member elicits critical information as to how the injury occurred and enters that information in the patient's medical record. At the end of each day, a NEISS hospital coordinator reviews all ED records for the day, selecting those that meet the criteria for inclusion in NEISS. The NEISS coordinator abstracts pertinent data from the selected ED record and transcribes it in coded form to a NEISS coding sheet using rules described in a NEISS Coding Manual.

Identifying the product or products related to the injury is crucial for NEISS. The NEISS coordinator assigns a product code from an alphabetical listing of hundreds of products and recreational activities, with as much specificity as the data allow. The victim's age, gender, injury diagnosis, body parts affected, and incident locale are among other data variables coded. A brief narrative description of the incident is also included. While the NEISS coordinators at the participating hospitals code some of the variables, contractors working for CPSC or CDC code the remaining variables after the data are received at CPSC headquarters.

3. NEISS-AIP Variables

There are four variables entered at the hospital and two variables entered at CPSC that were used by NHTSA to identify and classify passenger vehicle noncrash injuries. The variables coded at the hospital include the product code, the intent variable, the diagnosis variable, and narrative description. The variables coded at CPSC include precipitating mechanism and the occupant variable.

The product variable is entered at the hospital. The motor vehicle product code is used whenever a motor vehicle is involved in an incident scenario. The product code on a record shows that the product was mentioned in the incident description, but does not indicate that the product played a direct role in causing the injury. The set of possible noncrash injuries consists of all NEISS-AIP cases with a motor vehicle code.

The intent variable is coded to show the intent of the victim or perpetrator at the time of the incident. The values include assault, self-inflicted (including suicide or suicide attempt), injury related to legal intervention (law enforcement), and unintentional. NiTS follows the convention used by the American National Standards Institute's D16.1 *Manual on Classification of Motor Vehicle Traffic Accidents*, which requires a motor vehicle accident to be unintentional. Therefore, only injuries coded as unintentional in NEISS-AIP are considered possible noncrash injuries.

The diagnosis variable provides a code to identify the nature of the injury that required emergency treatment. If there is more than one injury, the coder is asked to select the code representing the most severe injury. The diagnosis variable is used by NHTSA to classify the noncrash injuries.

The narrative description for each record contains up to two lines (142 characters) of information taken verbatim from the emergency department record to describe how the injury occurred. As is described in more detail in the next section, the narrative variable is used extensively to determine which cases among the potential cases qualify as passenger vehicle noncrash injuries.

The mechanism of injury refers to the way in which the injury was sustained, how the person was injured, or the process by which the injury occurred. Injuries are often the result of a sequence of events. In the NEISS, coders can code both the precipitating and the direct mechanisms of injury. The *precipitating* mechanism is the initiating mechanism that started the chain of events leading to the injury. The *direct* mechanism is the most immediate mechanism that caused the actual physical injury or bodily harm. In most cases there is only a single mechanism and therefore selecting the mechanism is straightforward; in other words, the precipitating and direct mechanisms are the same. Table 1 provides a complete list of mechanism-of-injury categories coded. These categories represent major groupings of external causes used by injury researchers and injury prevention practitioners throughout the world.

Table 1: NEISS-AIP Categories for Classifying Mechanism of Injury

Motor Vehicle Occupant (1)	Drowning/Near Drowning/Submersion (13)
Motorcyclist (2)	Machinery (14)
Pedal Cyclist (3)	Foreign Body (15)
Pedestrian (struck by or against a vehicle) (4)	Dog Bite (16)
Other Transport (5)	Other Bite/Sting (17)
Fall (6)	Firearm Gunshot (18)
Struck by/Against or Crushed (7)	BB/Pellet Gunshot (19)
Cut/Pierce/Stab (8)	Natural/Environmental (20)
Overexertion (sprains/sprains without a fall) (9)	Adverse Effects – Therapeutic Drugs (21)
Fire/Burn (including smoke inhalation) (10)	Adverse Effects – Surgical/Medical Care (22)
Poisoning (11)	Other Specified (88)
Inhalation/Ingestion/Suffocation (12)	Unknown/Unspecified (99)

Injuries that occur as a result of a motor-vehicle-related transport incident are coded using one of the motor vehicle mechanism codes (codes 1 through 5). For motor-vehicle-related transport cases, coders code the precipitating mechanism only, and the direct mechanism is left blank. Injuries involving motor vehicles that were not in transport could be coded using both a direct and a precipitating code from Table 1. For most of these cases, only the precipitating cause is coded. Therefore, this user manual defines the precipitating cause as the mechanism (or external cause) of injury.

