

Unpowered Scooters

(Product Code 1329)

Analysis of Special Study Data and
Injury Rates, and a Comparison
with Other Riding Products

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Executive Summary

The introduction and rapid increase in popularity of a new type of unpowered scooter in the summer of 2000 led to a dramatic increase in the number of emergency-room-treated injuries associated with unpowered scooters. The U.S. Consumer Product Safety Commission (CPSC) also began to receive numerous complaints about problems with these scooters, including many reports of product failures.

In response to these reports, CPSC issued alerts to the public about this increase in injuries and recommended the use of a helmet, elbow pads and knee pads when riding. CPSC staff wrote to ASTM (an organization that coordinates the development of voluntary consensus standards) urging the development of a voluntary safety standard for scooters. Development of this standard is currently under way. In addition, CPSC worked with companies to recall two defective scooters, and began following up on reports of product failures for possible additional recalls.

In order to learn more about the injuries and hazard scenarios, CPSC staff conducted a study based on the National Electronic Injury Surveillance System (NEISS). Telephone interviews were conducted with victims or family members of victims on injuries treated in hospital emergency rooms during the period from December 20, 2000 through June 15, 2001. This report presents the results of this study and additional analysis of surveillance data.

The major findings of this analysis were:

- ◆ Scooter-related injuries increased rapidly from about June 2000 through April and May of 2001, but appear to be declining since that time.
- ◆ Approximately 8% of the injuries from the study data indicated that there was some kind of product failure (not necessarily breaking) while in use.
- ◆ Another 40% of the injuries were associated with design and manufacturing features of the scooters, such as tightening mechanisms, wheel size, braking systems, and ability of the front wheel to rotate 360°, which might be addressable through provisions of the voluntary standard.
- ◆ Many of the injuries in the study were associated with inexpensive scooters.
- ◆ The two leading brands of scooters were involved in fewer injuries than would be expected based on market share.
- ◆ Many of the smaller manufacturers of scooters (mostly the inexpensive ones) are expected to stop producing scooters in the near future, if they have not already.
- ◆ Almost half of the respondents to a question about safety equipment reported that the injured person rarely or never wore safety equipment when riding the scooter.
- ◆ Increases in scooter injuries were almost matched by decreases over the same time period in injuries associated with bicycles and in-line skates.
- ◆ Scooters have the lowest rate of injury when compared with bicycles, skateboards and in-line skates.

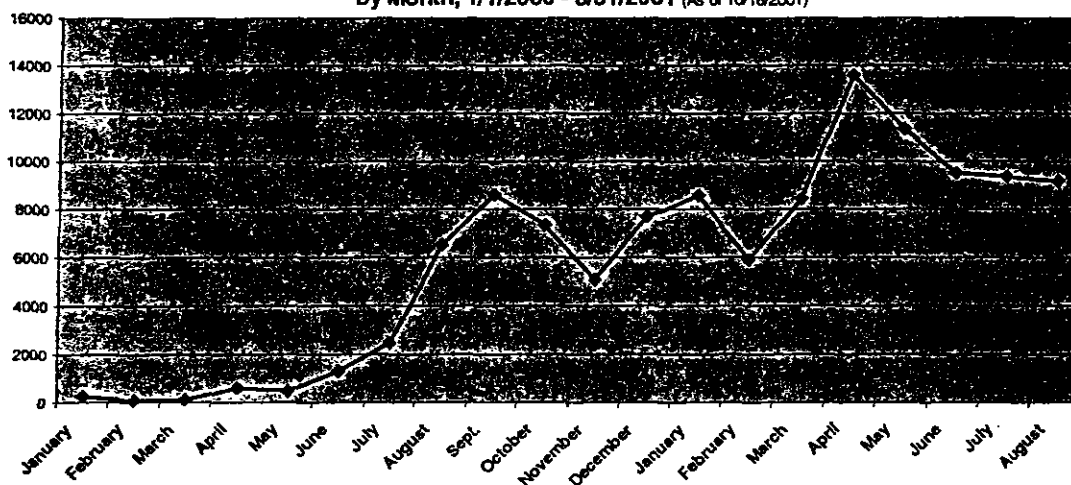
CPSC staff believes that the downward trend in injuries that began in the summer of 2001, should continue due to decreased popularity, elimination by market forces of some of the cheaply made scooter brands, correction of product defects through product recalls, and the development of a voluntary safety standard to address scooter hazards. However, the number of injuries each month (more than 9,000 in August, 2001) is still high, and work on the voluntary standard to reduce these injuries needs to continue. This report will be shared with the subcommittee developing the voluntary standard.

Introduction

Injuries associated with non-powered scooters have increased dramatically since the early summer of 2000. There were an estimated 42,500¹ emergency-room-treated injuries in the United States for the full year of 2000 involving non-powered scooters. Figure 1 shows the monthly injury frequencies associated with scooters, from January of 2000 through August of 2001. The introduction of a new type of scooter, which became very popular very quickly was the main source of this increase.

For several years, estimates of injuries associated with scooters had been under 3,000 each year. With the popularity of the new type of scooter, injuries in August of 2000 were higher than the total for the two previous years combined. A large proportion of this increase can be attributed to the fact that many more people, mostly children, were riding scooters than had been the case for many years.

Figure 1. Estimated Number of Emergency Room-Treated Scooter Injuries by Month, 1/1/2000 - 8/31/2001 (As of 10/16/2001)



In addition to the increase in injuries, the CPSC staff noted that there were also many consumer complaints and reports of product failures and of problems with the scooters. Some scooters were recalled and CPSC's Office of Compliance continues to investigate reports of other scooters involved in product failure incidents.

A subcommittee was established, in March of 2001, under the auspices of ASTM, to develop a voluntary consensus standard for non-powered scooters. In addition to the immediately available injury and incident data, there was a need for a more detailed study into the injuries which were being treated in hospital emergency rooms. A special study, using telephone interviews with injury victims or their parents, was conducted to identify issues that might be addressed through provisions of the standard, or through providing information to parents and children who purchase scooters.

¹ CV. = .16

Methodology

Data in this report came from six sources: The National Electronic Injury Surveillance System (NEISS); the data collected through telephone investigations for the scooter special study, using injuries reported through NEISS; the National Sporting Goods Association's (NSGA) study *Sports Participation in 2000*²; CPSC's Death Certificate Database; CPSC's Injury or Potential Injury Incident database (IPII); and the United States 2000 Census.

National Electronic Injury Surveillance System (NEISS)

CPSC operates the National Electronic Injury Surveillance System, a probability sample of 99 U.S. hospitals with 24-hour emergency rooms (ERs) and more than six beds. These hospitals provide CPSC with data on all consumer product-related injury victims seeking treatment in the hospitals' ERs. Injury and victim characteristics, along with a short description of the incident, are coded at the hospital and sent electronically to CPSC.

Because NEISS is a probability sample, each case collected represents a number of cases (the case's *weight*) of the total estimate of injuries in the U.S. The weight that a case from a particular hospital carries is associated with the number of hospitals in the U.S. of a similar size. NEISS hospitals are stratified by size based on the number of annual emergency-room visits. NEISS comprises small, medium, large and very large hospitals, and includes a special stratum for children's hospitals.³

Selected NEISS variables, including diagnosis and body part, were used in this analysis. Diagnosis in NEISS is defined as the attending physician's diagnosis of the most severe injury. Similarly, body part is defined as that body part sustaining the most severe injury. For example, if a patient incurred a broken tibia and arm contusions, the NEISS coder would code the diagnosis as "fracture" and the body part as "lower leg". The less severe injuries may be noted in the NEISS comments, but are not considered in our analysis of diagnosis and body part.

Special Study Data

Between December 20, 2000 and June 15, 2001, CPSC staff randomly selected 33% of the cases collected through NEISS involving an unpowered scooter for inclusion in the study. A total of 544 in-scope cases was selected. CPSC initiated telephone investigations on 492 of the cases. (For the remaining 52 cases, no patient identification was available from the hospital.) Where possible, the telephone investigator contacted the victim or a parent or guardian of the victim. Where telephone contact failed or was impossible, staff attempted contact by U.S. mail. We were able to contact 409 respondents, and of these,

² The NPD Group, Inc. *Sports Participation in 2000: Series II*. National Sporting Goods Association. 2001.

³ Kessler, Eileen and Schroeder, Tom. *The NEISS Sample (Design and Implementation)*. U.S. Consumer Product Safety Commission. October 1999.

375 agreed to the interview. Thus, the response rate for those who could be contacted was 92 percent. This represents 69 percent of the original 544 cases.

The telephone questionnaire developed for this study consisted of 64 questions, including questions designed to elicit information about the incident, the injury, characteristics of the victim and the scooter itself, the victim's riding habits, and access to and use of products similar to scooters. In the months before the collection of data, staff thoroughly pretested the questionnaire on mock respondents as well as parents of actual (non-study) victims identified through NEISS. The questionnaire was revised based on this pretesting. Administration of the survey took place using cases reported over 7 months from December 20, 2000 to June 15, 2001. The final version of the questionnaire is included in Appendix IV.

After administration of the questionnaire, each case was coded by two different members of the CPSC staff. Coding was compared electronically, and discrepancies were resolved by reference to the answers provided by the interviewer. The purpose of this dual coding was to ensure accurate coding of closed-ended questions, and consistent interpretation of the respondents' open-ended descriptions of the incidents. The most important variable obtained in this manner was the hazard pattern.

We compared study cases for which respondents could be contacted to those for which no respondent could be contacted and found them similar in injury diagnosis, body part affected, age, sex, and disposition.

The weights of the 409 cases for which respondents could be contacted were adjusted by hospital strata (based on the NEISS sample design) to total the 61,342 NEISS injury estimate for the study period. Thus, the NEISS data and special study data were linked to provide national estimates and associated sampling errors. The data were used to estimate the number of scooter-related injuries associated with variables from the questionnaire. Estimates could not be provided for every variable due to small sample sizes and resultant large variability.

Sampling variation is associated with estimates obtained using any sample drawn from a population. This includes NEISS and special study data. One method of expressing the uncertainty or variation associated with a particular estimate is to provide a coefficient of variation (C.V.). The C.V. of an estimate is the ratio of the standard error of the estimate (i.e. the variability) to the estimate itself. This is generally expressed as a percent. A C.V. of 10% means the standard error of the estimate is 0.1 times the estimate. Large C.V.'s alert the reader to the fact that the estimate has considerable variability.⁴ For purposes of this study, large variability was defined as a coefficient of variation larger than 34%. Coefficients of variation in this paper are given in footnotes where possible. In some cases, to avoid distracting the reader with too many C.V.'s, they are presented in Appendix I.

⁴ For a more detailed discussion of measures of variation associated with NEISS and special study estimates, see Kessler, Eileen and Schroeder, Tom. *The NEISS Sample (Design and Implementation)*. U.S. Consumer Product Safety Commission. October 1999. Pages 70-72.

National Sporting Goods Association (NSGA) Participation Data

The National Sporting Goods Association is a sports industry trade organization that annually publishes participation data on sports activities. NSGA's survey starts with a mail panel of 300,000 pre-selected households in the continental U.S., balanced on a number of key indicators of purchasing behavior. Using this mail panel, NSGA sent self-administered questionnaires to 20,000 households in January 2000. The questionnaire asked the heads of the household and up to two other household members at least seven years of age about the sports activities in which they participated in 2000. The response rate for the survey was 62.3%.

NSGA defines a participant in sport as someone seven years of age or older who participates in that sport at least once during the year. NSGA also provides statistical information on the mean number of days of participation in 2000.⁵

CPSC's Death Certificate Database

CPSC purchases death certificates from all 50 states, New York City, the District of Columbia and some territories. Only those certificates in certain E-codes (based on the World Health Organization's International Classification of Diseases ICD-10 system) are purchased. These are then examined for product involvement before being entered into CPSC's death certificate database. The result is neither a statistical sample nor a complete count of product-related deaths, nor does it constitute a national estimate. The database provides only counts of product-related deaths from a subset of E-codes. For this reason, these counts tend to be underestimates of the actual numbers of product-related deaths.

Death certificate collection from the states takes time. As of October 2001, the 1998 death certificate file is 99% complete; the 1999 file is 86% complete; the 2000 file is 53% complete; and the 2001 file is 10% complete.

CPSC's Injury or Potential Injury Incident File (IPII)

IPII is a CPSC database containing reports of injuries or potential injuries. These reports come from news clips, consumer complaints received by mail or through CPSC's telephone hotline or web site, Medical Examiners and Coroners Alert Program (MECAP) reports, letters from lawyers, and similar sources. While the IPII database does not constitute a statistical sample, it can provide CPSC staff with guidance or direction in investigating potential hazards.

⁵ The NPD Group, Inc. *Sports Participation in 2000: Series II*. National Sporting Goods Association. 2001

The 2000 U.S. Census

The U.S. decennial census is completed once every ten years in order to count the population and housing units for the entire United States. This report utilizes population estimates by age and sex produced by the Population Estimates Program of the U.S. Census Bureau.⁶

⁶ U.S. Census Bureau; "Resident Population Estimates of the United States by Age and Sex: April 1, 1990 to July 1, 1999, with Short-Term Projections to November 1, 2000"; published January 2, 2001; <<http://www.census.gov/population/estimates/nation/intfile2-1.txt>>

Study Results

OVERVIEW

During the study period, U.S. hospital emergency rooms treated an estimated 61,340 injuries associated with unpowered scooters. Of these, 46,040 (75%) were falls. The special study data provided detailed information on how these injuries occurred, as well as information about other factors related to the victim, the scooter, and the injury environment. Information was collected on:

- the hazard pattern
- the victim's age
- the injury diagnosis
- the body part injured
- the victim's experience riding scooters
- use of safety equipment
- cost of the scooter
- condition of the scooter
- manufacturer of the scooter
- the victim's ownership and use of other similar products

For purposes of analysis, we grouped victims into six age groups. The distribution of estimated injuries by age, given in Table 1 shows that although the overwhelming majority of scooter-related injuries occurred to children between four and 15 years old, a small percentage occurred to adults aged 20 or older.

Table 1: Scooter-related Injuries, by Age (From Study Data)

Age Group	Estimated Number of Injuries	Percent of Injuries During Study Period
Under 4 years	*	*
4 to 7 years	12,800 ⁷	21%
8 to 11 years	28,710 ⁸	47%
12 to 15 years	12,380 ⁹	20%
16 to 19 years	*	*
20 years and older	5,170 ¹⁰	8%

* C.V. is too large to provide estimate.

Tables detailing the distribution of estimated injuries by the other variables listed above are given in Appendix I.

