

Comparisons of injury estimates from a population-based survey and provider based surveys

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Objective

To compare injury estimates from a population-based health survey with estimates from two provider-based surveys

Methods--Data Sources

Three national surveys were used:

- **Population-based survey**
 - ✓ **National Health Interview Survey (NHIS): 2006-2008**
- **Provider-based surveys**
 - ✓ **National Hospital Ambulatory Medical Care Survey, Emergency Department component (NHAMCS-ED): 2007**
 - ✓ **National Hospital Discharge Survey (NHDS): 2007**

Population-based survey: NHIS

- **NHIS is a cross-sectional household interview survey of civilian non-institutionalized population.**
- **Data collected through personal interviews**
- **Respondents report information about injuries and Place of treatment**

Provider-based Survey: NHAMCS-ED

- **NHAMCS-ED is a national probability sample survey of visits to emergency departments of non-institutional general and short-stay hospitals.**
- **Data abstracted from medical records by trained hospital staff**

Provider-based Survey: NHDS

- **NHDS is a national probability sample survey of inpatient discharge records selected from non-Federal, short-stay hospitals.**
- **Data are collected by**
 - ✓ **Manual review of medical records (55%), medical abstract form**
 - ✓ **Automated system (45%), computerized data files containing machine-readable medical record data**

Methods--Injury Definitions

- **NHIS:**

- ✓ Reported place of treatment for injuries was
 - Emergency Department for injury ED visits or
 - Hospital for injury hospital discharges

- **NHAMCS-ED: initial ED visit**

- ✓ Either a) a first-listed injury diagnosis code or b) a first-listed external cause of injury code (excluding adverse effects)