If the mechanism code indicates a motor vehicle occupant, then the coders code *Occupant Status* as driver, passenger (inside passenger compartment or cab), person boarding or alighting the vehicle, other specified (such as riding in enclosed bed of pickup truck), or unknown. For the purpose of identifying noncrash injuries, only motor vehicle occupants who were boarding or alighting are potential noncrash injuries. All of the other transport injuries are captured by NHTSA’s crash databases such as FARS, NASS, and the nontraffic crash component of NiTS.

4. Creation of the Noncrash Injury Database

The noncrash injury database was created using the variables described in the previous section. In particular, the possible noncrash cases for NiTS were identified as unintentional injuries that either occurred in a nontransport accident (mechanism of injury of 6 through 99) that involved a motor vehicle or a boarding or alighting injury (mechanism of injury equal to motor vehicle occupant and an occupant status of boarding or alighting). It should be noted, however, that NEISS-AIP coding rules do not require that the motor vehicle directly cause the injury; it only requires that the motor vehicle be mentioned in the injury scenario. Therefore, the potential noncrash injuries identified using the product code for a motor vehicle could either indicate the motor vehicle was the source of the injury (patient cut by vehicle door), the injury occurred in a motor vehicle (patient left unattended in hot car), or sometimes even that the injury occurred near a motor vehicle (patient slipped on ice while walking to the vehicle).

The first step involved removing cases that indicated the motor vehicle was not a passenger vehicle and crashes with a mechanism of injury other than a transport accident. Cases where the narrative indicated one of the following were excluded because they did not indicate passenger

vehicle involvement: BUS, SEMI, TROLLEY, TROLLY, TRAILER, CAMPER, MOTOR HOME, RV, FORKLIFT, AMBULANCE, DUMP TRUCK, TOW TRUCK, GARBAGE TRUCK, DELIVERY TRUCK, FIRE TRUCK, TANKER, PUMPER TRUCK, CEMENT TRUCK, CONCRETE TRUCK, GRAIN TRUCK and LOGGING TRUCK. Cases where the narrative indicated one of the following were excluded because they indicated a crash: MVA (motor vehicle accident), MVC (motor vehicle crash), CRASH, REAR ENDED, ROLLOVER, COLLISION, CAR ACCIDENT, and VEHICLE ACCIDENT. These restrictions resulted in a remaining sample of over 44,000 possible noncrash injuries involving passenger vehicles from four years of NEISS-AIP.

The next step was to exclude certain mechanisms of injury where the event appeared that it would have taken place regardless of whether a passenger vehicle was involved. This decision required a degree of judgment, and NHTSA attempted to exclude only cases where the motor vehicle did not appear to involve a passenger vehicle in any manner. One group of excluded cases follows the American National Standards Institute's D16.1 *Manual on Classification of Motor Vehicle Traffic Accidents* convention of excluding injuries where a gunshot was the cause of the injury. Therefore, cases where the mechanism of injury indicated a gunshot or where the product coded indicated a firearm or other gun were excluded. Other cases that were excluded from the analysis involved dog bites, other bite or sting (usually insects), and adverse effects of medical care or therapeutic drugs. These exclusions reduced the number of possible cases from over 44,000 to over 43,000 or by about 1,000 sampled cases.

The possible noncrash injuries were then assigned an incident type based upon the cause of the injury, the diagnosis, a search of key words in the narrative, and in some cases individual review of the narratives. One additional complication was that NEISS-AIP is a statistical sample. CPSC's recommendation for proper use of NEISS-AIP requires at least 20 cases for reporting any national estimate. Therefore, national estimates could not be made for incidents that account for fewer than 20 cases out of the 43,000 possible cases. For example, there were only 2 cases involving a near drowning, both inside a motor vehicle, but this incident category is not included in the database because it is not large enough to create a national estimate. There were also incident types for which NHTSA searched but did not find any relevant cases. Trunk entrapment is one such example.