⁷ C.V. = .16

⁸ C.V. = .13

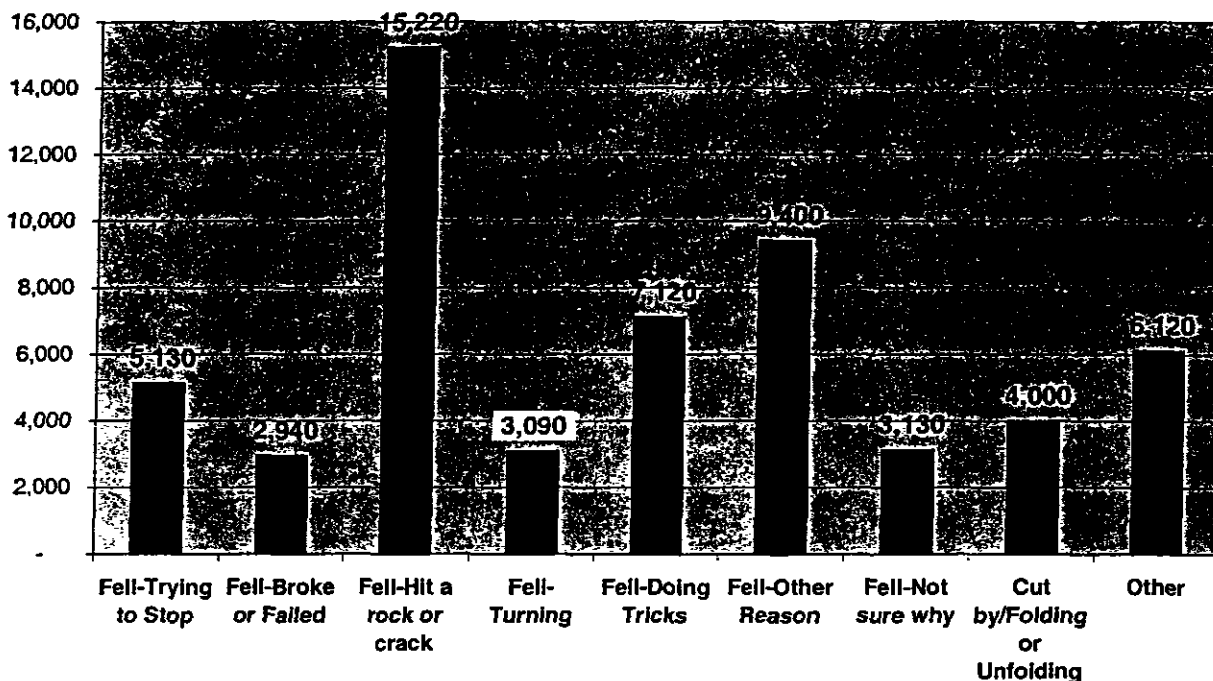
⁹ C.V. = .16

¹⁰ C.V. = .24

HAZARD PATTERNS

The graph below gives a distribution of the injuries by hazard pattern. Falls represent 82% of the estimated injuries for which a hazard pattern is known.

Figure 2. Estimated Number of Emergency-Room-Treated Injuries, by Hazard Pattern 12/21/00 through 6/15/01



Fell - Wheel Hit Something Small: (15,220 injuries¹¹)

Twenty-seven percent of the estimated injuries from completed investigations¹² occurred when a rider fell after hitting something small, such as a pebble, crack or other irregularity in the riding surface. Of these injuries, the most frequent diagnosis was fracture (38%¹³) followed by contusions and abrasions (20%¹⁴). The body areas most often injured included the arms and hands, which accounted for 45% of the 15,220 injuries¹⁵. Other body areas frequently injured included the face and neck area, and leg and foot area. The most frequent injury was a fracture of the arm or hand (29%)¹⁶.

These falls were slightly disproportionate by age. Riders who were 12 years old or older represented 31% of the estimated injuries in all hazard patterns¹⁷; however, when only

¹¹ C.V. = .16

¹² Estimate = 56,150 injuries. This estimate excludes injuries of those respondents who refused to participate in the study. C.V. = .20

¹³ Estimate = 5,800; C.V. = .26

¹⁴ Estimate = 3,050; C.V. = .33

¹⁵ Estimate = 6,780; C.V. = .23. See Appendix I for definitions of body areas.

¹⁶ Estimate = 4,440; C.V. = .29

¹⁷ Estimate = 17,610; C.V. = .14

falls resulting from hitting something small are considered, the 12-and-over age group represented 37% of the estimated injuries¹⁸.

Experienced scooter riders were also overrepresented in this category compared to their representation in the aggregate. Seventy-one percent of riders who fell after hitting something small were described as “somewhat experienced” or “very experienced” scooter riders¹⁹. However, injuries suffered by experienced riders constituted only 57% of injuries in all hazard patterns.²⁰

Table 2 below summarizes the findings for this hazard pattern:

Table 2: Falls after wheel hit something small

Estimated injuries	15,220
Percentage of all injuries	27%
Percentage of falls	33%
Most frequent diagnosis	Fracture
Most frequently injured body area	Arm and hand
Most frequent injury	Fracture to arm or hand
Largest age group	8- to 11-year-olds ²¹
Experience	71% described as very experienced or somewhat experienced

Fell – Some Other Reason: (9,400 injuries)²²

Seventeen percent of the estimated injuries that could be categorized by hazard pattern were falls that occurred for reasons that did not logically fit in another pattern.

The most frequent diagnosis for these falls was contusions and abrasions, with 37% of the 9,400 injuries²³. Fractures were reported in 31% of the injuries²⁴. The arm and hand, with 39% of the total²⁵, was the most commonly affected body area. Fractures to the arm or hand were the most common injuries (about 19%)²⁶.

Fifty-nine percent of the victims were in the 8- to 11-year-old age group²⁷. Although the 12-and-older age group represented 31% of all injuries for which a hazard pattern is

¹⁸ Estimate = 5,630; C.V. = .23

¹⁹ Estimate = 10,830; C.V. = .20

²⁰ Estimate = 31,890; C.V. = .13

²¹ Estimate = 6,940; C.V. = .21

²² C.V. = .21

²³ Estimate = 3,448; C.V. = .27

²⁴ Estimate = 2,885; C.V. = .29

²⁵ Estimate = 3,674; C.V. = .26

²⁶ Estimate = 1,740; C.V. = .32

²⁷ Estimate = 5,525; C.V. = .27

known²⁸, this group's share of these miscellaneous falls is too small to provide a reliable estimate.

Table 3 below summarizes the findings for this hazard pattern:

Table 3: Falls for some other reason

Estimated injuries	9,400
Percentage of all injuries	17%
Percentage of falls	20%
Most frequent diagnosis	Fracture
Most frequently injured body area	Arm and hand
Most frequent injury	Fracture to arm or hand
Largest age group	8- to 11-year-olds
Experience	54% described as very experienced or somewhat experienced

Fell – Doing Tricks: (7,120 injuries)²⁹

Approximately 13% of the injuries for which a hazard pattern could be identified occurred when the rider was doing tricks. Tricks included hopping while the scooter was in motion or stationary, jumping over obstacles with the scooter, doing wheelies, scootering on ramps, or other similar activities. The type of trick involved was not always identified by the respondent.

The leading diagnosis for these patterns was contusions and abrasions. The leg and foot area was the most frequently injured, with 41% of the 7,120 injuries³⁰; head injuries and face and neck injuries were also common. The most common injury was a fracture to the leg or foot.

A disproportionately high number of these injuries occurred to the 12-and-over age group (42% of the 7,120 injuries)³¹. The 12-and-over group represented 31% of injuries in all hazard patterns³². Very few of the victims injured while doing tricks were under 8 years of age. Surprisingly, 37% of the victims injured while doing tricks described themselves as not very experienced³³. This is even more surprising in light of the 19% of riders in all hazard patterns who described themselves similarly³⁴. A few riders in this hazard pattern were first-time riders.

²⁸ Estimate = 17,610; C.V. = .14

²⁹ C.V. = .20

³⁰ Estimate = 2,917; C.V. = .30

³¹ Estimate = 2,996; C.V. = .29

³² Estimate = 17,610; C.V. = .14

³³ Estimate = 2,669; C.V. = .35

³⁴ Estimate = 10,560; C.V. = .18

Table 4 below summarizes the findings for this hazard pattern:

Table 4: Falls while doing tricks

Estimated Injuries	7,120
Percentage of all injuries	13%
Percentage of falls	15%
Most frequent diagnosis	Contusions and abrasions
Most frequently injured body area	Leg and foot
Most frequent injury	Fracture to leg or foot
Largest age group	8- to 11-year-olds ³⁵
Experience	46% described as very experienced or somewhat experienced

Other: (6,120 injuries)³⁶

This pattern, which accounted for approximately 11% of the injuries in completed cases, represented mostly incidental contact with the scooters. Victims were injured when they were carrying a scooter and fell onto it, or when they were engaged in another activity and fell, landing on a scooter. Other victims were injured when hit by other people on scooters.

Other cases included riders who injured legs while riding; two cases that occurred when a scooter hit a rock and stopped suddenly; one case in which the victim stepped back and the front of the scooter came up and hit her; and one case which was similar to the handlebar failure cases, but the respondent stated that the victim had not locked the handlebars into place.

Fell – Trying to Stop: (5,130 injuries)³⁷

Nine percent of the estimated injuries for which a hazard pattern could be identified were attributed to falls that occurred while trying to stop. The estimate includes cases in which the victims stated that they tried to stop, but were going too fast, and jumped off. Over half of the injuries that resulted were fractures³⁸. The arm and hand were the most frequently injured body area, accounting for just under half of the injuries in this pattern³⁹. The most common injury was a fracture to the arm or hand.

This pattern was associated with a disproportionately high number of victims in the 12-and-over age group. Forty-seven percent of the injuries that occurred while the rider was trying to stop were 12 or older⁴⁰. While the variability associated with this estimate is large, the relative size of the estimate may merit further discussion and study. Very few children under the age of 8 years were injured in this manner. Slightly more than half of

³⁵ Estimate = 3,269; C.V. = .27

³⁶ C.V. = .20

³⁷ C.V. = .25

³⁸ Estimate = 2,849; C.V. = .33

³⁹ Estimate = 2,357; C.V. = .31

⁴⁰ Estimate = 2,415; C.V. = .40

the victims described themselves as either “very experienced” or “somewhat experienced”⁴¹.

Table 5 below summarizes the findings for this hazard pattern:

Table 5: Falls while trying to stop

Estimated Injuries	5,130
Percentage of all injuries	9%
Percentage of falls	11%
Most frequent diagnosis	Fracture
Most frequently injured body area	Arm and hand
Most frequent injury	Fracture to arm or hand
Largest age group	8- to 11-year-olds ⁴²
Experience	53% described as very experienced or somewhat experienced

Cut By Scooter/Injured While Folding or Unfolding Scooter: (4,000 injuries)⁴³

Seven percent of the estimated injuries for which a hazard pattern could be identified occurred when the victim was cut by the scooter. In some cases, the victim was cut by an exposed sharp edge; in other cases, victims suffered severe lacerations to the hands or fingers as a result of getting caught in the folding mechanism.

Virtually all (96%) of the injuries in this hazard pattern were lacerations⁴⁴. Many of the injuries were to the leg or foot, usually from contact with the deck of the scooter. Arms and hands (including fingers), and faces and necks were also injured. These were often the result of banging into the handlebars. The 4- to 11-year-old age group accounted for about two-thirds of the injuries in this pattern⁴⁵. Children under 4 years accounted for a small portion of the injuries in this pattern, but this pattern represents more than half of the injuries to this age group overall.

Information on experience was not obtained for these victims.

⁴¹ Estimate = 2,736; C.V. = .34

⁴² Estimate = 2,492; C.V. = .31

⁴³ C.V. = .32

⁴⁴ Estimate = 3,852; C.V. = .33

⁴⁵ Estimate = 2,699; C.V. = .33

Table 6 below summarizes the findings for this hazard pattern:

Table 6: Cut by scooter/Injured while folding or unfolding scooter

Estimated Injuries	4,000
Percentage of all injuries	7%
Most frequent diagnosis	Laceration
Most frequently injured body area	Leg and foot
Most frequent injury	Laceration to the leg or foot
Largest age group	8- to 11-year-olds

Fell – Turning: (3,090 injuries)⁴⁶

Falls while attempting a turn accounted for a small percentage of the estimated injuries for which a hazard pattern could be identified. The most frequent result was a laceration. The face and neck were most frequently injured. Lacerations to the face or neck were the most frequent injury. This pattern appears disproportionately represented for children 4 to 7 years old and for adults over 19, though the sample sizes are too small to generate reliable estimates.

This pattern is related to the ability of the rider to control the scooter, and yet many of the riders in this hazard pattern were described as very experienced or somewhat experienced scooter riders. The apparent overrepresentation of the younger and older age groups suggests that currently available scooters may be most appropriate for the size and coordination of children between the ages of 8 and 15 years.

Table 7 below summarizes the findings for this hazard pattern:

Table 7: Falls while turning

	3,090
Percentage of all injuries	6%
Percentage of falls	7%
Most frequent diagnosis	Laceration
Most frequently injured body area	Face and neck
Most frequent injury	Laceration to face or neck
Largest age group	8- to 11-year-olds ⁴⁷
Experience	84% described as very experienced or somewhat experienced

⁴⁶ C.V. = .41

⁴⁷ C.V. is too large to provide estimate.

Fell – Scooter Broke or Failed: (2,940 injuries)⁴⁸

Five percent of the estimated injuries for which a hazard pattern could be identified occurred when a scooter broke or failed in some way, resulting in the rider falling. The estimate of 2,940 injuries is based on 21 cases. Because of the small sample size and large variability associated with the estimates, further discussion of scooter breakage and failure will be based on actual case counts. There were five cases in which some part actually broke or fell off while the victim was riding the scooter. In addition, there were 11 cases in which the respondent reported that the handlebars loosened while riding and five cases in which the respondent reported that the brakes failed.

The most frequently injured body area in cases of falls as a result of scooter failure was the leg and foot. The most frequent diagnosis was contusions and abrasions. Strains and sprains were second, and fracture was third. Victims were overwhelmingly between 8 and 11 years old. Virtually all of the riders who were injured when scooters broke or failed were described as either very experienced or somewhat experienced.

Table 8 below summarizes the findings for this hazard pattern:

Table 8: Falls when scooter broke or failed

Estimated Injuries	2,940
Percentage of all injuries	5%
Percentage of falls	6%
Most frequent diagnosis	Contusions and abrasions
Most frequently injured body area	Leg or foot
Most frequent injury	Contusions and abrasions to the leg or foot
Largest age group	8- to 11-year-olds ⁴⁹
Experience	88% described as very experienced or somewhat experienced

Other Injuries in which Scooter Broke or Failed

In some cases, a scooter failure contributed to the injury, but the result was not a fall, or another pattern better described the incident. These cases, which are distributed among the other patterns (fell trying to stop, cut on scooter, other), totaled an estimated 1,370 injuries⁵⁰. These cases were similar to the ones discussed above. Three cases reported loose screws or locking mechanism in the handlebar system, and four cases reported an inability to stop (brake failure). One case reported a cut from a sharp metal edge exposed when a piece of plastic came off of the scooter. Together with the cases in the breakage and failure category, we are aware of 14 handlebar failure cases and nine brake failure cases. One of the reported deaths (not from the study) may have involved handlebar failure, and one indicated possible brake failure.

