National Hospital Ambulatory Medical Care Survey: Emergency Department Visits for Drug Poisoning

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National Conference on Health Statistics 2015

National Hospital Ambulatory Medical Care Survey (NHAMCS)

- Conducted annually since 1992 by CDC's National Center for Health Statistics (NCHS)
- Endorsed by organizations including the Society for Academic Emergency Medicine, American College of Emergency Physicians, and Emergency Nurses Association
- Patient visits to EDs and OPDs of non-federal, general, and short-stay (average length of stay <30 days) hospitals
  - Hospitals include children's, teaching, and tertiary

Multistage Probability Sample Design

- 112 geographic Primary Sampling Units (PSUs)
- Hospitals within PSUs (N≈500)
- In-Scope hospitals with EDs (N ≈ 400)
- Patient visits within EDs (N=30-35,000)
  - 4-week reporting period
- Census Bureau — medical record abstraction

Visit vs. Person Estimates

NHAMCS is a record-based not a population-based survey

- Can calculate visit rates
  - # ED visits/U.S. population
- Cannot calculate incidence or prevalence rates from NHAMCS estimates

NHAMCS Limitations

- Only national and regional estimates
- Not always possible to estimate rare events

Research Objective

- To evaluate the rates and characteristics of ED visits for drug poisoning in the U.S. from 2008-2011
- To compare the rates of ED visits for drug poisoning from 2008-2011 with 2004-2007

Definition of Visit for Drug Poisoning

- An injury-related visit with a first-listed external cause-of-injury code of Drug Poisoning:

  E850-E858 Unintentional

  E950.0-E950.5 Self-inflicted

  E980.0-E980.5 Undetermined

- Based on the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM)

Analysis

Cross-sectional analysis using NHAMCS 2008-2011 ED data

- Variables of interest: age, sex, race/ethnicity, external cause of injury code (E-codes), visit disposition
- Sample weights applied to provide national estimates
- Data represent average annual estimates for 2008-2011
- Standard errors computed using SAS-callable SUDAAN, version 11.0 to account for complex survey design of NHAMCS

Analysis (continued)

Cross-sectional analysis using NHAMCS 2008-2011 ED data

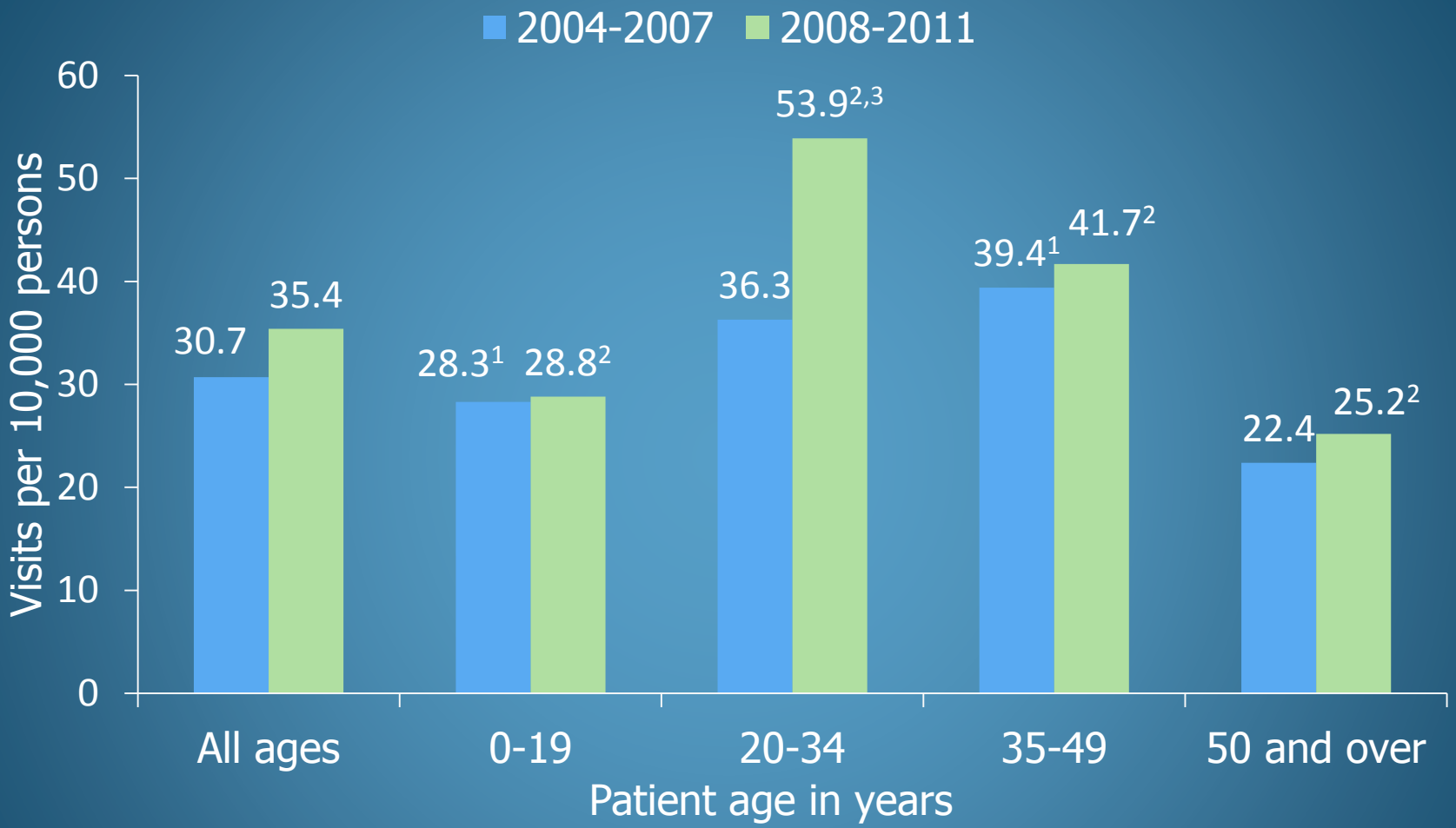
- Visit rates based on set of estimates of civilian noninstitutionalized population of the United States developed by the Population Division, U.S. Census Bureau
- Data imputed for patient birth year and sex. Less than 1% of drug-poisoning visit records had missing data for either of these variables
- Differences among subgroups evaluated using two-tailed *t* test ($p < 0.05$)
- Linear trend for age evaluated using a weighted least squares test ($p < 0.05$)