The over 43,000 possible cases were assigned to incident categories in a hierarchical manner, meaning that a case that did not fall in an earlier category was retained as a possibility for a later category. For the most part, the categorization started with areas that were of particular interest in NHTSA to avoid missing potential cases. Because the incident type is a fundamental part of the database, the following describes each type and how it was determined. The incident type also contains a brief summary of the nature of incidents included in the category.

1. Closing of Vehicle Windows

These cases were identified by searching the narrative for all cases with the word "window." The over 1,000 narratives were then read to reduce the list to cases where a body part, usually an extremity, was closed, caught or rolled up in a vehicle window. While in most cases it could not be determined whether the window was electric, it is assumed that most of these incidents

involved power rather than manual windows because of the unlikely event of a person manually closing a window on themselves or others.

2. Hyperthermia in Vehicle

These cases involved a cause of environmental, other, or unknown, and a key word in the narrative indicating “locked in,” “in locked,” “hot,” “heat,” or “hyperthermia.” The narratives were then read to remove any false positives. Most of these incidents involved a child left inside or locked in a hot vehicle. A few incidents involved people who suffered a heat-related illness inside a vehicle after strenuous outdoor activity or when a vehicle became disabled. (A search for cases of hypothermia inside vehicles only produced a handful of cases, which were not enough to produce meaningful estimates.)

3. Carbon Monoxide Poisoning From Vehicle Exhaust

These cases involved a cause of poisoning, other, or unknown, and a key word in narrative of “CO,” “carbon,” or “exhaust.” The search also included cases with a diagnosis of anoxia where the mechanism of injury was not a fire. The narratives were then read to remove any false positives. Many of these incidents involved a person inside a vehicle where exhaust entered the vehicle. A few incidents involved a person outside of a vehicle in an enclosed space.

4. Vehicle Fire

These cases were identified using the fire involvement variable in NEISS-AIP, which indicates whether an incident involved smoke inhalation, unexpected flames or smoke, or unexpected spread of flames or smoke. The narratives were then read to remove any false positives. These incidents usually involved a person injured inside a vehicle that caught fire or injured when trying to enter a burning vehicle, usually to retrieve property.

5. Tire Explosion

These cases were identified using key phrases of “tire” and “explo” or “blew.” These incidents all involved tires that exploded, usually while being inflated or changed.

6. Hoist or Jack Incident With Tire

These cases were identified using the product codes for jacks and hoists or cases where the narrative mentioned a “jack.” (NEISS-AIP allows for the coding of up to two products. Therefore, a case may indicate involvement of a motor vehicle and another product such as a jack or hoist.) These cases also contained a mention of “tire” in the narrative. These incidents usually involved an injury that occurred while changing a tire such as a jack slipping or failing.

7. Other Hoist or Jack Incidents

Similar to the above category, these cases were identified using the product codes for jacks and hoists or cases where the narrative mentioned a “jack.” These incidents usually involved an injury that occurred while the person was working on or repairing a vehicle.

8. Other Incidents While Changing Tires

These cases were identified by a narrative search for the key words “tire” and “repair” or “chang.” These incidents involved either overexertion or a laceration while changing a tire.

9. Battery Acid Burn

These cases were identified using a text search for “battery.” The cases were further limited by searching the narrative for the key words “acid,” “blew,” or “explo” or a diagnosis indicating a burn or poisoning. Most of these incidents involved a person working on or repairing a vehicle although a handful involved people attempting to “jump start a dead battery.”

10. Radiator or Antifreeze Burns

These cases were identified by searching the narrative for the key words “radiator,” “coolant,” or “antifreeze.” The cases were further limited to ones where the diagnosis or the injury mechanism indicated a burn. These incidents occurred while removing a hot radiator cap or while repairing a vehicle.