⁴⁸ C.V. = .31

⁴⁹ C.V. is too large to provide estimate.

⁵⁰ C.V. = .41

Fell – Not Sure Why: (3,130 injuries)⁵¹

Injuries resulting from a fall of unknown cause account for 6% of the estimated injuries for which a hazard pattern could be identified. Fractures were most common. The most frequently affected body area was the arm or hand. The combination of these, a fracture to the arm or hand, was the most frequent injury reported involving this pattern.

A disproportionately high number of the estimated injuries reported for this pattern was to children in the 8- to 11-year-old age group⁵². (This age group accounts for 31% of all estimated injuries for which a hazard pattern could be identified.) There were almost no injuries reported for children less than 4 years of age, and there were none reported for riders 16 years of age or older. The majority of those injured from falls of unknown cause were described as very experienced or somewhat experienced scooter riders.⁵³

Table 9 below summarizes the findings for this hazard pattern:

Table 9: Falls – Not Sure Why

Estimated Injuries	3,130
Percentage of all injuries	6%
Percentage of falls	7%
Most frequent diagnosis	Fracture
Most frequently injured body area	Arm or hand
Most frequent injury	Fracture of arm or hand
Largest age group	8- to 11-year-olds ⁵⁴
Experience	Majority of injuries reported to be very experienced or somewhat experienced

⁵¹ C.V. = .33

⁵² C.V. = .43

⁵³ C.V. = .36

⁵⁴ C.V. is too large to provide estimate.

OTHER FINDINGS FROM THE STUDY

Condition of the Scooter – Almost 9 of every 10 scooters (89%) involved in the injuries were described as being in either “excellent, like new” or “good” condition at the time of the injury. Five percent were identified as being in “fair” condition. Fewer than one percent were identified as in “poor” condition. Condition of the scooter was not known in 5% of the cases.

Manufacturers – Two manufacturers of scooters were identified in 48 percent of the injuries for which manufacturer was known. These two manufacturers represent about 63 percent of the scooters sold since the new type of scooter appeared. All other manufacturers represent about 38 percent of the scooters sold, but were identified in 52 percent of the injuries for which manufacturer was known.

Cost of the Scooter – We also asked how much the scooter cost. There were a large number of cases where the cost was not known. However, among the approximately 36,000 estimated injuries for which cost was known, the distribution was as follows:

Less than \$30.00	13%
\$31.00 to \$50.00	34%
\$51.00 to \$75.00	21%
\$76.00 to \$100.00	28%
\$101.00 to \$125.00	4%

It is noteworthy that 47% of the injuries, for which price of the scooter was known, involved scooters costing \$50.00 or less. During the study period, scooters were just beginning to be discounted and scooters produced by major manufacturers were almost all priced above \$75.00.

Safety Equipment Use – Respondents were asked whether the victim usually wears safety equipment while riding scooters.

Table 10. Safety Equipment Use Among Scooter Riders in the Scooter Special Study

Frequency of Use	Safety Equipment Use Among Injured Scooter Riders Ages 4 – 15
Always wear	25%
Usually wear	18%
Sometimes wear	10%
Rarely wear	5%
Never wear	42%

It is noteworthy that only 43% reported that they use safety equipment always or usually when riding scooters. Forty-nine percent reported that they rarely or never wear any safety equipment.

Scooter study respondents were also asked whether the victim was wearing any safety equipment at the time γ . The results were: yes – 47.5%; no - 50%; don't know – 2.5%

NOTE: See Appendix I for estimates and c.v.s for this section.

Scooter Related Deaths

From the January of 1999 through October 18, 2001, 19 deaths related to unpowered scooters have occurred and been reported to CPSC. All of these deaths occurred since the summer of 2000. All but three happened in 2001.

Twelve of the 19 deaths involved motor vehicles striking the victims. With the exception of two 18-year-olds, all of the victims in these cases were children 12 years of age or younger. In one of these cases it has been reported but not verified that the handlebars may have collapsed downward, causing the victim to lose control. In another case it was reported that a hand brake on a scooter may have failed resulting in the victim going through a stop sign before being struck by a car.

Six deaths resulted from falls, and one death did not report how the injury happened. Four of the six deaths from falls and the one death which did not report how the injury happened were to adults. The two children killed were 10-year-olds who died of head injuries after falls. Neither was wearing a helmet.

A spreadsheet summarizing these scooter-related fatalities is in Appendix II.

Product Issues

The purpose of this study was to learn more about the scooters and riders involved in injuries, so that strategies could be developed to reduce injuries. Issues identified relate to the quality of the products, the design and materials of the products, the way the product is maintained, or the way the product is used. This section addresses the first three of these types of issues.

Product Failure

We identified 28 cases in the study in which scooter failure played a part in the injury. The estimate based on these cases was approximately 4,310 injuries, which represents almost 8 percent of the injuries for which a pattern was known. Discussion of the individual failure modes focuses on actual cases, rather than estimates, because of the small sample sizes involved.

There were 5 cases in which some part actually broke or fell off while the victim was riding the scooter. These were:

- Handlebar bolts broke
- Brake broke off
- Scooter broke apart
- Screw came out
- Wheel came off

There were 14 study cases which reported that the handlebars loosened while riding and 9 study cases which reported that the brakes failed. In addition, one death was reported from other sources for each of these two failure modes. These two failure modes are discussed below:

- The cases in which the handlebars or screws loosened may be a result of insufficient tightening by the rider before riding. They could also be the result of repeated overtightening resulting in wear of the tightening mechanism. The tightening mechanism may also have just worked loose. Tightening mechanisms may need to be improved to better accommodate use and upkeep by children. A slightly different failure mode was identified in one case in which it was reported that a spring-loaded button which locks the handlebars in place popped out causing the incident.
- The cases attributed to brake failure may relate more to inadequacy of the braking system than to any actual brake failure. The foot brake system may be adequate for normal speed riding on a flat surface. However, scooters can attain much more speed going downhill, and the mechanism of pushing a metal brake against the wheel may not stop the scooter very quickly. The wheel can be completely stopped, and the scooter can still skid a considerable distance. The material of the wheels may be more likely to skid than a rubber tire or other wheel material.

Hazard Patterns related to design of the scooter

Fell, trying to stop (9 percent, estimated 5,130 injuries)

These are cases in which victims reported that they tried to stop, but could not. They did not report brake failure, but did state that they were trying to stop. The same issues as discussed above for brake failure may apply in many of these situations.

Fell, wheel hit a small object (27 percent, estimated 15,220 injuries)

These cases all occurred when the front wheel of the scooter hit something small like a small rock or a crack in the sidewalk. Because the wheels are very small, this resulted in the wheel stopping or turning sharply, and the rider fell. Flat smooth surfaces without cracks, gravel or rocks are rare. Scooter wheels may need to be better adapted for the environment in which they are likely to be used.

Fell, turning (6 percent, estimated 3,090 injuries)

It is possible to turn the front wheel of a scooter very sharply, and in many cases it can be rotated a full 360 degrees. Because there is only one wheel in front, and it is very small, it is possible to turn the wheel much more sharply than intended. An inadvertent 90-degree turn is likely to result in a fall.

Cut by something on scooter (7 percent, estimated 4,000 injuries)

Many of these cases referred to sharp or unfinished edges on the deck of the scooter. Several others referred to victims who were cut while folding or unfolding the scooter, when their fingers became caught in pinch points. Reducing or eliminating potential entrapment points in the scooter could address these injuries. Quality control is the issue where sharp edges or points are concerned.

Injury Rates and Comparison with Other Riding Products/Activities

Injuries associated with unpowered scooters increased dramatically starting in about June of 2000. For the full year of 2000, there were an estimated total of 42,490 emergency room treated injuries associated with scooters. Through August of 2001, there were an estimated 78,740 scooter-related injuries treated in hospital emergency rooms in the United States.

According to the National Sporting Goods Association (NSGA), approximately 11,622,000 people 7 years of age and older rode a scooter at least one time during the year 2000. The NSGA data also provided estimates of the number of days on which scooters were ridden. Table 11 shows a comparison of the NSGA participation data with the NEISS injury estimates and population estimates from the U.S. Census.

Table 11. Injury, Population and Participation Estimates, and Rates Associated with Non-powered Scooters, Year 2000, by Age Group.

	Age Group				
	Under 7 Years of Age	7 – 11 Years of Age	12 – 17 Years of Age	18 Years of Age and Older	Total Ages 7 and Older
Population	26,659,178	20,227,649	23,576,440	205,380,051	249,184,140
Participants	Not Available	6,844,000	2,843,000	1,935,000	11,622,000
Total Days Participated	Not Available	222,825,000	89,668,000	34,805,000	347,298,000
Estimated # of Injuries	6,550	21,520	9,690	4,750	35,940
Rate of Injury per 1,000 Participants	Not Available	3.14	3.40	2.45	3.09
Rate of Injury per 10,000 Days Participated	Not Available	0.96	1.08	1.36	1.03
Ratio of Participants to Population	Not Available	1 : 3	1 : 8	1 : 106	1 : 21
Rate of Injury per 1,000,000 Population	245	1063	411	23	144

Sources: National Electronic Injury Surveillance System, U.S. Consumer Product Safety Commission, Directorate for Epidemiology; Sports Participation in 2000, National Sporting Goods Association; Population Estimates, July 2000, U.S. Census Bureau

NOTE: The age groups used in this section differ from the ones used in the study discussion. The age groups here were used to be compatible with the National Sporting Goods Association (NSGA) data on participants.

The table shows that, in 2000, children between 7 and 11 years of age were the primary users of scooters. In this age group, approximately one out of every three children rode a scooter at some time during 2000. This group accounted for almost 60% of the emergency-room-treated injuries, and also represented about 60% of the scooter users. They accounted for 64% of the total days scooters were ridden. Among children 12 – 17, one in eight rode a scooter during 2000. Among adults 18 and older, one in every 106 rode a scooter during the year. When rate of injury per 1000 participants is examined, it appears that adults 18 and older were the least likely to be injured. However, when number of days ridden during the year was considered, this age group had the highest injury rate (1.36 per 10,000 days ridden). Children 7 – 11 years of age had the lowest

rate of injury when “number of days ridden” was used as the measure of exposure (0.96 per 10,000 days ridden.) In terms of population impact, the 7 – 11 age group experienced 1,063 scooter-related injuries per 1,000,000 population in 2000. Adults 18 and older experienced 23 injuries per million population. While the greatest injury total is in the 7 – 11 age group, since this is the largest group of scooter riders, their actual risk of injury per day of riding was much lower than other age groups.

Overall, the rate of injury associated with scooters in the year 2000 per 1,000 participants is 3.09.

Scooter injury rates were then compared with injury rates for similar products. Table 12 shows the injury rates per 1,000 participants for each of four riding products/activities.

Table 12. Injuries, Participants, and Injury Rates per 1,000 Participants Ages 7 Years and Older for Four Riding Products/Activities, 2000

Product/Activity	ER-Treated Injuries, 2000	Participants 2000	Rate per 1,000 Participants	Days of Participation, 2000	Injury Rate per 10,000 Days of Participation
Scooters	35,952 ⁵⁵	11,621,000	3.09	347,467,900	1.03
Skateboards	82,794 ⁵⁶	9,059,000	9.14	329,747,600	2.51
In-Line Skates	86,215 ⁵⁷	21,817,000	3.95	503,972,700	1.71
Bicycles	535,279 ⁵⁸	42,546,000	12.58	2,608,069,800	2.05

Sources: U.S. Consumer Product Safety Commission, National Electronic Injury Surveillance System. National Sporting Goods Association, Sports Participation in 2000

The table shows that:

- Scooter riding had the lowest rate of emergency-room-treated injury per 1,000 participants among the four products/activities (3.09 per 1,000).
- Bicycling has the highest rate (12.58 per 1,000).
- Bicycle riders reported more than twice as many days of riding (61.3) on average than did scooter riders (29.9) in 2000. This factor results in rates per 10,000 days of use which are more similar than when just the number of participants is used. However, the rate for bicycles (2.05 per 10,000 days) was still double the rate for scooters (1.03 per 10,000 days).
- Considering the rates per 10,000 days of participation for these four activities, it is clear that skateboarding was associated with the highest rate of injury. The skateboarding rate (2.51 per 10,000 days) is almost 2 ½ times the rate for scooters.
- Scooters were associated with the lowest rate of injury among these four products regardless of which exposure measure was utilized.

⁵⁵ C.V. = .16

⁵⁶ C.V. = .15

⁵⁷ C.V. = .09

⁵⁸ C.V. = .08

Effects of Scooter Trend on Other Activities

The scooter study questionnaire contains a series of questions about other riding sports activities. We asked each respondent if the person injured owns each of the products listed below:

- Skateboard
- Bicycle
- In-Line Skates
- Roller Skates
- Other similar products

For each of these products that the victim owned, the respondent was then asked whether the victim uses that product more, less, or about the same since getting the scooter. Table 13 below shows the results for three of these products. Too few victims owned old-style roller skates to use for this comparison.

Table 13. Percent Distribution of Use Patterns for Three Riding Sports Activities, Among Victims in the Scooter Special Study, 12/21/2000 – 6/15/2001

Product/Activity	Percent who own	Percent of Those Who Own Who Use it less	Percent of Those Who Own Who Use it more	Percent of Those Who Own Who Use it the same
Skateboard	28%	40%	10%	51%
Bicycle	94%	25%	19%	56%
In-Line Skates	54%	36%	6%	58%

For each of the three products, there were more respondents who reported that the product was used less than before the scooter was obtained than there were respondents who reported that it was used more. If we make the assumption that the injured victims were typical of all scooter riders, one would expect that use of each of these products would have declined somewhat, and that this could be expected to produce a reduction in injuries associated with these products. There is evidence of decreasing injuries associated with bicycles and in-line skates. Skateboard injuries increased slightly. Figures 3 through 5 on the following page show the month-by-month changes in injury data associated with each of these three products since January 2000. (Note that the bicycle graph is on a much larger scale than the other two graphs.)

