

Injury Visits To Emergency Departments and Hospital Discharges In Rhode Island, 2005–2009: Focus On Falls

Patricia M. Burbank, DNSc, RN, and Edward F. Donnelly, RN, MPH

The number of emergency department (ED) visits in the United States reached 119.2 million visits in 2007.¹ The largest percentage of these visits was for people with injury-related diagnoses (42.4 million visits),¹ with falls accounting for 76% of these among adults age 65 and older.² Hospital discharge data for injury-related admissions reflects those patients visiting the ED whose injuries were so severe that they warranted admission.

Beginning January 1, 2005, hospitals in Rhode Island have reported patient-level data on visits to EDs to the Rhode Island Department of Health.³ This report presents summary information for 2005–2009 on hospital ED visits and hospital in-patient discharges in Rhode Island for injuries and poisonings, together referred to as “injuries,” with emphasis on falls.

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 ED visit beginning with visits occurring January 1, 2005. Submission of similar records of hospital discharges began in 1992. The data include patient-level demographic and clinical information. This analysis covers five years of ED visits occurring January 1, 2005–December 31, 2009, including those where the patient received treatment only in the ED, was held for observation, and was admitted as an inpatient. 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 are coded in ICD-9-CM⁴ and were grouped as for published national data.³ ICD-9-CM external cause of injury codes (“E-codes”) used to record the mechanism of injury were grouped according to national standards.⁵ Denominators used in the calculation of rates were derived from US Census estimates of the state population for each of the five event-years.

RESULTS

During this five-year period, 2005–2009, there were 2,466,757 total visits to hospital EDs in Rhode Island. Of these, 665,773 visits (28%) suffered an injury or poisoning, making

injury the most frequently occurring diagnosis for ED visits. Annual ED visits from all diagnoses steadily increased in number from 473,847 in 2005 to 507,331 in 2009. Of the total 723,380 hospital discharges during the five years, 58,895 (8%) of these involved an injury.

The highest rates of injury ED visits occurred in persons 85+ years of age with slightly higher rates among females. Many of these injuries were severe and resulted in hospital admissions for those in age groups 65 years and older; those ages 85+ had the highest actual number and the highest rate of injury discharges from hospitals. (Figure 2) Falls were the most commonly reported injury among patients seen in hospital EDs, which resulted in 26%

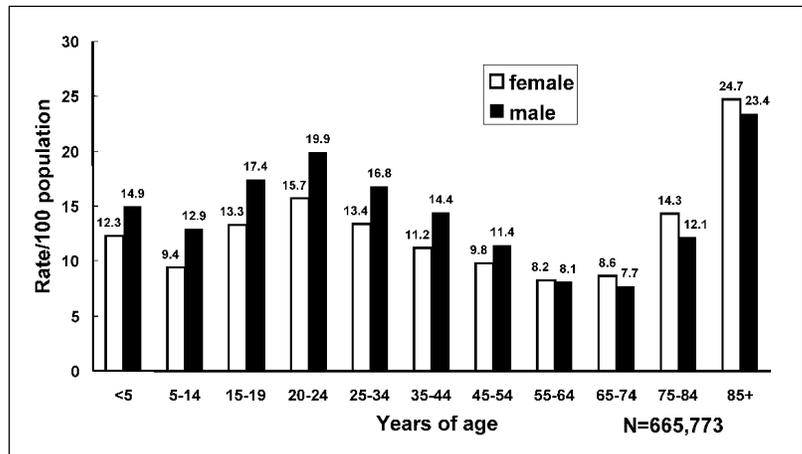


Table 1. Sex and Age group-specific average annual rates of injury ED visits per 100 population, Rhode Island, 2005-2009

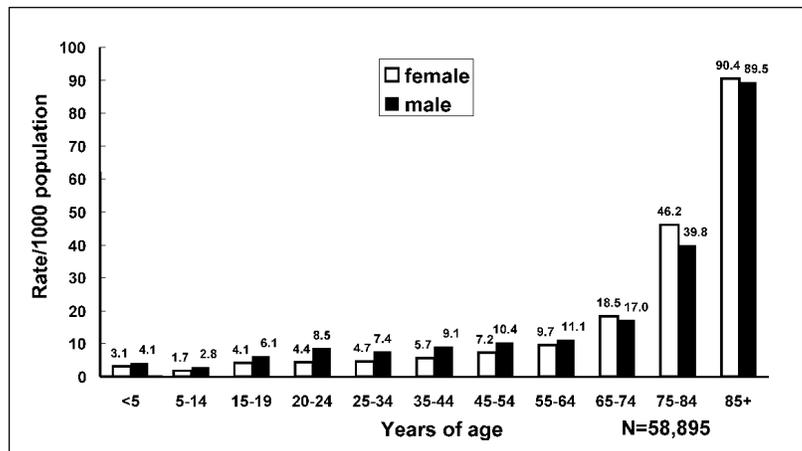


Table 2. Sex and Age group-specific average annual rates of injury discharges per 1,000 population, Rhode Island, 2005-2009