- **NHDS:**

- ✓ First-listed diagnosis code for injury

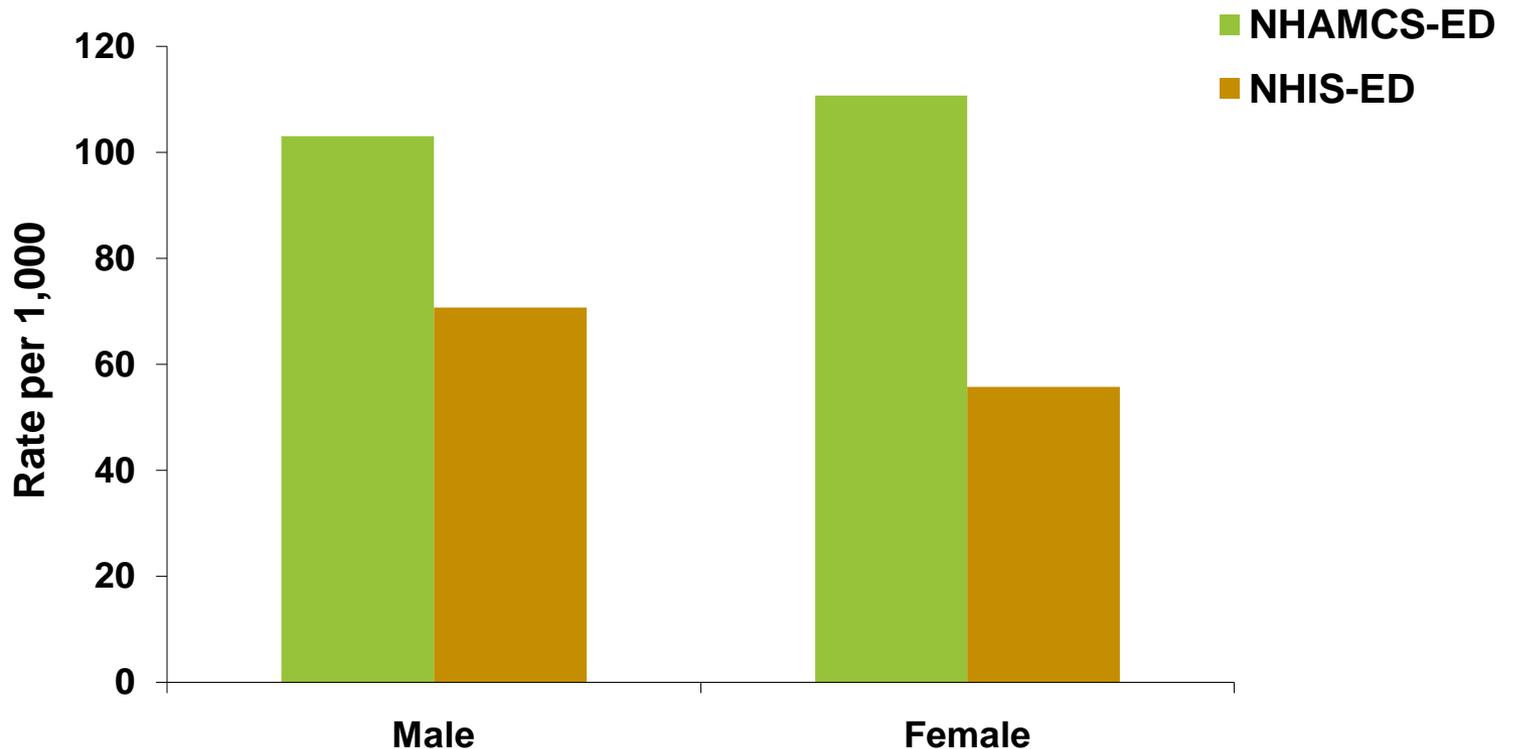
Methods--Rate calculation

Denominators for rates:

- **NHIS: US civilian non-institutionalized population, estimated from the sample.**
- **NHAMCS-ED and NHDS: US civilian population estimates provided by the Census Bureau.**

Injury Treated in ED by Sex

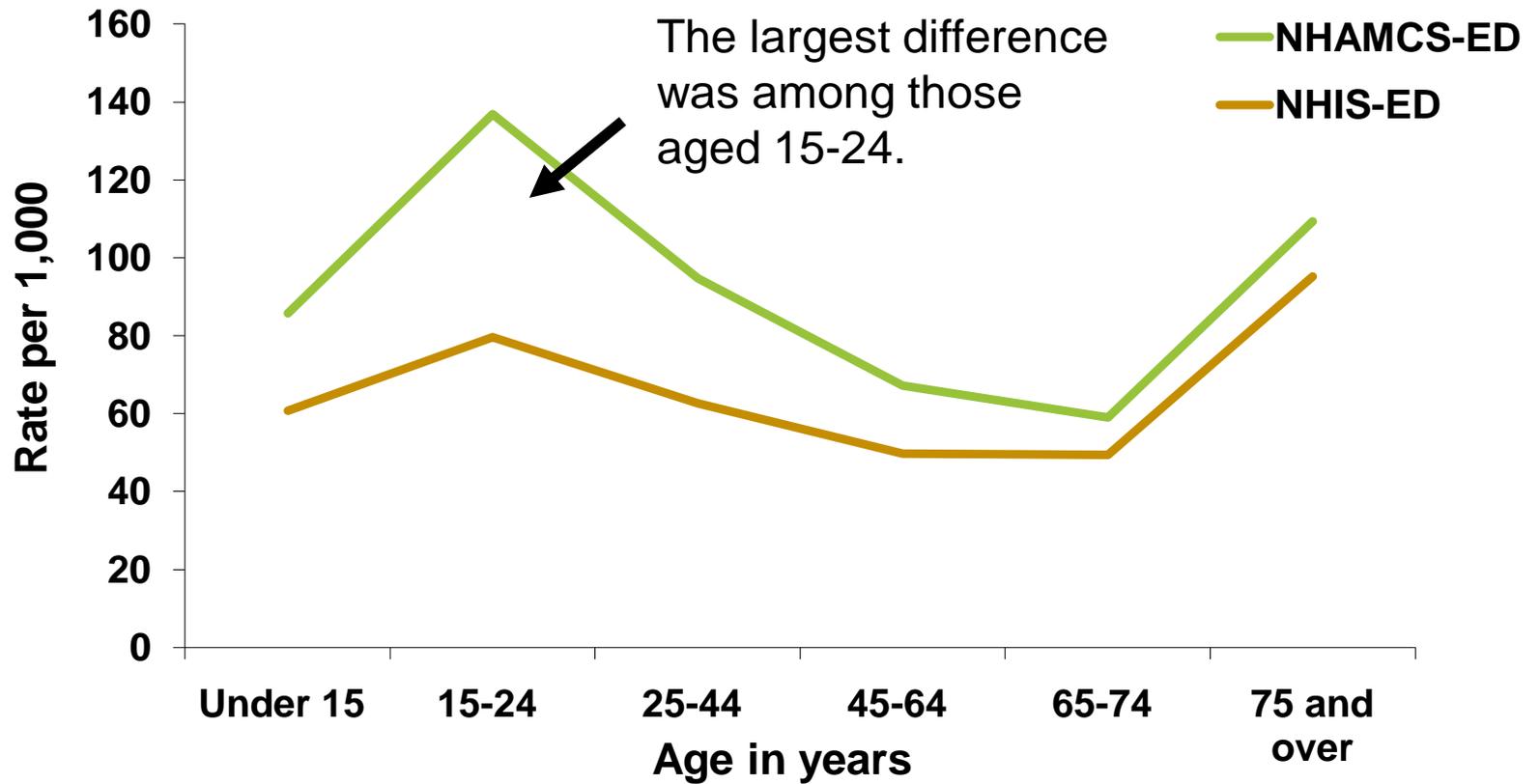
NHAMCS-ED and NHIS



The estimated rate of injuries treated in the ED from NHIS was 63 per 1,000 population which is 0.7 times the estimate from NHAMCS-ED.