Figure 3. Bicycle Injuries by Month

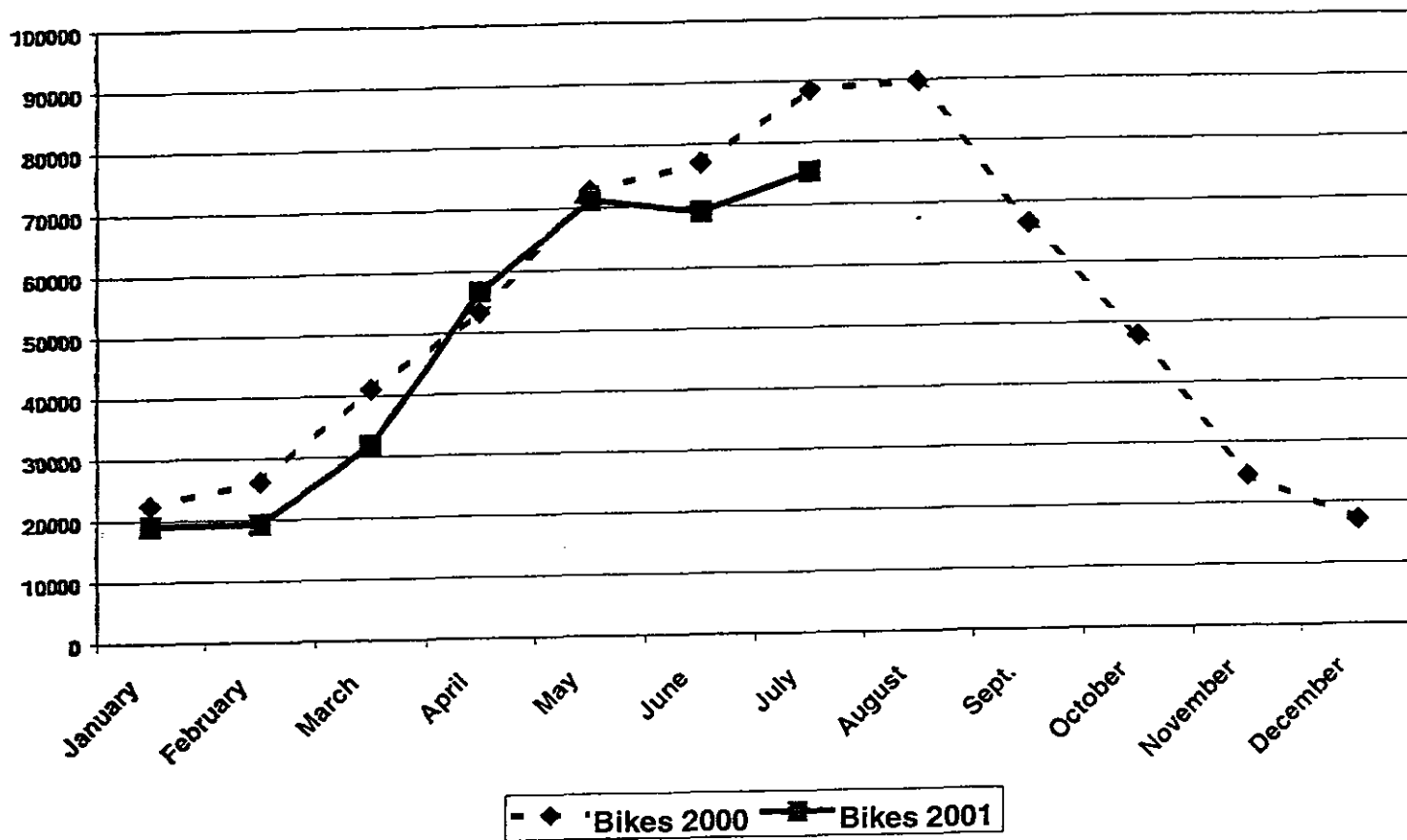


Figure 4. In-Line Skating Injuries by Month

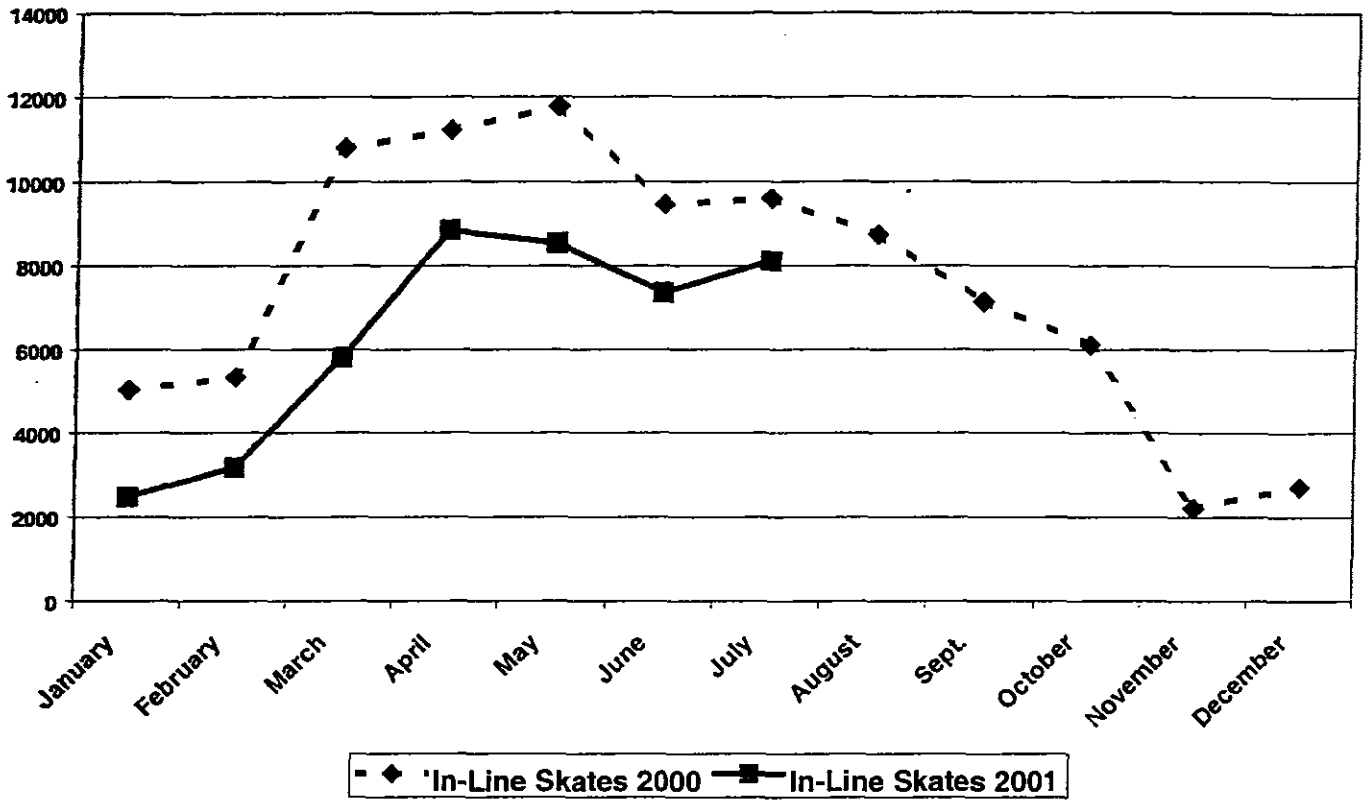
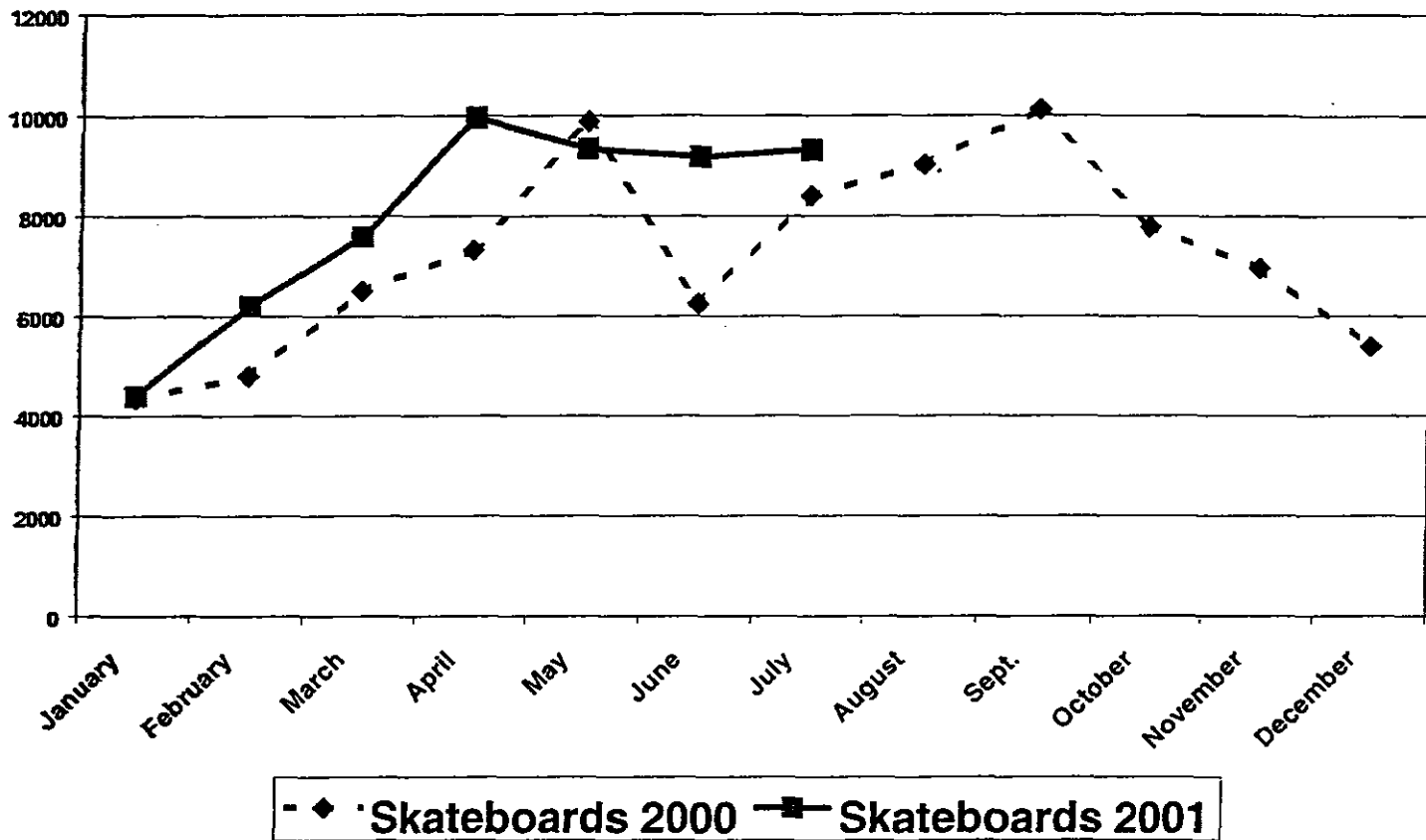
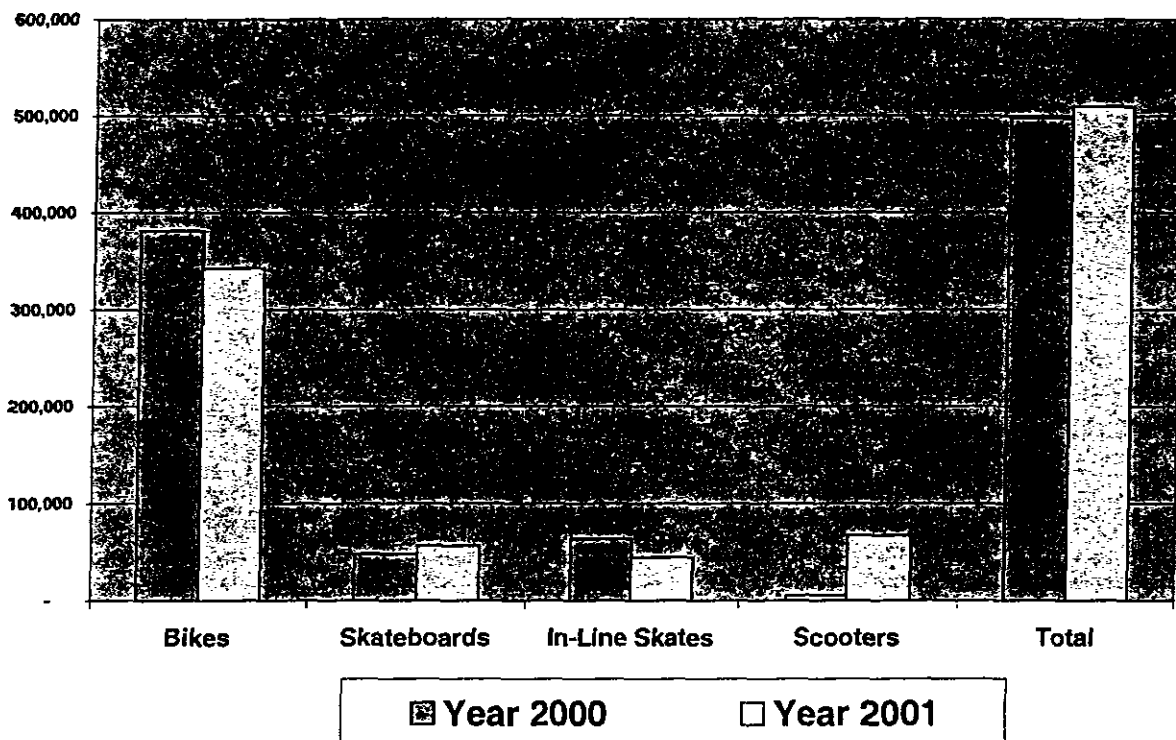


Figure 5. Skateboard Injuries by Month



To better understand the impact of scooter riding on injuries associated with these products, and to put the overall riding sport/activity injury problem into perspective, Figure 6 compares injuries for the first seven months of 2000 with the first seven months of 2001. This graph shows that the overall increase in the total injuries resulting from the increase in scooter-related injuries is almost cancelled out by the decreases in the other products. The overall difference of approximately 12,000 emergency room injuries is not statistically significant. ($p = .51$)

**Figure 6. Comparison of the First Seven Months of 2000 and 2001.
Estimated Number of Injuries by Product/Activity**



In fact, this difference is almost equal to the increase in skateboarding injuries. According to the NSGA participation data, skateboard use increased by 30 percent in 2000 over the previous year. The injury data seem to indicate that this trend has continued in 2001. Participation data for in-line skating showed a sharp decline in 2000. The trend for bicycles shows a decline in participation, but not as sharp as the decline for in-line skating.

It appears from these data that, while the number of scooter-related injuries in the first seven months of 2001 is large, the reduction in injuries associated with other riding products/activities almost cancels out this increase in terms of the overall public health burden of injuries associated with products of this type.

Discussion and Conclusions

In 1999, there were an estimated 3,280⁵⁹ emergency-room-treated injuries associated with unpowered scooters. In 2000, there were over 40,000. From January through August 2001, there were an estimated 78,740⁶⁰ emergency-room-treated injuries associated with unpowered scooters. There were 19 deaths reported since 1999, 16 of them in 2001.

