# Injury Visits to Hospital Emergency Departments in Rhode Island, 2005

*Edward F. Donnelly, RN, MPH, and Jay S. Buechner, PhD*

**In 2005 in the United States, there were approximately 41.9** million visits to hospital emergency departments where either the patient's stated reason for the visit or the treating physician's principal diagnosis was related to an injury, poisoning, or adverse effect of medical treatment.[1] This translates to 14.4 visits per 100 persons during that year.

Beginning January 1, 2005, hospitals in Rhode Island have reported patient-level data on visits to **emergency departments (EDs)** to the Rhode Island Department of Health.[2] This report presents summary information for 2005 on hospital ED visits in Rhode Island for injuries, poisonings, and adverse effects of medical treatment, together referred to as "injuries" in this report.

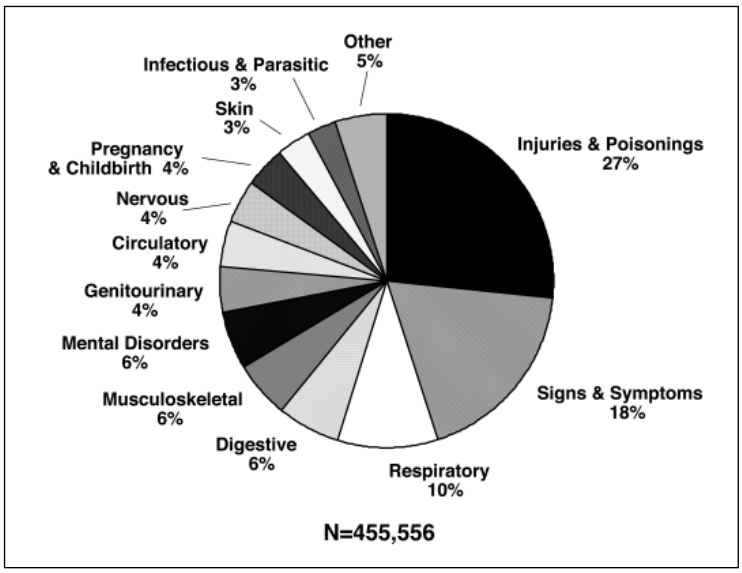


Figure 1. Percent distribution of visits to hospital emergency departments by major diagnostic group, Rhode Island, 2005

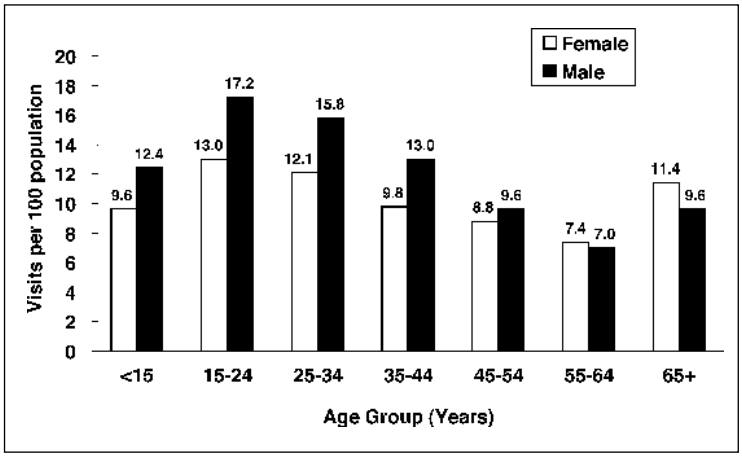


Figure 2. Injury ED visits per 100 population, by sex by age group, Rhode Island 2005

## Methods

Under licensure regulations, the eleven acute-care general hospitals and two psychiatric facilities in Rhode Island report to the Department of Health's Center for Health Data and Analysis a defined set of data items on each emergency department visit beginning with visits occurring January 1, 2005. The data include patient-level demographic and clinical information. This analysis covers ED visits occurring January 1 – December 31, 2005, including those where the patient received treatment only in the ED, was held for observation, or was admitted as an inpatient. Due to ongoing investigations into the manner in which hospitals report their ED data, the data presented here are provisional and subject to change.

Principal diagnosis and cause of injury for each patient were extracted from the ED record where available, otherwise from the inpatient record or observation stay record. Diagnoses, coded in ICD-9-CM,[3] were grouped as for published national data.[1] ICD-9-CM external cause of injury codes ("E-codes") used to record the mechanism of injury were grouped according to national standards.[4]

## Results

In 2005, there were 456,069 visits to hospital EDs in Rhode Island. Five hundred thirteen (513) records that did not report a diagnosis or were missing the age or sex of the patient were excluded from this analysis, leaving 455,556. The first-listed diagnosis for 121,477 of these visits (26.7%) was an injury, poisoning, or adverse effect of medical treatment. (Figure 1)

By age group, injury was the most common first-listed diagnosis in records of ED visits for children less than 15 years of age. (Table 1) Nearly one-third of children's ED visits (32.2%) were due to injury. Injury is also the most common first-listed diagnosis for the age groups 15-44 and 45-64. However, the proportion of all visits with injury diagnoses declines with age. Injury falls to second place among ED records of persons 65+ years of age behind findings of signs and symptoms, i.e., visits where no definitive diagnosis was arrived at.