ED Visits 2004-2007 and 2008-2011

- 2004-2007 a sample of 1,156 ED visits for drug poisoning representing a weighted total of 900,000 visits

- 2008-2011 a sample of 1,081 ED visits for drug poisoning representing a weighted total of 1.1 million visits

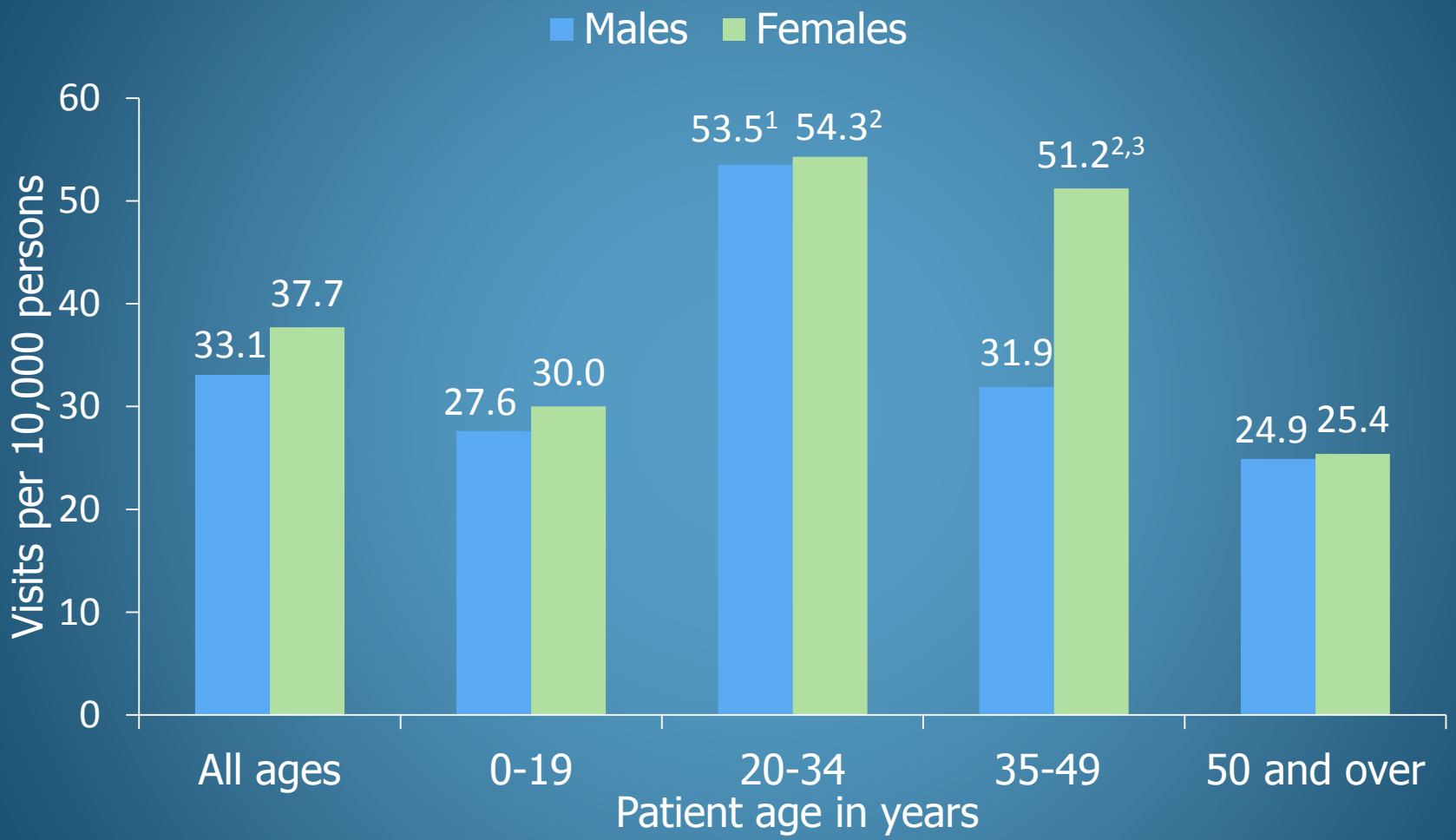
Emergency department visit rates for drug poisoning by age: United States, 2004-2007 and 2008-2011