While the estimate for the year is alarmingly higher than the previous year, when the data are plotted by month a slightly different picture emerges. The monthly injury totals appear to have reached their highest levels in April (estimated 13,610 injuries⁶¹) and May (estimated 11,040⁶² injuries) of 2001, and appear to be declining since then. The estimate for August is 9,250⁶³. While this is still a large number of injuries, and is of concern, it does appear that injuries have stopped increasing every month. The CPSC Directorate for Economic Analysis reports that there is "every indication of a complete glut in scooters, as retailers continue to try to work off their inventories." They refer to an article, in "Bicycle Retailer and Industry News" which predicts that "the number of (scooter) suppliers will diminish." They report that many small manufacturers in Asia have gone or will go bankrupt or will discontinue manufacturing scooters.

Our analysis of the injury rates associated with scooters compared with the rates associated with bicycles, skateboards, and in-line skates, indicates that scooters have the lowest rate of injury among the four riding products/activities. The rate of injury per 10,000 days of participation for bicycles is almost double the rate for scooters, and the rate for skateboards is 2 ½ times the rate for scooters. This may indicate that scooters are the least risky of the four products, although where the products are used and risks taken by the riders as well as other variables could affect this risk.

We also examined the injury trends associated with all four products. This comparison reveals that reductions in injuries associated with bicycles and in-line skates over the past two years equal the increase in injuries associated with scooters. Skateboard injuries have increased slightly over this time period. The study found that for each of these three products, there were more persons in the scooter study data who reported using the product less since getting the scooter than there were persons who reported using it more. It may be that this reduced usage of these products by people who began riding scooters contributed to the reduction of injuries associated with these products.

Product failure was identified as an issue in the consumer complaint data. The study data contained reports of injuries attributed to product failure in use resulting in 8% of the injuries in the study period. The product failures identified in the consumer complaint data often related to actual material or structural failure of the scooter. While a few of the product failures identified in the study data were cases of structural failure, more frequently they were a loosening or a coming apart of the adjustment or attachment

⁵⁹ C.V. = .15

⁶⁰ C.V. = .10

⁶¹ C.V. = .10

⁶² C.V. = .13

⁶³ C.V. = .16

devices. The other pattern identified in the failure cases in the study was the inability to stop, attributed by the respondents to brake failure.

There were several patterns identified in the study data, representing about 42% of the injuries, which may be addressable through provisions of a voluntary standard being developed under the auspices of ASTM. These include cases in which the small front wheel of the scooter hits a small object or crack, resulting in a fall; cases in which the victim fell while trying to turn the scooter, and cases in which the rider fell while trying to stop. The hazard pattern, cut by something on scooter, which represented 7 percent of the injuries during the study, may also be addressed by provisions of the voluntary standard.

The CPSC Office of Compliance worked with manufacturers to recall some scooter models and has contacted manufacturers of some other brands to begin to correct problems identified through consumer complaints. Cases of product failure from the study data have also been forwarded to the Office of Compliance for their further investigation.

The study was conducted at a time when most scooters were selling for prices ranging from \$75.00 to \$125.00. There were many different brands of scooter sold (we identified 100 in our study data), and many of these sold for less than \$76.00; however, the market share of these brands was small. More than two-thirds of the injuries in the special study, for which price was known, involved scooters which cost \$75.00 or less. The two largest manufacturers of scooters, which represented about 63% of scooters sold were associated with only 48% of the study injuries⁶⁴ for which manufacturer was known. These findings suggest the possibility that cheap scooters produced when the fad was increasing rapidly may have been a factor in the number of injuries that occurred. If this is true, we may be able to expect this added risk to be mitigated by the findings that the industry is contracting and many of the smaller firms are no longer manufacturing scooters.

While the data on safety equipment among scooter riders applies only to the population treated in emergency rooms for injuries, it is noteworthy that only 43% of respondents reported that the victim usually or always wore safety equipment while riding the scooter. A similar study on bicycle riders under the age of 16 showed that 51% of bicycle riders wore helmets always or usually when riding bicycles.⁶⁵

To summarize:

- While scooter injuries increased rapidly over the past year, the trend appears to be reversing, although there are still considerably more injuries each month associated with scooters than there were before the introduction of the new type of scooter.
- The increase in scooter injuries appears to have been largely cancelled out by decreases in injuries associated with bicycles and in-line skates. These decreases may be partially related to the increase in use of scooters.

⁶⁴ See Appendix I, Table A10 for estimates and C.V.s

⁶⁵ See References Item #3

- Compared with other riding products/activities used by children, scooters have the lowest rate of injury per 1,000 participants and the lowest rate of injury per 10,000 days of use among the four products (scooters, skateboards, bicycles, in-line skates.)
- Many of the products involved in the injuries appear to have been inexpensive imitations of the scooters initially introduced into the market. Many of these brands are now going out of business.
- Almost 50% of the persons injured during the study period were reported to rarely or never wear any safety equipment while riding the scooter.
- CPSC's Office of Compliance has in the past, and continues to review and identify product failures and product defects, and work to eliminate these as they are found.
- The study did identify product features, which could be improved or addressed through the voluntary standard development process currently underway under the auspices of ASTM.
- Continuing to work with the voluntary standard subcommittee and identifying and removing defective products appear to be the most appropriate ways to address scooter-related injuries.

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Appendix I. Study Data Summary Tables

- A1. Hazard Pattern by Diagnosis
- A2. Hazard Pattern by Body Part Injured
- A3. Hazard Pattern by Age Group
- A4. Hazard Pattern by Experience
- A5. Safety Equipment Use
- A6. Scooter Condition
- A7. Safety Equipment at Time of Injury
- A8. Cost of Scooter
- A9. Coded Brand Name Distribution of Scooter Brands
- A10. Estimates and Coefficients of Variation for Use Patterns for
Three Riding Sports

Table A1. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, by Hazard Pattern and Diagnosis.

Note: Numbers in parentheses are coefficients of variation

Pattern	Total	Contusion Abrasion	Dislocation	Fracture	Laceration	Dental Injury	Concussion	Internal Injury	Strain/Sprain	Other	All Others
Total	56,151 (.10)	13,364 (.16)	783 (.64)	17,510 (.16)	10,277 (.19)	1,644 (.42)	1,447 (.45)	2,461 (.33)	6,600 (.22)	1,462 (.46)	603 (.65)
Fell-Trying to Stop	5,134 (.25)	1,249 (.42)	--	2,849 (.33)	27 (1.0)	--	--	80 (1.0)	900 (.72)	27 (1.0)	--
Fell-Broke or Failed	2,944 (.31)	991 (.50)	--	710 (.52)	31 (1.0)	--	445 (.73)	--	768 (.79)	--	--
Fell-Hit Something Small	15,224 (.16)	3,045 (.33)	--	5,802 (.26)	2,014 (.39)	1,247 (.54)	--	117 (.38)	2,041 (.35)	958 (.61)	--
Fell-Turning	3,090 (.41)	379 (.82)	85 (1.0)	464 (.69)	1,136 (.57)	80 (1.0)	--	862 (.65)	85 (1.0)	--	--
Fell-Doing Tricks	7,119 (.20)	1,986 (.37)	80 (1.0)	1,657 (.38)	703 (.60)	206 (1.0)	917 (.62)	453 (.72)	486 (.70)	85 (1.0)	545 (.71)
Fell-Other Reason	9,400 (.21)	3,448 (.27)	--	2,885 (.29)	916 (.42)	111 (.77)	--	700 (.63)	1,307 (.43)	31 (1.0)	--
Fell-Not Sure Why	3,129 (.33)	455 (.77)	--	1,846 (.48)	437 (.71)	--	--	61 (1.0)	299 (1.0)	31 (1.0)	--
Cut by Scooter/ Folding or Unfolding	3,995 (.32)	85 (1.0)	--	--	3,852 (.33)	--	--	--	--	31 (1.0)	27 (1.0)
Other	6,116 (.20)	1,726 (.41)	618 (.80)	1,294 (.54)	1,161 (.50)	--	85 (1.0)	188 (.61)	714 (.58)	299 (1.0)	31 (1.0)

Table A2. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, by Hazard Pattern and Body Part.

Note: Numbers in parentheses are coefficients of variation

Pattern	Total	Arm & Hand	Face & Neck	Head	Leg & Foot	Trunk	Other
Total	56,151 (.10)	19,628 (.13)	8,474 (.20)	5,979 (.22)	15,653 (.14)	6,185 (.19)	235 (1.0)
Fell-Trying to Stop	5,134 (.25)	2,357 (.31)	337 (.93)	316 (.60)	1,189 (.55)	935 (.56)	--
Fell-Broke or Failed	2,944 (.31)	678 (.54)	178 (.86)	445 (.73)	1,585 (.48)	59 (.66)	--
Fell-Hit Something Small	15,224 (.16)	6,776 (.23)	3,086 (.36)	486 (.70)	2,539 (.34)	2,337 (.33)	--
Fell-Turning	3,090 (.41)	549 (.60)	1,216 (.54)	862 (.65)	379 (.82)	85 (1.0)	--
Fell-Doing Tricks	7,119 (.20)	558 (.42)	1,175 (.65)	1,455 (.53)	2,917 (.30)	778 (.58)	235 (1.0)
Fell-Other Reason	9,400 (.21)	3,674 (.26)	872 (.28)	1,453 (.43)	2,801 (.35)	600 (.69)	--
Fell-Not Sure Why	3,129 (.33)	1,960 (.45)	86 (.49)	61 (1.0)	878 (.64)	144 (.65)	--
Cut by Scooter/ Folding or Unfolding	3,995 (.32)	1,086 (.54)	721 (.61)	--	2,189 (.39)	--	--
Other	6,116 (.20)	1,990 (.39)	803 (.52)	901 (.55)	1,176 (.38)	1,247 (.50)	--

BODY PART GROUPS

- Arm & Hand: Lower Arm; Upper Arm; Elbow; Wrist; Hand; Finger
- Leg & Foot: Lower Leg; Upper Leg; Ankle; Knee; Foot; Toe
- Face & Neck: Face; Ear; Eyeball; Mouth; Neck
- Head: Head (excluding face)
- Trunk: Lower Trunk; Upper Trunk; Shoulder; Pubic Region
- Other: 25 - 50% of body; All parts of body; Not recorded

Table A3. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, by Hazard Pattern and Age Group.

Note: Numbers in parentheses are coefficients of variation

Pattern	Total	<4 Years Old	4 - 7 Years	8 - 11 Years	12 - 15 Years	16 - 19 Years	20+ Years
Total	56,151 (1.0)	961 (.52)	11,096 (.18)	26,478 (.12)	12,043 (.16)	1,253 (.46)	4,318 (.27)
Fell-Trying to Stop	5,134 (.25)	--	226 (.53)	2,492 (.31)	1,439 (.43)	299 (1.0)	677 (.61)
Fell-Broke or Failed	2,944 (.31)	--	209 (.74)	2,094 (.40)	391 (.74)	85 (1.0)	165 (.69)
Fell-Hit Something Small	15,224 (.16)	31 (1.0)	2,623 (.34)	6,938 (.21)	4,045 (.29)	241 (.55)	1,346 (.44)
Fell-Turning	3,090 (.41)	--	1,249 (.80)	874 (.51)	85 (1.0)	80 (1.0)	802 (.58)
Fell-Doing Tricks	7,119 (.20)	--	854 (.59)	3,269 (.27)	2,594 (.32)	--	401 (.82)
Fell-Other Reason	9,400 (.21)	300 (.49)	1,992 (.33)	5,525 (.27)	954 (.43)	80 (1.0)	548 (.87)
Fell-Not Sure Why	3,129 (.33)	55 (.65)	446 (.68)	2,201 (.43)	428 (.80)	--	--
Cut by Scooter/ Folding or Unfolding	3,995 (.32)	495 (.95)	1,336 (.42)	1,363 (.51)	503 (.71)	--	299 (1.0)
Other	6,116 (.20)	80 (1.0)	2,162 (.35)	1,722 (.36)	1,604 (.47)	468 (1.0)	80 (1.0)

Table A4. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, by Hazard Pattern and Experience with Scooters.

	Total	Very Experienced	Somewhat Experienced	Not Very Experienced	First Time	Don't Know
Total	48,233	10,577	21,316	10,556	5,756	27
Fell-Trying to Stop	5,134	813	1,923	994	1,404	--
Fell-Broke or Failed	2,859	592	1,920	198	150	--
Fell-Hit Something Small	15,053	3,917	6,915	3,610	612	--
Fell-Turning	3,090	913	1,709	384	85	--
Fell-Doing Tricks	6,330	1,703	1,546	2,669	383	27
Fell-Other Reason	8,774	1,214	3,895	1,811	1,854	--
Fell-Not Sure Why	2,681	90	2,078	486	27	--
Cut by Scooter/ Folding or Unfolding*	788	--	--	310	478	--
Other	3,523	1,336	1,330	94	763	--

*Experience information was not collected for victims who were injured while folding or unfolding the scooter. This results in a lower number for this pattern than in other tables. Other patterns may be slightly lower because this question was not answered on some investigations.

Table A5. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, Responses to Question about Safety Equipment Use.

Question: Did the injured person generally wear any safety gear when riding scooters?

Response	Estimated Injuries (C.V.)
Always	9,880 (.21)
Usually	7,691 (.24)
Sometimes	3,969 (.26)
Rarely	1,805 (.44)
Only when doing tricks	240 (1.0)
Never	18,861 (.13)
Question not answered	13,705

Table A6. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, Responses to Question about Condition of Scooter.

Question: What condition was the scooter in at the time of the injury?

Response	Estimated Injuries (C.V.)
Excellent, like new	38,784 (.11)
Good	9,124 (.22)
Fair	2,608 (.34)
Poor	188 (.61)
Don't know or question not answered	5,447

Table A7. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, Responses to Question about Safety Equipment at the time of the Injury.

Question: Was the injured person wearing any safety gear at the time of the injury?

Response	Estimated Injuries (C.V.)
Yes	13,788 (.19)
No	14,607 (.18)
Unknown or not answered	27,756

Table A8. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, Responses to Question about Cost of the Scooter.

Question: How much did it cost?

Cost	Estimated Injuries (C.V.)
\$0.00 - \$30.00	3,029 (.29)
\$30.01 - \$50.00	8,022 (.21)
\$50.01 - \$75.00	4,880 (.22)
\$75.01 - \$100.00	6,412 (.23)
\$100.01 - \$125.00	962 (.44)
Unknown or not answered	32,846

Table A9. Estimated Number of Emergency Room Treated Injuries Associated with Scooters, from Scooter Special Study, Distribution of Injuries by Brand of Scooter.