11. Muffler and Exhaust Pipe Burns

These cases were identified as an injury mechanism or diagnosis of burn and a key word in the narrative indicating “muffler,” “exhaust,” or “tailpipe.”

12. Chemical Burns

These cases were identified as an injury mechanism or diagnosis of a burn and a key word in the narrative of “chemical,” “gas,” “bleach,” “acid,” “cleaner,” or “butane.” Additional cases were included that indicated a diagnosis of a chemical burn. These incidents involved a mix of chemical burns that occurred while repairing, cleaning, painting, or washing a vehicle as well as cases of chemical burns that occurred while pumping or siphoning gasoline. A small number of cases involved a chemical burn from a product inside the vehicle (such as pepper spray) or leaking cargo.

13. Other Burns From Vehicle

These cases involved burns that were not captured by the above categories. These incidents usually involved a brief narrative indicating that the patient was either burned by a hot part of the vehicle or by “hot fluid” from the vehicle. Cases involving a blowtorch or fireworks and cases involving a hot food or beverage being consumed in the vehicle were excluded.

14. Wheelchair Incident

These cases were identified where the second product code or the narrative indicated a wheelchair. These incidents usually involved a fall from a wheelchair while entering or exiting a vehicle (boarding or alighting) or an injury involving a wheelchair inside a vehicle, typically in a van.

15. Poisoning – Alcohol

These cases were identified where the injury mechanism or diagnosis indicated poisoning. The cases were further limited to ones where the second product code indicated an alcoholic beverage or where the narrative contained a key word of “beer,” “alcohol,” or “ETOH.” (ETOH stands for ethyl alcohol or ethanol, and the term frequently appears in medical records to designate alcoholic beverages.) These incidents generally involved a person with alcohol poisoning who was either in a parked vehicle or who was pulled over by police while driving. A few incidents also involved an intoxicated person who fell from or into a vehicle.

16. Poisoning – Illegal Drugs

These cases were similar to the above incidents involving alcohol poisoning but instead involved illegal drugs consumed in a vehicle.

17. Poisoning – Legal Drugs

These cases were similar to the other poisoning cases except that they involved a person in a vehicle who took the wrong medication, took an overdose of medication, or took someone else's medication.

18. Poisoning - Other

The remaining poisoning cases involving motor vehicles involved a variety of situations such as accidental poisoning while repairing a vehicle, exposure to fumes such as from gasoline or cargo while in the vehicle, or children who consumed products found inside the vehicle.

19. Foreign Body – Driving

These cases were first identified by a mechanism of injury or a diagnosis of a foreign body and a narrative that indicated driving or riding. Additional cases were identified where the cause was struck and the body part was an eye. These cases involved an object that came through an open window and struck the patient, usually in the eye, while the person was driving or riding in a vehicle.

20. Foreign Body – Working

These cases were first identified by a mechanism of injury or diagnosis of foreign body, inhalation, ingestion, or suffocation. The cases were further restricted using a set of 18 key words to determine whether the narrative indicated that the person was working on or repairing a vehicle. In many cases the person was working under a vehicle or was sanding or grinding the vehicle when the injury occurred.

21. Other Foreign Body or Aspiration

These cases involved a foreign body, inhalation, ingestion, or suffocation that was not captured in the above categories. Many of these cases involved eating in a vehicle, children placing objects found in a vehicle in their ears, noses or mouths, or vague narratives such as "complaint of foreign body in eye."

22. Injured by Closing Hood

These cases were first identified by a mechanism of struck and the key word of "hood" in the narrative. Key words were used to remove cases where the hood likely struck the patient rather than the patient striking the hood. These cases involve patients where the open hood fell on them while looking under the hood or repairing a vehicle.

23. Injured by Closing Trunk

These cases were first identified by a mechanism of struck and the key word of "trunk" in the narrative. Key words were used to further restrict the cases to ones where the narrative indicated that the trunk struck the patient rather than the patient striking the trunk. These incidents frequently involved an extremity caught in a closing trunk or a patient striking their head on the trunk lid while unloading or loading cargo.