[1]2004-2007 visit rates are significantly different ($p < 0.05$) for the following comparisons: 0-19 years vs. 35-49 years; 20-34 years vs. 50 years and over; and 35-49 years vs. 50 years and over, based on a two-tailed *t* test.
[2]2008-2011 visit rates are significantly different ($p < 0.05$) for all age group comparisons except 0-19 years vs. 50 years and over, based on a two-tailed *t* test.
[3]Visit rate is significantly different ($p < 0.05$) for 2008-2011 compared with 2004-2007, based on a two-tailed *t* test.

SOURCE: CDC/NCHS, National Hospital Ambulatory Medical Care Survey, 2004-2011.

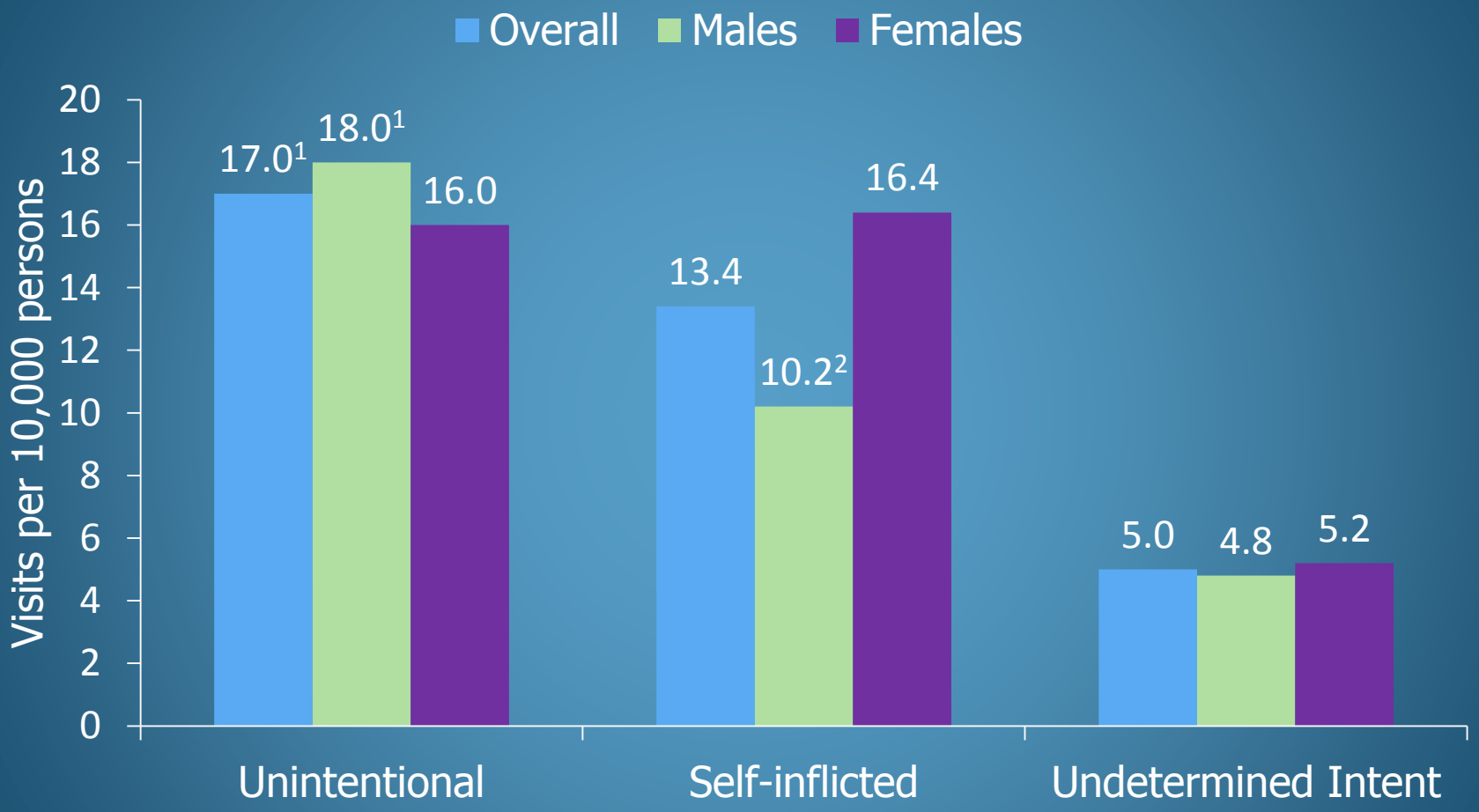
Emergency department visit rates for drug poisoning by age according to sex: United States, 2008-2011