Brand	Estimated Injuries (C.V.)
Brand A	16,387 (.18)
Brand B	2,808 (.32)
Brand C	2,224 (.35)
Brand D	1,146 (.44)
Brand E	1,101 (.54)
Brand F	1,044 (.53)
Brand G	997 (.56)
Brand H	986 (.59)
Brand I	852 (.66)
Brand J	832 (.55)
Brand K	850 (.67)
Brand L	658 (.84)
80 Other brands	16,064 (.16)
Unknown	10,202

Table A10. Estimates and Coefficients of Variation for Use Patterns for Three Riding Sports Activities, Scooter Special Study, 12/21/2000 – 6/15/2001

Note: Numbers in parentheses are coefficients of variation

Product/Activity	Number who own	Number of Those Who Own Who Use it less	Number of Those Who Own Who Use it more	Number of Those Who Own Who Use it the same
Skateboard	13,614 (.17)	5,144 (.26)	1,260 (.53)	2,825 (.29)
Bicycle	45,328 (.11)	11,223 (.18)	8,512 (.17)	24,929 (.14)
In-Line Skates	25,778 (.14)	8,869 (.23)	1,539 (.48)	14,379 (.14)

Appendix II. Deaths Associated with Unpowered Scooters

DEATHS ASSOCIATED WITH UNPOWERED SCOOTERS 1/1/1999 - 10/18/2001

docno	ikno	state	city	dt_inj	age	sex	narrative	pattern
X0094150A	000915HAA0039	VA	CHESTERFIELD COUNTY	8/1/00	41	1	A MALE WAS TRYING TO TEACH HIS DAUGHTER HOW TO RIDE THE SCOOTER WHEN HE FELL. HE DIED DUE TO HEAD INJURIES. HE WAS NOT WEARING A HELMET.	fall
G0110121A	010110CCN0235	OH	FOREST	1/6/01	10	1	A BOY, AGE 10, DIED OF HEAD AND NECK INJURIES IN A FALL FROM HIS SCOOTER. HE WAS NOT WEARING A HELMET.	fall
F0146001A	010411CWE8001	CA	SAN LEANDRO	4/9/01	10	1	A 10 YEAR OLD BOY WAS KILLED WHEN HE FELL AND HIT HIS HEAD AFTER HE LOST CONTROL WHILE RIDING HIS NEW SCOOTER ON A STEEP ROAD. HE WAS NOT WEARING HELMET.	fall
X0194116A		CA	TEMECULA	7/31/01	57	1	A MALE, AGE 57, FELL OFF SCOOTER AND STRUCK HIS HEAD. CAUSE OF DEATH BASAL SKULL FRACTURE, BLUNT FORCE TRAUMA TO HEAD. HE WAS NOT WEARING A HELMET. 2001-4431.	fall
X0193944A		PA	LEBANON	8/5/01	66	1	A MALE, AGE 66, DECEASED FOLLOWING A FALL FROM HIS SCOOTER, STRIKING HIS FACE/HEAD AGAINST A CURB. CAUSE OF DEATH HEAD INJURY. 01-08-05	fall
X0183889A		MD	ELK NECK PARK	8/22/01	50	1	A MALE, AGE 50, WAS KILLED WHEN HE LOST CONTROL OF HIS SCOOTER, WHILE GOING DOWN A STEEP HILL AT A STATE PARK. HE WAS NOT WEARING A HELMET & HAD SUFFERED MASSIVE HEAD INJURIES.	fall
X0110212B	010129HCC0261	NJ	ELIZABETH	9/21/00	6	1	A BOY, AGE 6, WAS KILLED WHEN HE DARTED INTO TRAFFIC AND WAS HIT BY A CAR WHILE RIDING A SCOOTER.	MV
H0140116A	010411CAA0477	FL	MIAMI	1/19/01	12	1	A BOY, AGE 12, WAS KILLED WHEN HE WAS ATTEMPTING CROSS STREET WITH HIS SCOOTER & THE SCOOTER'S STEERING COLUMN FELL FROM A SET HEIGHT POSITION MAKING STEERING DIFFICULT. HE STRUCK WITH AN ONCOMING CAR.	MV
X0120716A		NM	ALBUQUERQUE	1/25/01	18	1	A MAN, WAS KILLED WHEN STRUCK BY THE MIRROR OF A PICKUP TRUCK AT NIGHT WHILE RIDING IN THE CENTER LANE OF A MAJOR ROADWAY ON A SCOOTER. HE WAS CARRYING A BOTTLE OF LIQUOR.	MV
X0151902A		CA	STOCKTON	3/26/01	8	1	A BOY, AGE 8, WAS RIDING SCOOTER WHEN HE WAS STRUCK BY AN AUTOMOBILE AT AN INTERSECTION. CAUSE OF DEATH BLUNT CRANIOCEREBRAL TRAUMA. 151-2001.	MV
X0141587A	010419CAA2412	KY	MOUNT STERLING	4/3/01	11	1	A BOY, AGE 13, DIED WHEN HE WAS STRUCK BY A CAR WHILE RIDING A SCOOTER. THE HAND BRAKE MAY HAVE FAILED, AND THE BOY WENT THROUGH A STOP SIGN AT INTERSECTION.	MV
N0150140A		FL	MIAMI-DADE	4/23/01	9	1	A BOY, AGE 9, DIED OF MULTIPLE INJURIES AND FRACTURES WHEN HE WAS STRUCK BY A VAN WHILE RIDING HIS PUSH SCOOTER OUT OF HIS DRIVEWAY.	MV
G0160100A		MI	DETROIT	6/17/01	8	1	AN 8 YEAR OLD BOY DIED WHEN HE WAS STRUCK BY A CAR WHILE RIDING HIS SCOOTER INTO TRAFFIC.	MV
N0170380A		WV	HARPERS FERRY	6/24/01	18	1	A MALE, AGE 18, WAS KILLED WHEN THE NON-MOTORIZED SCOOTER HE WAS RIDING SWERVED INTO THE ROADWAY AND WAS STRUCK BY AN ONCOMING PICKUP TRUCK.	MV
G0180067A		KY	LEXINGTON	7/10/01	12	1	A 12 YEAR OLD BOY WAS KILLED WHEN THE NON-MOTORIZED SCOOTER HE WAS RIDING COLLIDED WITH A GARBAGE TRUCK. THE BOY WAS WEARING A PROTECTIVE HELMET.	MV
X0193961A		CA	SAN DIEGO	7/31/01	10	1	A BOY, AGE 10, SUSTAINED SEVERE TRAUMA TO HEAD & DECEASED WHEN HE WAS STRUCK BY A CAR WHILE RIDING SCOOTER. HE WAS RIDING DOWN A STEEP HILL AT A HIGH SPEED & WAS NOT WEARING ANY PROTECTIVE CLOTHING. 01-01419.	MV
N0190160A		FL	ALTAMONTE SPRINGS	9/12/01	9	1	A BOY, AGE 9, RIDING A SCOOTER DIED WHEN WAS RUN OVER BY THE FAMILY'S VAN OPERATED BY HIS FATHER. HE WAS HOLDING ON TO THE DRIVER'S SIDE MIRROR OF THE VAN WHEN HE EITHER LOST HIS GRIP OR LET GO AND FELL TO THE PAVEMENT.	MV
N0150086A		GA	AUGUSTA	1/1/01	adult	1	A MALE DIED OF HEAD TRAUMA RESULTING FROM A SCOOTER ACCIDENT.	NS

Appendix III. Listing of study cases in hazard pattern
“Broke or Failed” and other cases for which respondents
reported scooter failure.

lkn0	dtacc	city	bdpt	age	state	sex	dist	sep	failure	narrative
010117HEP9010	1/9/01	STOCKBRIDGE	34	8	GA	2	1	57	brake	THE VICTIM IS A 8 YEAR OLD FEMALE WHO WAS INJURED WHILE RIDING SCOOTER ON A HILL OUTSIDE HER HOUSE. THE BRAKES WERE GOING TOO FAST AND SHE COULD NOT STOP THE SCOOTER, SHE SAID THAT THE BRAKES FAILED, SHE JUMPED OFF CAUSING HER TO FRACTURE HER RIGHT WRIST. SHE WAS TAKEN TO THE HOSPITAL, TREATED FOR HER INJURY AND THEN RELEASED.
010312HEP9001	1/3/01	FT. WORTH	33	12	TX	1	4	57	brake	A TWELVE YEAR-OLD MALE WAS INJURED WHILE RIDING HIS SCOOTER. THE FOOTBRAKE FAILED TO WORK AS THE VICTIM ATTEMPTED TO STOP. THE VICTIM JUMPED OFF THE SCOOTER AND LANDED ON HIS FOREARM. HE WAS TAKEN TO A HOSPITAL, ADMITTED FOR TREATMENT FOR A FRACTURED ARM. HE WAS RELEASED THE NEXT DAY.
010321HEP9007	3/20/01	POTOMAC	36	11	MD	2	1	53	brake	THE VICTIM IS A 11 YEAR OLD FEMALE WHO WAS INJURED ON A STREET AT FRIENDS HOME WHILE ON HER FRIENDS SCOOTER. THE VICTIM WAS GOING TOO FAST WHEN SHE ATTEMPTED TO BRAKE, BUT THE BRAKES FAILED. SHE FELLOFF THE SCOOTER AND SUSTAINED A CONTUSION TO HER LEG, ANKLE, HIP AND ABDOMEN. SHE WAS TAKEN TO THE HOSPITAL, TREATED FOR HER INJURY AND THEN RELEASED.
010423HEP9006	3/3/01	BRIDGETON	37	10	NJ	1	1	64	brake	THE VICTIM IS A 10 YEAR OLD MALE WHO WAS INJURED ON A STREET IN HIS NEIGHBORHOOD WHILE RIDING A SCOOTER. THE BRAKES ON THE SCOOTER FAILED AND THE VICTIM COULD NOT STOP. HE FELL TO THE SIDE OF THE SCOOTER AND SLID UNDER A TRUCK, INJURING HIS ANKLE. HE WAS TAKEN TO THE HOSPITAL, TREATED FOR A SPRAINED ANKLE AND THEN RELEASED.
010507HEP9009	4/29/01	DENVER	76	4	CO	1	1	53	brake	THE VICTIM IS A 4 YEAR OLD MALE WHO WAS INJURED WHILE RIDING FRIENDS SCOOTER ON A SIDEWALK OUTSIDE HIS HOME. THE VICTIM WAS GOING TOO FAST AND TRIED TO BRAKE. HOWEVER, IT FAILED AND THE VICTIM FELLOFF THE SCOOTER AND LANDED ON HIS FACE, SUSTAINING ABRASIONS. THE VICTIM WAS TAKEN TO THE HOSPITAL TWO DAYS LATER AND TREATED FOR HIS INJURIES. HE WAS RELEASED THE SAME DAY FOLLOWING TREATMENT.
010516HEP9006	5/10/01	LAKESWOOD	30	10	CO	1	1	57	brake	THE VICTIM IS A 10 YEAR OLD MALE WHO WAS INJURED WHILE RIDING SCOOTER ON A STREET IN HIS NEIGHBORHOOD. THE VICTIM WAS APPROACHING A SPEED BUMP AND ATTEMPTED TO BRAKE WHEN THE BRAKE BROKE. THE VICTIM LOST CONTROL OF THE SCOOTER AND FELL OFF. HE WAS TAKEN TO THE HOSPITAL AND TREATED FOR A HAIRLINE SHOULDER FRACTURE AS WELL AS SEVERAL ABRASIONS. HE WAS RELEASED THE SAME DAY FOLLOWING TREATMENT.
010123HEP9001	12/26/00	SEATTLE	83	23	WA	1	1	57	brake	THE VICTIM IS A 23 YEAR OLD MALE WHO WAS INJURED WHILE RIDING SCOOTER DOWN A HILL. HE SAID THAT THE SCOOTER BROKE APART, CAUSING HIM TO FALL OFF AND FRACTURE HIS FOOT. HE WAS TAKEN TO THE HOSPITAL, TREATED FOR HIS INJURY AND THEN RELEASED.
010103HEP9017	12/25/00	COLUMBUS	33	10	GA	2	1	57	hb	THE VICTIM IS A 10 YEAR OLD FEMALE WHO WAS INJURED AT HOME WHILE ON SCOOTER. THE VICTIM WAS RIDING THE SCOOTER IN THE DRIVEWAY WHEN SHE LOST CONTROL BECAUSE THE HANDLE BARS WERE WOBBLY AND FEEL. THE VICTIM WAS TAKEN TO THE HOSPITAL AND TREATED FOR A FRACTURED RIGHT ARM. SHE WAS RELEASED LATER THE SAME DAY.
010110HEP9012	1/6/01	BATON ROUGE	75	12	LA	2	1	52	hb	A 12-YEAR-OLD FEMALE SUFFERED A CONCUSSION WHEN SHE FELL WHILE RIDING HER TOY SCOOTER. THE HANDLEBARS ON THE SCOOTER HAD LOOSENED. WHEN SHE HIT A CRACK IN THE SIDEWALK THE HANDLEBARS TWISTED AND SHE FELL. HER HEAD HIT THE CONCRETE AND SHE SUFFERED A CONCUSSION.
010117HEP9018	1/13/01	LIVINGSTON	75	10	LA	1	4	52	hb	A 10-YEAR-OLD MALE SUFFERED A CONCUSSION. HE WAS RIDING HIS TOY SCOOTER ON AN ASPHALT SURFACE. THE BOLTS THAT SECURE THE LOWER PART OF THE HANDLEBARS BROKE AND HE FELL. HE HIT HIS HEAD ON THE ASPHALT.