24. Injured by Closing Door

These cases were identified using key words from the narratives such as “in a . . . door” or “door” and another key word indicating the door was closing or otherwise struck the patient.

25. Other Door Injury while Boarding or Alighting

These cases were identified by the key word of “door” in the narrative and the injury mechanism indicating boarding or alighting. These incidents tended to involve patients who struck the door or door frame while entering or exiting the vehicle.

26. Fall While Boarding or Alighting

These cases were identified using two methods. Some of the cases involved an injury mechanism of boarding or alighting and a key word in the narrative of “fall,” “trip,” “slip,” “fell,” or “jump.” Other cases involved an injury mechanism of fall and a key word in the narrative of “out,” “exit,” “jump.” These incidents include persons exiting the back of a pickup truck.

27. Fall Against Vehicle

These cases were identified by an injury mechanism of fall and a key word in the narrative of “against,” “bumper,” “into” (but not “getting into”), “hit,” “struck,” “striking,” “over,” “across,” or “on.” These cases generally involved a person who slipped or fell outside of the vehicle and struck the vehicle. In many cases, the person fell in snow or ice.

28. Fall Inside Vehicle

These cases were identified by an injury mechanism of fall and a key word in the narrative indicating the patient was in or inside a vehicle. These incidents frequently occurred in the backs of pickups and vans. Occasionally these incidents also involved children playing inside a vehicle.

29. Fall From Vehicle

These cases, which were not classified in one of the above categories, were identified using two methods. Some of the cases involved an injury mechanism of fall and a key word in the narrative of “from” or “off.” Other cases were identified where the injury mechanism was a fall and a key word in the narrative indicated “hood” or “from trunk.” These incidents involved persons falling from the hood, trunk, roof, or tailgate of vehicles. These incidents also included falls from the backs of trucks where there was no indication that the patients were attempting to enter or exit the vehicles.

30. Cut by Other Product

These cases were identified by an injury mechanism of cut, pierce, or stab or a diagnosis of cut and the existence of another product code (other than alcohol). These incidents involved an injury that occurred inside a vehicle, while removing cargo from the vehicle, or while working on the vehicle.

31. Cut by Part of Vehicle

These cases were identified by an injury mechanism of cut, pierce, or stab, or a diagnosis of cut that was not captured in the previous category of cut by another product. These incidents frequently involved a person working on a vehicle, a person striking and breaking a vehicle window or mirror, or a person cut by a bumper or license plate.

32. Struck by Other Product

These cases were identified by a mechanism of injury of struck or the key word of “struck” in the narrative as well as the existence of another product code (other than alcohol). Most of these incidents involved a person struck by cargo while loading or unloading a vehicle although a few cases also involved a person repairing a vehicle.

33. Struck Vehicle or Struck by Part of Vehicle

These cases were identified by a mechanism of injury of struck or key words in the narrative of “struck” or “punch” that was not captured by the previous category of struck by another product. These incidents frequently involved a person who hit, struck, or punched a vehicle, often in anger. They also involved persons who “ran into” or “bumped” a vehicle as well as people who struck or were struck by part of a vehicle while repairing a vehicle. (Patients struck by doors, trunk lids, and hoods were covered by other categories.)

34. Other Boarding and Alighting Injuries

These cases were the remaining boarding and alighting cases not captured by the above categories. Most of these incidents involved overexertion such as strains or sprains while entering or exiting a vehicle.

35. Overexertion

These cases were identified by a mechanism of injury of overexertion or a key word of “pushing,” “load,” or “move” in the narrative. These incidents frequently involved overexertion by loading or unloading cargo from a vehicle or overexertion by pushing a disabled vehicle. Less frequently these incidents involved a patient repairing a vehicle or overexertion that occurred during a long drive.

36. Other Incidents While Working on Vehicle

These remaining cases were identified by a search of 18 key words in the narrative indicating that the patient was working on or repairing a vehicle. These incidents frequently did not contain enough information to be classified in another category such as “injured hand while working on vehicle.”