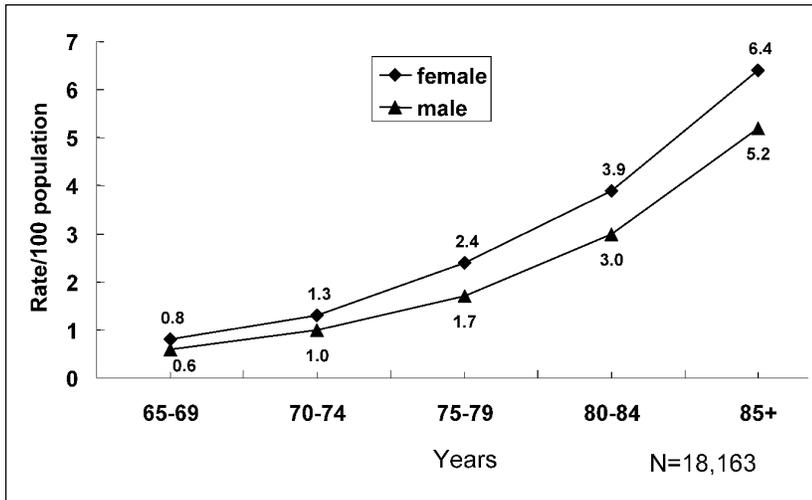


Table 3. Specific rates of fall discharges in older persons per 100 population by sex by age group, Rhode Island, 2005-2009

of all visits in Rhode Island from 2005 - 2009 and 43% of hospital discharges due to injury. Next most common were poisoning (10%) and motor vehicle and other transport injuries (7%). [Children are a major part of poisonings seen in the ED but not in discharges. Over 25% of poison visits and about 22% of poison discharges are in males 25-64. The poisoning category includes drug overdoses regardless of the source of the drug, thus the high numbers in middle age males. If an older person takes too many pills, it's an overdose. If the pills are taken as intended, resulting adverse effects are not included in poisonings in this analysis.]

Specific rates of ED visits for falls and fall hospital discharges increase dramatically with age, both following the same pattern. Figure 3 illustrates the increased rate of fall discharge with slightly higher rates among females in all the older age groups.

DISCUSSION

The availability of statewide patient-level records on hospital ED visits and hospital discharges in Rhode Island has broad implications for public health efforts in our state. Studies have

shown fall prevention measures such as exercise and Vitamin D are effective in reducing falls by as much as 30%.^{6,7,8} It is hoped that future analyses will show a reduction of injury-related visits to EDs and hospital discharges, reflecting statewide success at reducing falls and preventing injuries.

Patricia M. Burbank, DNSc, RN, is a Professor in the College of Nursing, University of Rhode Island; Coordinator for the Gerontological Clinical Nurse Specialist and Doctor of Nursing Practice programs; and Chair of the Fall Injury Prevention Committee at the RI Department of Health.

Edward F. Donnelly, RN, MPH, is Senior Public Health Epidemiologist in the Center for Health Data and Analysis.

REFERENCES

1. CDC FASTSTATS – Emergency Department Visits. 2010. www.cdc.gov/nchs/fastats/ervisits.htm
2. National center for health statistics, Health, United States, 2009: With special feature on medical technology. Hyattsville, MD, 2010. www.cdc.gov/nchs/data/abus/abus90.pdf#090
3. Williams KA, Buechner JS. Utilization of hospital emergency departments, Rhode Island, 2005. *Medicine & Health / RI* 2006; 89:415-6.
4. Public Health Service and Health Care Financing Administration. *International Classification of Diseases, 9th Revision, Clinical Modification*, 6th ed. Washington: Public Health Service, 1996.
5. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. Recommended framework of E-code groupings for presenting injury mortality and morbidity data (February 1, 2007). <http://www.cdc.gov/ncipc/whatsnew/matrix2.htm>.
6. Tinetti ME, Baker DI, et al. A multifactorial intervention to reduce the risk of falling among elderly people living in the community. *NEJM* 1994; 331:821-7.
7. Day L, Finch CF, et al. Modelling the population-level impact of tai-chi on falls and fall-related injury among community-dwelling older people. *Injury Prevention* 2010; July 19.
8. Kalyani RR, Stein B, et al. Vitamin D treatment for the prevention of falls in older adults. *J American Geriatrics Soc* 2010; 1299-310.

Disclosure of Financial Interests

The authors and/or spouses/significant others have no financial interests to disclose.



Medical Office Space For Lease Providence, RI

1,400 sq. ft. in a medical office building, walking distance to three major hospitals. Many referral opportunities, on-site parking. For more information, contact Filomena daSilva at 421-1710 ext. 7022.