ikno	dtacc	city	bprt	age	state	sex	disp	dtng	failure	narrative
010122HEP9003	1/12/01	OAKLAND	32	11	CA	2	1	53	hb	THE VICTIM, AN 11-YEAR-OLD GIRL, WAS INJURED WHILE RIDING HER SCOOTER ON A SIDEWALK IN FRONT OF A HOUSE, ABOUT 4 BLOCKS AWAY FROM HER HOME. THE VICTIM FELL DOWN FROM HER SCOOTER, WHEN THE SCOOTER'S HANDLEBARS LOOSENED. SHE SUSTAINED A SERIOUS CONTUSION TO HER RIGHT ELBOW AS A RESULT OF FALLING ON THE CONCRETE SIDEWALK. THE VICTIM WAS TREATED AND RELEASED FROM AN EMERGENCY ROOM AT A LOCAL HOSPITAL. THE VICTIM WAS NOT WEARING ANY PROTECTIVE EQUIPMENT, SUCH AS ELBOW PADS, KNEE PADS OR PROTECTIVE HEAD GEAR, DURING THIS INCIDENT.
010125HEP9003	1/9/01	EVERETT	75	14	WA	1	1	59	hb	A 14-YEAR-OLD MALE FELL OFF A NON-POWERED SCOOTER WHEN THE HANDLEBAR OF THE SCOOTER FOLDED DOWN CAUSING THE VICTIM TO LOOSE CONTROL. THE VICTIM RECEIVED A SEVERE LACERATION TO HIS HEAD. THE VICTIM WAS TREATED (AND RELEASED) AT A LOCAL HOSPITAL.
010130HEP9002	1/7/01	LAVEEN	35	11	AZ	1	1	53	hb	THE VICTIM IS A 11 YEAR OLD MALE WHO WAS INJURED AT HOME WHILE RIDING SCOOTER ON A CONCRETE SURFACE. THE HANDLE BAR SCREWS ON THE SCOOTER BECAME LOOSE, CAUSING HIM TO LOOSE CONTROL AND FALL, INJURING HIS RIGHT KNEE. THE VICTIM WAS TAKEN TO THE HOSPITAL, TREATED FOR A KNEE ABRASION, AND THEN RELEASED.
010206HEP9001	2/3/01	COLUMBUS	37	16	GA	1	1	64	hb	THE VICTIM IS A 16 YEAR OLD MALE WHO WAS INJURED AT HOME IN HIS DRIVEWAY WHILE RIDING A SCOOTER. HE SAID THAT THE HANDLEBAR SCREWS BECAME LOOSE CAUSING HIM TO LOOSE CONTROL OF THE SCOOTER AND FALL OFF. THE VICTIM SPRAINED HIS ANKLE. HE WAS TAKEN TO THE HOSPITAL, TREATED FOR HIS INJURY AND THEN RELEASED.
010213HEP9003	2/9/01	BURLINGTON	76	5	NC	2	1	53	hb	THE VICTIM IS A 5 YEAR OLD FEMALE WHO WAS INJURED AT HOME WHILE RIDING A SCOOTER INDOORS. THE HANDLE BARS ON THE SCOOTER WERE NOT LOCKED SECURELY AND THEY COLLAPSED CAUSING THE VICTIM TO FALL AND HIT HER NOSE ON THE SCOOTER. SHE WAS TAKEN TO THE HOSPITAL AND TREATED FOR A NOSE CONTUSION. SHE WAS RELEASED LATER THE SAME DAY.
010525HEP9003	5/24/01	DIERKS	34	9	AR	2	1	57	hb	THE VICTIM IS A 9 YEAR OLD FEMALE WHO WAS INJURED AT HOME WHILE RIDING HER SCOOTER IN THE DRIVEWAY. THE HANDLEBARS CAME LOOSE CAUSING THE VICTIM TO LOOSE CONTROL AND FALL OFF THE SCOOTER AND FRACTURE HER WRIST. SHE WAS TAKEN TO THE HOSPITAL, TREATED FOR HER INJURY AND THEN RELEASED. THE VICTIM IS A 9 YEAR OLD FEMALE WHO WAS INJURED WHILE RIDING HER GRANDSON'S SCOOTER ON A SIDEWALK OUTSIDE HER HOME. THE HANDLE BARS CAME LOOSE ON THE SCOOTER CAUSING HER TO LOOSE CONTROL AND FALL, INJURING HER HAND AND FINGERS. SHE WENT TO THE HOSPITAL AND WAS TREATED FOR CONTUSIONS. SHE WAS RELEASED THE SAME DAY. THE VICTIM CONTINUES TO EXPERIENCE PAIN AND IS RECEIVING PHYSICAL THERAPY.
010531HEP9002	5/27/01	PHOENIX	92	41	AZ	2	1	53	hb	THE VICTIM IS A 10 YEAR OLD FEMALE WHO WAS INJURED IN HER NEIGHBORHOOD WHILE RIDING A SCOOTER. THE SCOOTER COLLAPSED CAUSING THE VICTIM TO FALL AND SPRAIN HER ANKLE. SHE WAS TAKEN TO THE HOSPITAL, TREATED FOR HER INJURY, AND THEN RELEASED.
010531HEP9004	5/28/01	SEABROOK	37	10	NJ	2	1	64	hb	THE VICTIM IS A 10 YEAR OLD MALE WHO WAS INJURED ON A STREET IN HIS NEIGHBORHOOD WHILE RIDING A SCOOTER. THE HANDLE BARS WERE NOT SECURELY LOCKED IN PLACE WHEN THEY SLID DOWN CAUSING THE VICTIM TO LOOSE CONTROL AND FALL OFF, FRACTURING HIS WRIST. HE WAS TAKEN TO THE HOSPITAL, TREATED FOR HIS INJURY AND THEN RELEASED.
010601HEP9001	5/13/01	COLUMBUS	34	10	OH	1	1	57	hb	AN 11-YEAR OLD MALE FELL WHILE RIDING A SCOOTER IN THE STREET, IN AN AREA WITHOUT A SIDEWALK. A SCREW FELL OUT OF THE SCOOTER JUST BEFORE THE INCIDENT. HE WAS CUT ON HIS LEGS, HANDS AND ARMS, AND HIT HIS HEAD ON THE GROUND, REQUIRING EMERGENCY MEDICAL CARE.
010411HEP9003	4/7/01	CANTON	36	11	IL	1	1	53	screw	

ikno	dtacc	city	bdpt	age	state	sex	disp	diag	failure	narrative
010315HEP9008	2/7/01	ATLANTIC CITY	83	10	NJ	1	1	64	wheel	THE VICTIM IS A 10 YEAR OLD MALE WHO WAS INJURED AT A PUBLIC PARKWHILE RIDING HIS SCOOTER DOWN A WHEELCHAIR RAMP. THE FRONT WHEEL OF THE SCOOTER SUDDENLY CAME OFF CAUSING THE VICTIM TO FALL OFF AND INJURE HIS RIGHT FOOT. HE WAS TAKEN TO THE HOSPITAL, TREATED FOR ASPRAINED FOOT AND RELEASED.

Respondent reported scooter failure. Not in hazard pattern "Fell-Scooter Broke or Failed"

ikno	dtacc	city	sex	disp	diag	bdpt	age	state	narrative
010108HEP9009	12/28/00	GREENSBORO	1	1	59	93	8	NC	THE VICTIM IS A 8 YEAR OLD MALE WHO WAS INJURED IN A HALLWAY AT HOMEWHILE RIDING HIS SCOOTER WITH NO SHOES (JUST SOCKS) ON HIS FEET.THERE WAS A PIECE OF PLASTIC MISSING FROM THE SCOOTER EXPOSING A SHARP PIECE OF METAL. THE VICTIM CUT HIS RIGHT BIG TOE WHEN HE STEPPED ON THE EXPOSED PIECE OF METAL. HE WAS TAKEN TO THE HOSPITAL, TREATED FOR HIS LACERATION AND THEN RELEASED.
010115HEP9008	12/29/00	HENDERSON	1	1	62	75	13	NV	THE VICTIM IS A 13 YEAR OLD MALE WHO WAS INJURED AT HOME WHILE ON A SCOOTER. THE VICTIM WAS RIDING DOWN A DRIVEWAY BACKWARDS AND WAS ATTEMPTING TO TURN THE SCOOTER WHEN HE HIT A CURB AND FELL OFF STRIKING HIS HEAD ON THE DRIVEWAY. THE VICTIM ALSO STATED THAT THE SCREWS IN THE HANDLEBARS WERE LOOSE, WHICH PROBABLY CAUSED THE INCIDENT. HE WAS TAKEN TO THE HOSPITAL AND EXAMINED AND TREATED FOR A POSSIBLY HEAD INJURY. HE WAS RELEASED LATER THE SAME DAY.
010125HEP9004	1/21/01	DOUGLASVILLE	1	1	57	35	13	GA	A 13-YEAR OLD MALE LOSS CONTROL OF HIS SCOOTER AFTER THE BRAKES FAILED WHILE DESCENDING A HILL. THE SCOOTER STRUCK THE COVER ON A MANHOLE AND THE VICTIM FELL AND FRACTURED HIS LEFT KNEE. THE VICTIM'S PARENTS TRANSPORTED HIM TO THE HOSPITAL EMERGENCY ROOM AND HIS INJURY WAS X-RAYED AND A MRI WAS TAKEN. THE VICTIM'S LEG WAS PLACED IN A CAST AND HE WAS RELEASED.
010208HEP9004	2/2/01	BROOKLYN	2	1	60	88	11	NY	THE VICTIM IS AN 11 YEAR OLD FEMALE WHO WAS INJURED WHILE RIDING A SCOOTER IN HER NEIGHBORHOOD. SHE HIT A CRACK IN THE SIDEWALK AND LOST CONTROL OF THE SCOOTER (THE HANDLE BARS WERE ALSO LOOSE) CAUSING HER TO FALL OFF AND INJURE HER TEETH. SHE WAS TAKEN TO THE HOSPITAL WHERE HER TEETH WERE PUT BACK IN. SHE WAS RELEASED FOLLOWING TREATMENT.
010502HEP9002	4/24/01	ATLANTIC CITY	1	1	53	76	7	NJ	A 7 YEAR OLD MALE SUSTAINED A BRUISED AND SWOLLEN NOSE WHEN HE RODE A NON-MOTORIZED SCOOTER HE WAS OPERATING STRUCK A CONCRETE STEP TO HIS APARTMENT. THE VICTIM APPARENTLY LOST CONTROL WHEN THE SPRING ACTIVATED BUTTON LOCK MECHANISM SECURING THE HANDLEBAR TUBE TO THE DOWN TUBE FAILED. THIS CAUSED THE HANDLEBARS TO UNLOCK FROM THE DOWN TUBE AND BECAME LOOSE. THE SAME LOCK BUTTON HAD ALSO FAILED ON 5 OTHER IDENTICAL SCOOTERS USED BY THE FAMILY. THE VICTIM WAS TAKEN TO THE LOCAL HOSPITAL WHERE HE WAS TREATED AND RELEASED.
010521HEP9002	5/13/01	QUEENSBURY	2	1	53	36	12	NY	THE VICTIM IS A 12 YEAR OLD FEMALE WHO WAS INJURED WHILE RIDING HER COUSIN'S SCOOTER DOWN A HILLY STREET. SHE COULD NOT STOP, THE BRAKES FAILED, SO SHE JUMPED OFF AND INJURED HER RIGHT LOWER LEG. SHE WAS TAKEN TO THE HOSPITAL, TREATED FOR CONTUSIONS AND ABRASIONS BEFORE BEING RELEASED.
010522HEP9011	5/20/01	GILMAN	1	1	64	35	10	VT	THE VICTIM IS A 10 YEAR OLD MALE WHO WAS INJURED WHILE RIDING HIS SCOOTER TOO FAST ON A STREET. HE ATTEMPTED TO BRAKE, HOWEVER, THE BRAKE DID NOT HOLD AND THE VICTIM FELL OFF AND HIT HIS KNEE ON THE SCOOTER DURING THE FALL. HE WAS EXPERIENCING PAIN AND BRUISING FOR ABOUT ONE WEEK BEFORE HE WAS TAKEN TO THE HOSPITAL. HE WAS TREATED FOR TORN CARTILAGE IN HIS KNEE BEFORE BEING RELEASED.
010601HEP9021	5/24/01	PHILADELPHIA	1	1	59	92	5	PA	THE VICTIM IS A 5 YEAR OLD MALE WHO WAS INJURED AT HOME IN A DRIVEWAY WHILE RIDING A SCOOTER. THE VICTIM ATTEMPTED TO TURN THE SCOOTER, HOWEVER, IT FAILED. THE FRONT WHEEL DID NOT TURN AND THE BRAKE FAILED. THE VICTIM CRASHED INTO A METAL GARBAGE CAN, CAUSING A LACERATION TO TWO FINGERS. HE WAS TAKEN TO THE HOSPITAL, TREATED FOR HIS INJURY AND THEN RELEASED.

Appendix IV. Scooter Study Questionnaire

Scooter Study

Record of Telephone Calls

Inter-viewer	Day	Date	Time	Result*	Comments
			am/pm		
			am/pm		
			am/pm		
			am/pm		
			am/pm		
			am/pm		
			am/pm		
			am/pm		
			am/pm		
			am/pm		

Suggested call-back time: Day: _____ Time: _____ am/pm

*** RESULT OF CALL:**

- | | |
|--------------------------|--|
| C = Completed | NER = No Eligible Respondent |
| CB = Call Back | AM/N = Answering machine - no message left |
| LB = Line Busy | AM/M = Answering machine - message left |
| WN = Wrong Number | R = Refused |
| NWN = Non-working Number | NA = No Answer |

Interviewer Background Information

We are studying how to prevent injuries associated with foot-powered scooters. We are looking at incidents where children or adults were injured and a scooter was involved, whether or not it was determined to be the cause of the accident. If you have any questions about this study, or comments about the questionnaire itself, please contact George Rutherford at 301-504-0470, extension 1278. We welcome your suggestions for improvement.

Please review the NEISS information, including the injured person's gender and age, and the brief description of the scenario.

If the victim is under 8 years old, please interview the parent or guardian.

Where appropriate in the questions, use the victim's name or say "your son" or "your daughter."

In general, the bolded text and text in parentheses contain interviewer instructions and should not be read to the respondent.

OMB NO 30410029

INTERVIEWER: In this questionnaire, please do not read the response categories unless indicated, or unless necessary for prompting the respondent to answer the question. *Italicized words are meant to serve as a guide to emphasis.*

1. Hello, I'm _____ (interviewer's name) from _____ (interviewer's company). We are working with the U.S. Consumer Product Safety Commission and some hospitals, including _____ (hospital name) to learn about how injuries happen, so we can help others avoid similar injuries. We are currently studying injuries involving *scooters*, and we'd like to ask you a few questions about a recent scooter injury to someone in your household. This should only take 15 or 20 minutes. Your answers will be kept confidential and will be used only for statistical purposes. Will you help us?

Interviewer: Please circle the number of the correct response:

Respondent:

- 01 *agreed*
- 02 *refused*
- 98 *other (specify:)* _____

2. I understand you/(child's name) was/were treated at _____ Hospital on _____ (date) for an injury that involved an unpowered push scooter. Is that correct?

- 01 *Yes*
- 02 *No* → STOP after obtaining correct product information. (Enter product here) _____
- 99 *Don't know* → Ask if anyone else in the household knows more about the incident and can respond. If necessary, set up a time to call back. (Record on page 1.)

INTERVIEWER: Please circle the number of the correct response:

Respondent is:

- 01 *Injured person*
- 02 *Parent of an injured child under 18*
- 98 *Other (specify _____)*

Respondent:

- 01 *Witnessed the accident*
- 02 *Did not witness the accident*

INTERVIEWER: If the victim is a child between the ages of 8 and 17, ask the parent's permission to interview the child about the incident. The parent can be present or on another phone line during the interview. If the victim is a child less than 8 years of age, interview the parent.

3. The types of scooters we are interested in are *sports* or *toy* scooters that are made primarily of metal. These are known by various names including Razor, Huffy and Rocket as well as others. For this study, we are *not* investigating motorized scooters or plastic toys for toddlers. Did your/your child's accident involve one of the *sports* or *toy* scooters we're looking for?

01 Yes → continue to question 4

02 No → STOP (specify scooter type _____)

4. Please describe how the accident happened. That is, what were you/was (child's name) doing just *before*, *during* and just *after* the injury occurred? Please start with what was going on just *before* the injury occurred.

**Interviewer
Reminders**

Precipitating event?

Did scooter fail?

Indoors or outdoors?

Did victim fall?

Other people involved?

INTERVIEWER READ THE FOLLOWING: In addition to writing down exactly what you tell me about how the injury happened, I need to ask you some questions that may seem like I'm asking you to repeat yourself. Please bear with me. We want to be sure we *completely understand* everything about how the injury happened.