[1]Visit rate is significantly different ($p < 0.05$) compared with males of other age groups, based on a two-tailed *t* test.
[2]Visit rate is significantly different ($p < 0.05$) compared with females aged 0-19 and 50 and over ,based on a two-tailed *t* test.
[3]Visit rate is significantly different ($p < 0.05$) for males compared with females, based on a two-tailed *t* test.

SOURCE: CDC/NCHS, National Hospital Ambulatory Medical Care Survey, 2008-2011.

Emergency department visit rates for drug poisoning by intent and sex: United States, 2008-2011



[1]Visit rate is significantly different ($p < 0.05$) for unintentional compared with self-inflicted based on a two-tailed *t* test.
[2]Visit rate is significantly different ($p < 0.05$) for males compared with females, based on a two-tailed *t* test.

SOURCE: CDC/NCHS, National Hospital Ambulatory Medical Care Survey, 2008-2011.

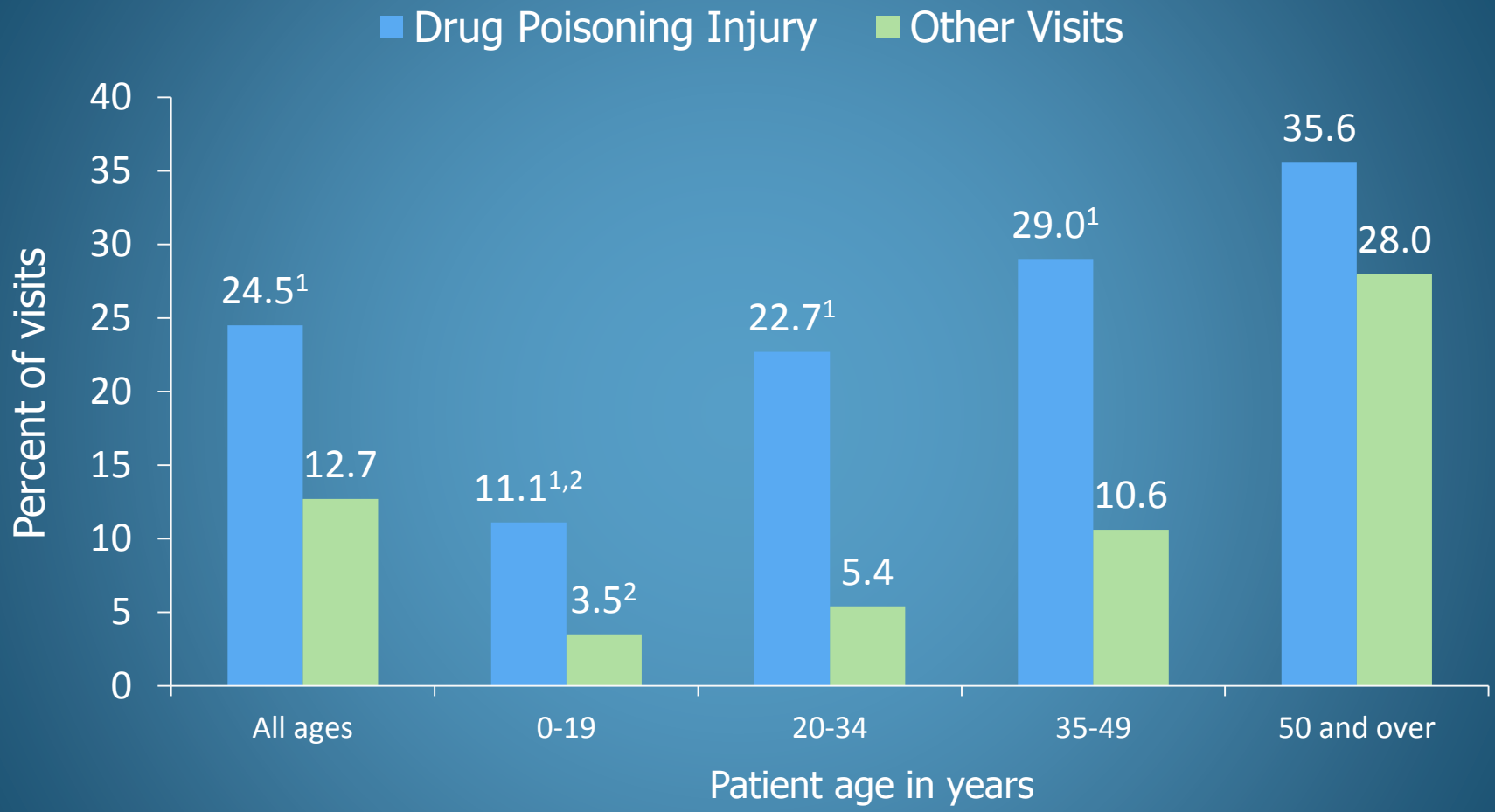
Distribution of emergency department visits for drug poisoning by intentionality according to cause of visit: United States, 2008-2011