The highest rates of injury ED visits and the largest number of records occurred in persons 15-24 years of age. (Figure 2) Males account for more than 60% of injury visits in this age group. Rates fall steadily through middle age groups, then increase sharply in the group 65+ years of age.

Males make up the majority of all reported injury visits to hospital EDs. (Figure 2) In these visits, more males than females were reported in every age group through age 54. Females made up the majority of injury visits and had higher population rates of visits than males in the age groups 55-64 and 65+.

**Table 1.**
**Most common first-listed diagnostic categories for visits to hospital emergency departments, by age group, Rhode Island, 2005**

| Rank | Age Group | | | | |
|---|---|---|---|---|---|
| | 0-14 Years | 15-44 Years | 45-64 Years | 65+ Years | All Ages |
| 1 | Injury and Poisoning (32.2%) | Injury and Poisoning (28.8%) | Injury and Poisoning (24.8%) | Symptoms, Signs, and Ill-defined Conditions (20.1%) | Injury and Poisoning (26.7%) |
| 2 | Symptoms, Signs, and Ill-defined Conditions (17.2%) | Symptoms, Signs, and Ill-defined Conditions (16.8%) | Symptoms, Signs, and Ill-defined Conditions (21.6%) | Injury and Poisoning (18.7%) | Symptoms, Signs, and Ill-defined Conditions (18.2%) |
| 3 | Diseases of the Respiratory System (16.9%) | Complications of Pregnancy, Childbirth and the Puerperium (8.3%) | Diseases of the Respiratory System (8.3%) | Diseases of the Circulatory System (14.5%) | Diseases of the Respiratory System (9.8%) |
| 4 | Diseases of the Nervous System and Sense Organs (9.0%) | Diseases of the Respiratory System (7.6%) | Mental Disorders (7.8%) | Diseases of the Respiratory System (11.0%) | Diseases of the Digestive System (6.1%) |
| 5 | Infectious and Parasitic Diseases (6.5%) | Diseases of the Musculoskeletal System and Connective Tissue (6.0%) | Diseases of the Musculoskeletal System and Connective Tissue (6.8%) | Diseases of the Digestive System (7.3%) | Diseases of the Musculoskeletal System and Connective Tissue (5.7%) |
| Total Number of Visits | 67,915 | 213,017 | 90,663 | 83,931 | 455,556 |

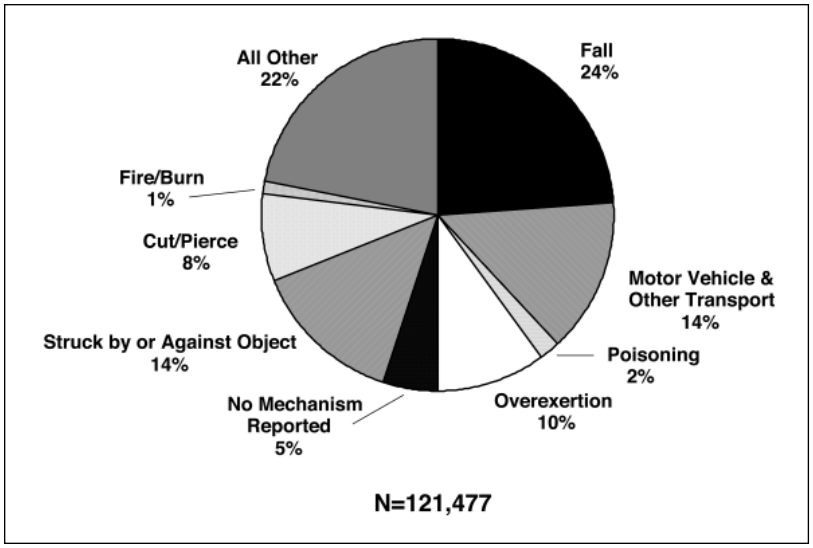


Figure 3. Percent distribution of injury visits to hospital emergency departments by mechanism of injury, Rhode Island, 2005

The most commonly reported mechanism of injury among patients seen in hospital EDs was falls, which resulted in 24% of all visits in Rhode Island in 2005. (Figure 3) Next most common were motor vehicle traffic and other transport injuries (14%) and injuries caused by being struck by or against an object (14%). Injuries due to fires or burns (1%) and poisonings (2%) were relatively uncommon. Among ED visits for injuries, 5% had no mechanism of injury recorded.

## Discussion

The availability of statewide patient-level records on hospital ED visits in Rhode Island has broad implications for public health efforts in our state. For example, persons who are injured are more likely to be treated in the ED than to be admitted as inpatients, events also routinely reported to the Department by hospitals. The ED data support the analysis of data on less severe injuries, on critical injuries such as eye injuries that do not often require inpatient treatment, and on more closely defined target populations. These analyses will be performed in conjunction with public health intervention programs, and selected findings will be reported in future issues of *Health by Numbers.*

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**Disclosure of Financial Interests**

The authors have no financial interests to disclose.

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