5. What were the brand and model names of the scooter involved in the injury?

01 Specify: (INTERVIEWER: If "Razor" or "Racer", ask respondent to spell it out)

Brand: _____

Model: _____

if either brand or model is known, skip to question 9 on next page

99 Don't know → continue to next question

6. Do you still have the scooter?

01 ___ Yes → continue to next question

02 ___ No → skip to question 8 on this page

7. It's very important for us to know what brands are involved in these injuries. If I hold on, would you be willing to go look at the scooter and tell me what the brand and model name are?

01 Yes → Specify: (INTERVIEWER: If "Razor" or "Racer", ask respondent to spell it out)

Brand: _____

Model: _____

if either brand or model is known, skip to question 9 on next page

02 ___ No → continue to next question

8. Thanks for bearing with me this far. I'm going to read a list of brand names of scooters. Stop me if I get to a brand name that you recognize as being the brand involved in your incident.

(Circle one only.)

01 Razor → INTERVIEWER, say: Since many brands have names similar to this, would you please spell it for me?

02 Kent

03 Huffy

04 Rocket

05 Racer → INTERVIEWER, say: Since many brands have names similar to this, would you please spell it for me?

06 Aerotek

07 Blitz

08 Cobra

09 Cyclone

98 Other (specify _____)

99 Don't know

9. Which one of these categories *best describes* the accident? INTERVIEWER: Read all categories and circle ONE or write in explanation.

- 01 You/(victim's name) fell → continue to next question
- 02 You/(victim's name) were/was cut by something on the scooter → skip to question 11 on this page
- 03 You/(victim's name) ran into a large obstacle → skip to question 11 on this page
- 04 You/(victim's name) were/was hit by a moving object → skip to question 11 on this page
- 05 You/(victim's name) were/was injured while folding or unfolding scooter → skip to question 11 on this page
- 98 Other (specify: _____) → continue to next question

10. Which *one* of these categories best describes why the victim fell? INTERVIEWER: Read all categories and circle ONE or write in explanation.

- 01 You/(victim's name) stepped backwards on scooter, trying to stop
- 02 Something on the scooter broke, failed, or came loose
- 03 Wheel hit something like a rock or crack in the sidewalk
- 04 You/(victim's name) turned front wheel too sharply
- 05 You/(victim's name) were/was going too fast and couldn't stop
- 06 You/(victim's name) were/was attempting a trick
- 07 You/(victim's name) just fell off, not sure why
- 98 Other (specify: _____)

11. Now I'm going to ask you some questions about the *scooter* itself. Who *owns* the scooter involved?

- 01 Victim or someone in victim's household → continue to next question
- 02 Friend or acquaintance → skip to question 15 on next page
- 98 Someone else (specify relationship to victim: _____) → skip to question 15 on next page
- 99 Don't know → skip to question 15 on next page

12. How did you get the scooter?

- 01 Bought new by victim or member of household
- 02 Bought used by victim or member of household
- 03 Received as a gift from someone who is not a member of your household. → skip to question 15 on next page
- 98 Other (specify) _____

13. Do you know where the scooter was purchased?

- 01 Yes (specify store name, city, state) _____
99 No

14. How much did it cost? _____

15. When did you/your child use the scooter for the *first time*? Was it: (Read choices)

- 01 The same day as the injury
02 Within one week of the injury
03 More than one week, but less than one month before the injury
04 More than one month before the injury

16. What *condition* was the scooter in at the time of the injury? (Read choices)

- 01 Excellent, like new
02 Good
03 Fair
04 Poor
99 Don't know

17. Was the accident caused by something on the scooter *breaking, failing or coming loose*?

- 01 Yes (specify part) _____ → INTERVIEWER
ASK: Cases in which something on the scooter broke, failed or came loose are especially important to CPSC. We'd may want to have a CPSC representative further investigate this incident. Are you willing to have one of our investigators in your area follow up on your case? (INTERVIEWER: Circle response: YES or NO. If respondent agrees, ask him/her to keep the scooter until CPSC investigator gets there, if scooter is still available.)

- 02 No
99 Don't know

18. Had the scooter been *modified* in any way -- that is, had anything been added, taken away or changed from when it was made?

(INTERVIEWER: Prompt for new wheels, wheelie bars or foot brakes, or other additions, but record anything the respondent indicates as a modification.)

- 01 Yes (specify _____)
02 No
99 Don't know

19. I'm going to read a list of *features* that some scooters have. Please tell me which of these features the scooter involved in the accident had:

- | | | | | |
|---|--|---------|--------|----------------|
| A | Adjustable height handlebars | ___ Yes | ___ No | ___ Don't know |
| F | Foot brake | ___ Yes | ___ No | ___ Don't know |
| H | Hand brakes | ___ Yes | ___ No | ___ Don't know |
| W | Wheelie bar | ___ Yes | ___ No | ___ Don't know |
| B | Baskets or bags | ___ Yes | ___ No | ___ Don't know |
| I | Inline skate-type wheels
(solid, small, possibly
translucent wheels) | ___ Yes | ___ No | ___ Don't know |
| L | Larger wheels with spokes | ___ Yes | ___ No | ___ Don't know |
| C | Was it foldable or collapsible? | ___ Yes | ___ No | ___ Don't know |

20. In your opinion, what part or what about the scooter most contributed to the accident?

INTERVIEWER: If victim was cut by scooter or was injured while folding/unfolding scooter (see question 9), SKIP TO QUESTION 60 ON PAGE 14.

21. Who set up the scooter -- that is, who unfolded it or made adjustments to it -- just before the accident?

- 01 The victim
- 02 An adult (not the victim)
- 03 A child (not the victim)
- 04 Already set up
- 99 Don't know

22. Now I'd like to ask you some questions about the *incident*. Let's see, you told it happened (indoors/outdoors). Is that correct?

- 01 Indoors → skip to question 24 on next page
- 02 Outdoors → continue to next question

23. I'd like to know more about all the *surfaces* involved in the incident. Did these include surfaces that were:

(Read all choices to respondent and mark yes or no for each)

- | | | | | |
|---|-----------------------|------------------------------|-----------------------------|-------------------------------------|
| H | Hilly or sloped? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| B | Bumpy or uneven? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| M | Smooth? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| W | Wet? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| S | Stairs? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| A | Asphalt or blacktop? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| C | Concrete? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| V | Gravel? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| D | Dirt? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| G | Grass? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| O | Other (specify _____) | | | |

GO TO QUESTION 25 ON THIS PAGE

24. I'd like to know more about all the *surfaces* involved in the incident. Did these include surfaces that were:

(Read all choices to respondent and mark yes or no for each)

- | | | | | |
|---|--------------------------|------------------------------|-----------------------------|-------------------------------------|
| B | Bumpy or uneven? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| M | Smooth? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| W | Wet? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| S | Stairs? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| T | Tile (ceramic or vinyl)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| P | Carpet? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| W | Wood? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| C | Concrete? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Don't know |
| O | Other (specify _____) | | | |

25. What type of *shoes* were you/was the injured person wearing?

- 01 Sneakers (tennis shoes, basketball shoes)
- 02 Dress shoes (not sneakers)
- 03 Sandals
- 04 Flip-flops or thongs
- 05 None
- 98 Other (specify _____)
- 99 Don't know

INTERVIEWER SAY: Now I have some questions about you/your child that will help us understand the injury.

INTERVIEWER NOTE: These questions refer to the victim of the injury only. Whenever possible, substitute "you" or the victim's name for "the injured person" in these questions.

26. How *tall* was the injured person at the time of the accident? _____

27. What is his/her/your date of birth? _____

28. About how much did he/she/you weigh at that time? _____

29. How *experienced* with scooters was he/she/you prior to the injury? (Read choices)

- 01 Very experienced
- 02 Somewhat experienced
- 03 Not very experienced
- 04 First time on a scooter → skip to question 34 on next page
- 99 Don't know

30. How *often* did the injured person use a scooter *before* the accident? (Read choices)

- 01 Every day
- 02 A few times a week
- 03 One to four times per month
- 04 Less than once a month

31. How did the injured person generally use scooters *before* the accident? (Read choices and circle all that apply)

- 01 Transportation to and from school or work
- 02 Doing tricks
- 03 Racing
- 04 Part of another game
- 05 Just riding around for fun
- 98 Other (specify _____)

32. Did the injured person generally wear any *safety gear* when riding scooters? (Read choices)

- 01 Always
- 02 Usually
- 03 Only when doing tricks
- 04 Sometimes
- 05 Rarely
- 06 Never → Skip to question 37 on next page

33. What kind of safety gear was generally worn? (Read choices and circle all that apply)

- 01 Helmet
- 02 Wrist guards
- 03 Elbow pads
- 04 Knee pads
- 05 Gloves
- 99 Other (specify _____)

34. Was the injured person wearing any safety gear at the time of the injury?

- 01 Yes
- 02 No → Skip to question 37 on this page
- 99 Don't know → Skip to question 37 on this page

35. What gear were you/was (he/she) wearing? (Read choices and circle all that apply)

- 01 Helmet
- 02 Wrist guards
- 03 Elbow pads
- 04 Knee pads
- 05 Gloves
- 99 Other (specify _____)

36. Do you think that the safety gear helped to avoid a *more serious* injury? (For example scraped knee and hit head, wearing a helmet, no head injury.)

- 01 Yes (In what way?) _____

- 02 No _____

37. Was this the victim's first injury on a scooter that needed *first aid*?

- 01 Yes
- 02 No

38. Was this the first injury needing first aid for *anyone* on this particular scooter?

- 01 Yes
- 02 No
- 99 Don't know

39. Has anyone experienced any other problems with the scooter, even if they haven't resulted in an injury?

- 01 Yes → specify: _____
- 02 No _____

INTERVIEWER SAY: Now I am going to ask you about some other types of riding sports equipment.

40. Does the injured person own a skateboard?

- 01 Yes
- 02 No → skip to question 44 on next page
- 03 Don't know → skip to question 44 on next page

41. How often did he/she/you use the skateboard before having access to a scooter? (Read choices)

- 01 Every day
- 02 A few times a week
- 03 Once a week or less
- 04 Hardly ever
- 05 Never → skip to question 44 on next page

42. Does he/she/you use the skateboard *more or less often* than before having access to the scooter?

- 01 Use it more often
- 02 Use it less often
- 03 Use it about the same

43. How did he/she/you generally use a skateboard before having access to a scooter? (Read choices and circle all that apply)

- 01 Transportation to and from school or work
- 02 Doing tricks or stunts
- 03 Racing
- 04 Part of another game
- 05 Just riding around for fun
- 06 Other (specify _____)

44. Does the injured person own a bicycle?

- 01 Yes
- 02 No → skip to question 48 on this page
- 99 Don't know → skip to question 48 on this page

45. How often did he/she/you use the bike prior to having access to a scooter?

- 01 Every day
- 02 A few times a week
- 03 Once a week or less
- 04 Hardly ever
- 05 Never → skip to question 48 on this page

46. Does he/she/you use the bike *more or less often* than before having access to the scooter?

- 01 Use it more often
- 02 Use it less often
- 03 Use it about the same

47. How did he/she/you generally use a bicycle before having access to a scooter? (Read choices and circle all that apply)

- 01 Transportation to and from school or work
- 02 Doing tricks or stunts
- 03 Racing
- 04 Part of another game
- 05 Just riding around for fun
- 98 Other (specify _____)

48. Does the injured person own or use in-line skates (that is, not regular roller skates), or did he/she/you before having access to a scooter?

- 01 Yes
- 02 No → skip to question 52 on next page
- 99 Don't know → skip to question 52 on next page

49. How *often* did he/she/you use in-line skates prior to having access to a scooter?

- 01 Every day
- 02 A few times a week
- 03 Once a week or less
- 04 Hardly ever
- 05 Never → skip to question 52 on this page

50. Does he/she/you use the in-line skates *more or less often* than before having access to the scooter?

- 01 Use it more often
- 02 Use it less often
- 03 Use it about the same

51. How did he/she/you generally use in-line skates before having access to a scooter? (Read choices and circle all that apply)

- 01 Transportation to and from school or work
- 02 Doing tricks or stunts
- 03 Racing
- 04 Part of another game
- 05 Just riding around for fun
- 06 Other (specify _____)

52. Does the injured person own *regular* roller skates (not inline skates)?

- 01 Yes
- 02 No → skip to question 56 on next page
- 03 Don't know → skip to question 56 on next page

53. How *often* did he/she/you use the roller skates before having access to a scooter?

- 01 Every day
- 02 A few times a week
- 03 Once a week or less
- 04 Hardly ever
- 05 Never → skip to question 56 on next page

54. Does he/she/you use the roller skates *more or less often* than before having access to the scooter?

- 01 Use it more often
- 02 Use it less often
- 03 Use it about the same

55. How did he/she/you generally use roller skates before having access to a scooter? (Read choices and circle all that apply)

- 01 Transportation to and from school or work
- 02 Doing tricks or stunts
- 03 Racing
- 04 Part of another game
- 05 Just riding around for fun
- 06 Other (specify _____)

56. Does the injured person own or use any *other equipment* similar to skates, bicycles, skateboards or scooters?

- 01 Yes → specify _____
- 02 No → skip to question 62 on next page

57. How *often* did he/she/you use the other equipment before having access to a scooter?

- 01 Every day
- 02 A few times a week
- 03 Once a week or less
- 04 Hardly ever
- 05 Never → skip to question 62 on next page

58. Does he/she/you use the other equipment *more or less often* than before having access to the scooter?

- 01 Use it more often
- 02 Use it less often
- 03 Use it about the same

59. How did he/she/you generally use the other equipment before having access to a scooter?
(Read choices and circle all that apply)

- 01 Transportation to and from school or work
- 02 Doing tricks or stunts
- 03 Racing
- 04 Part of another game
- 05 Just riding around for fun
- 06 Other (specify _____)

GO TO QUESTION 62 ON THIS PAGE

60. I'm going to read a list of injuries in order of severity. Please stop me when I get to one that accurately describes the injury from this accident: (Read choices)

- 01 No injury
- 02 A bruise
- 03 A cut that didn't require stitches
- 04 A cut that required stitches
- 05 Tip of finger cut off or nearly cut off
- 06 Less than half of finger cut off or nearly cut off
- 07 Half of finger cut off or nearly cut off
- 08 More than half of finger cut off or nearly cut off
- 09 Something else (specify: _____)

61. What was the injured person doing when the accident happened? Were you/ was he/she:
(Read choices)

- 01 Unfolding the scooter
- 02 Folding the scooter
- 03 Something else (specify: _____)

62. Is there anything else about this accident or the scooter involved that you would like me to know?

- 01 Yes (specify) _____
- 02 No

63. In case I have recorded something incorrectly, or if we have more questions, can we call you back?

- 01 Yes → continue to next question
- 02 No → Thank respondent for his/her time and help and END interview.

64. When would be the best time to call? _____

Thank you very much for your time and your help.