The above categories captured more than 98 percent of the cases. All of the remaining narratives were read to ensure that no hazard patterns were overlooked. For the most part, the remaining cases did not appear to be in scope, such as people who fell near a vehicle or who had an incident outside of a vehicle and then entered the vehicle. The following table contains the annual estimated number of injuries and the actual cases counts from NEISS-AIP from 2003 through 2006. The annual estimates have been rounded to the nearest thousand.

Table 2: Injuries in Noncrash Incidents

Incident Type	Annual Estimate	Sample Size
Closing of Vehicle Window	2,000	125
Hyperthermia in Vehicle	<1,000	35
Carbon Monoxide From Vehicle Exhaust	2,000	134
Vehicle Fire Incident	3,000	162
Tire Explosion	1,000	81
Hoist/Jack Incident With Tire	2,000	122
Other Hoist/Jack Incident	8,000	400
Other Changing Tire	10,000	541
Battery Acid Burn	1,000	60
Radiator/Antifreeze Burns	9,000	539
Muffler/Exhaust Pipe Burns	3,000	142
Chemical Burns	2,000	101
Other Burns From Vehicle	3,000	214
Wheelchair Incident	3,000	192
Poisoning – Alcohol	8,000	521
Poisoning – Illegal Drugs	1,000	100
Poisoning – Legal Drugs	1,000	72
Poisoning – Other	2,000	96
Foreign Body – Driving	5,000	276
Foreign Body – Working	16,000	771
Other Foreign or Aspiration	2,000	161
Injured by Closing Hood	7,000	437
Injured by Closing Trunk	5,000	282
Injured by Closing Door	148,000	9,442
Other Door Injury While Boarding or Alighting	36,000	2,185
Fall While Boarding or Alighting	84,000	4,895
Fall Against Vehicle	28,000	1,619
Fall Inside Vehicle	3,000	194
Fall From Vehicle	28,000	1,622
Cut by Other Product	19,000	1,033
Cut by Part On Vehicle	68,000	3,904
Struck by Other Product	20,000	1,119
Struck Vehicle or Struck by Part of Vehicle	74,000	4,189
Other Boarding or Alighting Injuries	44,000	2,398
Overexertion	88,000	4,464
Other Injuries While Repairing Vehicle	6,000	330
<i>Total</i>	<i>743,000</i>	<i>42,958</i>

5. STRUCTURE OF THE NONCRASH INJURY DATABASE

This section describes the structure and the variables included in the noncrash injury database. Because the data use agreement between CPSC and NHTSA prohibited release of any information about individual injuries, the noncrash injury database contains aggregate information designed to provide information about the number, types and causes of passenger vehicle noncrash injuries. The database is provided as a Microsoft Excel workbook. The variables included in the database indicate the type of incident, the mechanism of injury, the age of the victim, and the location of the incident. The workbook contains four worksheets, one for

each variable. The first worksheet provides the annual average injuries by the type of incident. The second worksheet provides the annual average injuries by the type of incident and the injury mechanism. The third worksheet provides the annual average injuries by the type of incident and the (categorized) age of the victim. The fourth worksheet provides the annual average injuries by the type of incident and the location of the incident. All worksheets also contain the sample count from which the estimates were derived. Finally, as discussed above, no estimates are produced for categories with fewer than 20 sampled cases.

The types of incidents are listed in Table 2 and described in the previous section. The three remaining variables are part of the NEISS-AIP system. The mechanisms of injury are listed in Table 1.

The age of the patient was categorized into the following age groups:

- 3 years old or younger;
- 4 to 7 years old;
- 8 to 14 years old;
- 15 to 24 years old;
- 25 to 44 years old;
- 45 to 64 years old;
- 65 to 74 years old;
- 75 to 84 years old; or
- 85 years old and older.

The location of the incident is coded as one of the following:

- Home;
- Farm/ranch;
- Street/highway;
- Other public property;
- Manufactured (mobile) home;
- Industrial place;
- School;
- Place of recreation or sports; or
- Not recorded.

More information about the NEISS-AIP coding may be found in the “NEISS Coding Manual,” which is available at www.cpsc.gov/neiss/completemanual.pdf.

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