

CAUSES OF NONFATAL INJURIES IN THE UNITED STATES, 1986*

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Abstract—During the 1986 National Health Interview Survey (NHIS), data on injuries resulting in a doctor visit or restricted activity for at least a half day were collected and assigned E-codes. Based on 603 injuries, the estimated number of nonfatal injuries for civilian, noninstitutionalized U.S. residents in 1986 was 60,212,000. The most frequent cause of injury was a fall (11,547,000), followed by motor vehicle traffic crashes (4,361,000) and adverse effects of drugs and biologics (3,363,000). While cause-specific detail was limited by small numbers of injuries in the sample, the NHIS can provide a valuable snapshot of the causes of nonfatal injuries.

INTRODUCTION

Although injuries are the leading cause of death up to age 45 years (National Safety Council 1990), there is a paucity of national injury surveillance data. As part of the 1986 National Health Interview Survey (NHIS), the National Center for Health Statistics (NCHS) collected information about the causes of nonfatal injuries. We report here cause-specific injury incidence estimates for 1986.

METHODS

The NHIS uses a multistage probability sample of the civilian, noninstitutionalized, U.S. resident population. Four fully representative samples are selected yearly, but due to funding limitations, only two samples were surveyed in 1986. Information is gathered about each household member, including all health conditions and injuries resulting in restricted activity or a doctor visit during the two weeks before the interview week, or causing hospitalization or limitation of usual activities during the 12 months before interview. For 1986, NHIS interviewers questioned persons about the circumstances of any injury occurring within the two weeks before interview. Although not part of the formal questionnaire, this probing was standardized during pilot testing in 1985.

Injuries were classified by external-cause-of-injury codes, i.e. E-codes, of the International Classification of Diseases (ICD), (1989). E-codes specify an injury's cause (e.g. fall), whereas other ICD codes specify the resultant injury (e.g. fracture). E-code data for the two-week recall period were weighted and rounded to the nearest thousand to produce national estimates (NCHS 1987). Standard errors were calculated using SESUDAAN (Shah 1981).

RESULTS

Data on 62,052 persons were gathered from 23,838 households (household survey response rate = 96.5%). During the entire year, 1,716 injuries were reported: 603 occurred within the 2 weeks before interview (rate = 302/week); 505 from >2 weeks to 3 months (rate = 51/week); and 608 from >3 months to 1 year (rate = 15/week). Based on the 603 injuries occurring in the two-week recall period, the estimated number of nonfatal injuries was about 60 million (Table 1). Ninety-one percent (547/603) of the injuries resulted in a

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Table 1. Nonfatal injuries for the civilian, noninstitutionalized resident population, by external cause, United States, 1986

External cause (E-codes)	Number injured	National estimate	95% confidence interval	
			Lower	Upper
Fall (E880-888)	113	11,547,000	9,393,000	13,701,000
Motor vehicle-traffic (E810-819)†	45	4,361,000	2,779,000	5,942,000
Drugs and biologics (E930-949)	33	3,363,000	2,242,000	4,484,000
Sports (E917.0)	19	2,012,000*	1,014,000	3,011,000
Arthropod bite (E905.1,E905.3,E906.4)	18	1,715,000*	833,000	2,597,000
Bicycle‡	15	1,431,000*	691,000	2,171,000
Medical complication (E870-879)	12	1,114,000*	405,000	1,823,000
Intentional (E950-978)	11	961,000*	402,000	1,520,000
Poisoning (E850-869)	8	760,000*	117,000	1,404,000
Motor vehicle-nontraffic† (E820-825)	6	708,000*	87,000	1,329,000
Knives and Blades (E920.3)	7	664,000*	162,000	1,166,000
Dog Bites (E906.0)	6	585,000*	226,000	944,000
Other§	310	30,991,000	27,483,000	34,499,000
Total	603	60,212,000	57,050,000	63,375,000

*Standard error >20 per cent of the estimate

†Excluding bicycles and pedestrians

‡E810-25 with .6 as fourth digit, E826.1, E826.9, E827-9 with .1 as fourth digit

§Nonspecific E-code categories or those affecting fewer than 6 respondents. Included are one injury for E814.7, E822.7, E846, E848, E890.8, E890.9, E895, E900, E903, E905.6, E911, E915, E919.3, E919.8, E922, E924.1, E988.6; two for E828.2, four for E920.4; six for E906.8; seven for E902.9; thirteen for E914, E918; twenty for E928.9; twenty-three for E916; thirty-five for E928.8; forty-four for E927; forty-six for E917.9; and fifty-five injuries for E920.8.

doctor visit. The most frequent cause was a fall (11,547,000 injuries). Only three broad injury E-code categories (falls, motor vehicle-traffic, and drugs/biologics) had standard errors <20 per cent of the estimate.

DISCUSSION

Although E-coding has been recommended for injury data sets (Sniezek 1989), the detail available in E-codes could not be fully utilized in the NHIS. Even with the broad E-code categories analyzed, standard errors exceeded 20% of the estimate for all but three categories. Even less precision can be expected for more specific E-code categories or for descriptive characteristics (i.e. age or sex) of persons within these categories. Expanding the recall period could increase the number of injuries reported; however, the two-week recall period minimizes recall bias (NCHS 1986). In this study, the number of injuries reported per week declined exponentially as the recall period extended further from the interview date, suggesting recall problems. A longer recall period may be feasible for more severe injuries, e.g. hospitalizations; however, these injuries might be more efficiently collected from hospital discharge data. Broadening the definition to include minor injuries would magnify recall problems and possibly obscure the injuries of greatest public health importance. The alternative—to massively increase sample size—would be cost-prohibitive.

Although Hoffman (1986) suggested that the NHIS be used to evaluate progress towards national injury objectives, he evaluated risk factors for injuries (i.e. seat belt non-use, absence of household smoke detectors) and not the less frequent outcome—injury. To provide a reasonably precise snapshot of national, nonfatal injury morbidity, it would be necessary to consolidate multiple years of E-coded injury data from the NHIS.

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