Intent and drug category	Cause of injury ICD-9-CM code	Number of visits in thousands	Percent distribution
All drug poisoning-related visits		1,071	100.0
Unintentional drug poisonings	E850-E858	515	48.1
Analgesics, antipyretics, antirheumatics	E850	126	11.7
Sedatives, hypnotics, tranquilizers and other psychotropic agents	E851-E854	141	13.1
Other drug categories	E855-E858	249	23.2
Self-Inflicted drug poisonings	E950.0-E950.5	405	37.8
Analgesics, antipyretics, antirheumatics	E950.0	88	8.2
Sedatives, hypnotics, tranquilizers and other psychotropic agents	E950.1-E950.3	128	12.0
Other drug categories	E950.4-E950.5	189	17.6
Drug poisonings of undetermined intent	E980.0-E980.5	151	14.1

NOTE: Other drug categories and undermined intent include other specified and unspecified drugs.

SOURCE: CDC/NCHS, National Hospital Ambulatory Medical Care Survey, 2008-2011.

Percent of emergency department visits admitted to the hospital by age according to cause of visit: United States, 2008-2011



[1] Percentages are significantly different ($p < 0.05$) for drug poisoning injury visits compared with other emergency department visits based on a two-tailed *t* test.
[2] Linear trend for age is significant ($p < 0.05$) based on a weighted least squares test.

SOURCE: CDC/NCHS, National Hospital Ambulatory Medical Care Survey, 2008-2011.

Summary

- During 2008-2011 an average of 1.1 million ED visits were made each year for drug poisoning.
- The drug-poisoning ED visit rate was highest among persons aged 20-34. The rate declined after 20-34 with rates for those aged 0-19 similar to those aged 50 and over.
- The drug poisoning ED visit rate among adults aged 20-34 was higher in 2008-2011 compared with 2004-2007.

Summary (Continued)

- Drug-poisoning ED visit rates did not differ by sex and age with the exception of 35-49 where women had a higher visit rate than men.
- The ED visit rate for unintentional drug poisoning was higher than self-inflicted drug poisoning overall and for males but did not differ for females.
- About one-quarter (24.5%) of drug-poisoning ED visits resulted in hospital admission.

Reference

Albert M, McCaig LF, Uddin S. Emergency department visits for drug poisoning: United States, 2008-2011. NCHS data brief, no 196. Hyattsville, MD: National Center for Health Statistics. 2015

Contact information

- NHAMCS website
  - http://www.cdc.gov/nchs/ahcd/about_ahcd.htm
- NHAMCS public use files – Ambulatory and Hospital Care Statistics Branch Data Request Line
  - Voice Mail: (301) 458-4600
- Research Data Center
  - Website: www.cdc.gov/rdc
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