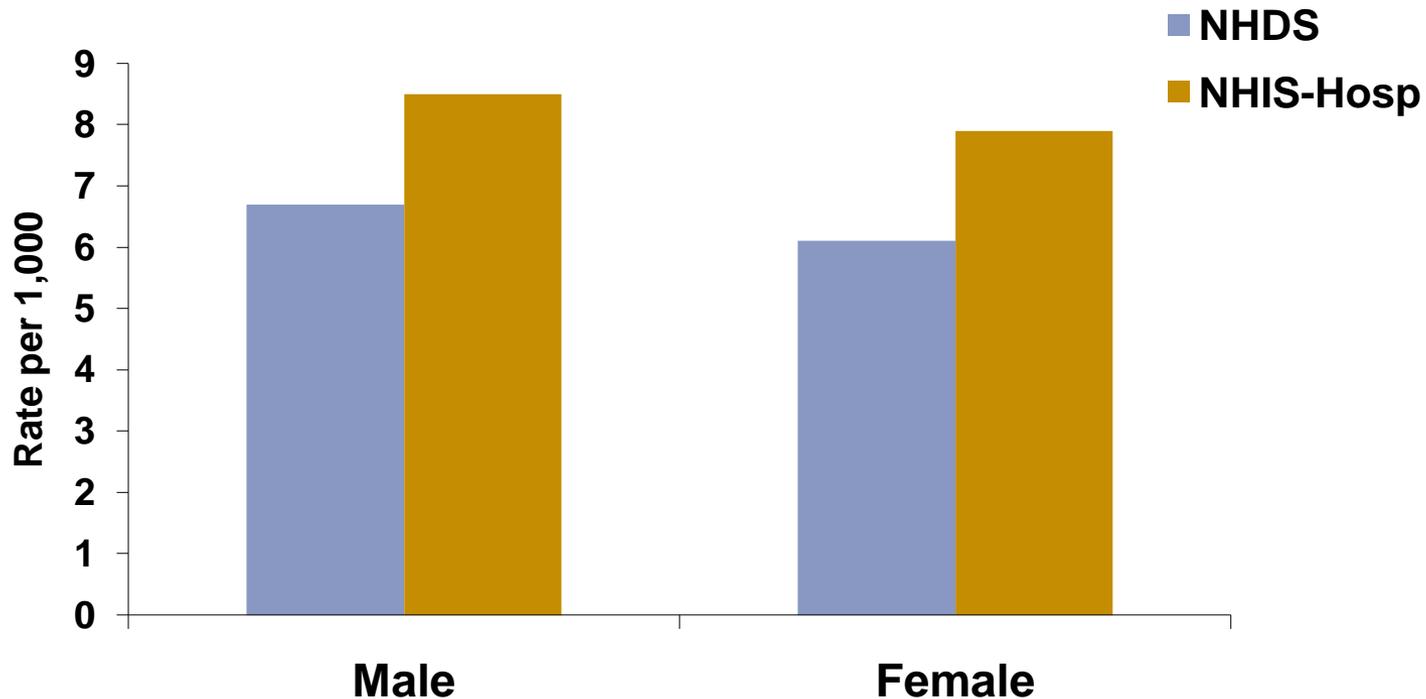
Injury Treated in ED by Age

NHAMCS-ED and NHIS



Injury Treated in Hospital by Sex

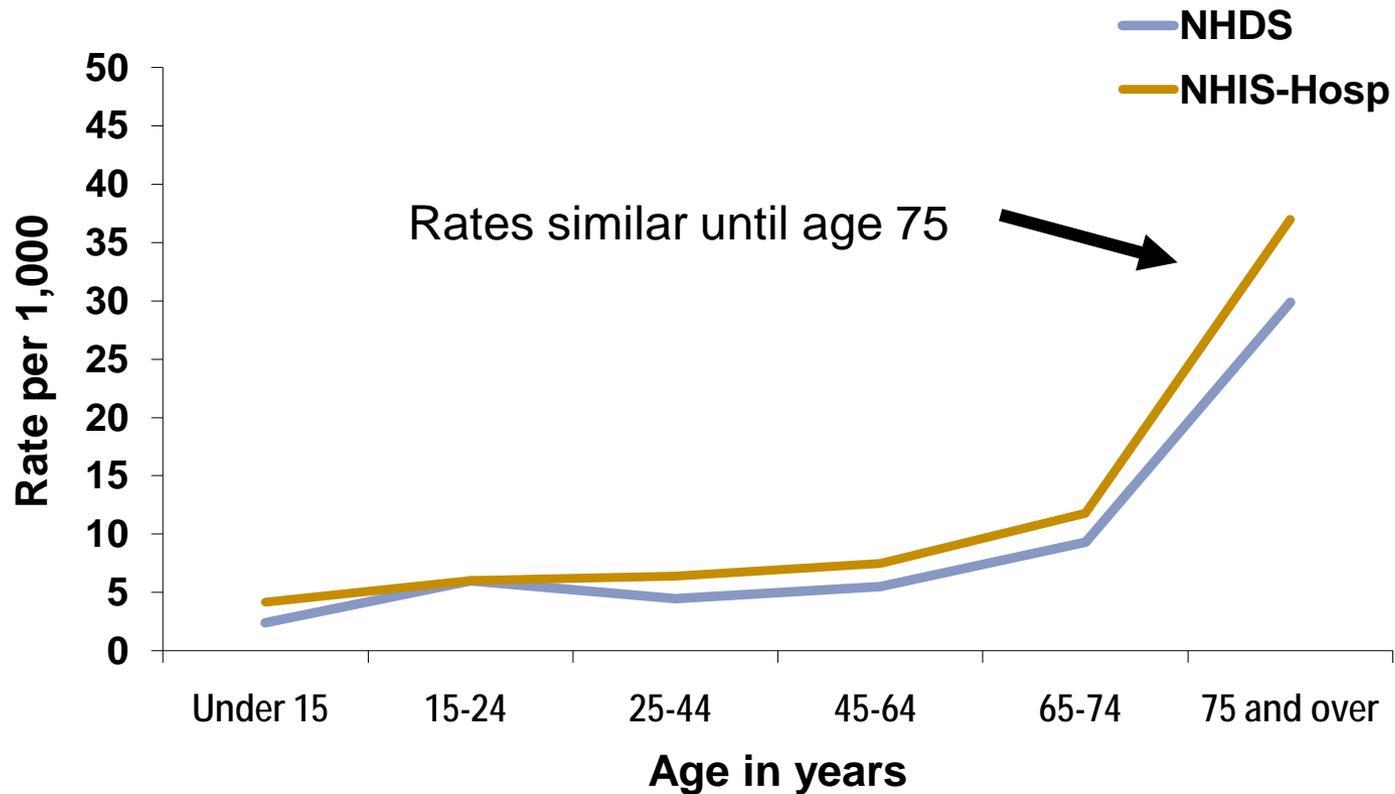
NHDS and NHIS



The estimated rate for injuries treated in the hospital from NHIS was 8.3 per 1,000 population which is about 1.3 times the estimates from NHDS.

Injury Treated in Hospital by Age

NHDS and NHIS



Differences between estimates

- **Injury emergency department visit rates:**
 - ✓ **NHIS estimates were 70% of the NHAMCS-ED estimates.**
- **Injury hospital discharge rates:**
 - ✓ **NHIS estimates were 130% of the NHDS estimates.**

Possible reasons for the differences in emergency department injury visit rates

- **Injury episodes may not be reported in NHIS**
- **NHIS non-respondents may have higher ED injury rates than respondents.**
- **Injury incidence may be over estimated based on injury visits from NHAMCS-ED.**
- **Target population for NHAMCS-ED is difficult to determine.**
- **Different populations are covered by NHAMCS-ED and NHIS.**

Possible reasons for the differences in injury hospital discharge rates

- **Severe injuries are less likely to be forgotten during NHIS interview.**
- **NHDS includes non-federal, short-stay hospitals. NHIS response includes all hospitals.**
- **Injuries may be incorrectly classified as non-injury in the hospital discharge data based on medical records.**
- **Only first-listed injury diagnoses were included in injury hospital discharge rates in NHDS.**

Strengths of NHIS

- **The NHIS provides details not recorded on medical records which are useful for injury prevention and control.**
 - ✓ e.g. place of injury, activity when injured
- **Detailed demographic information**
 - ✓ e.g. race/ethnicity, income, education
- **Wide range of data available in one system**
 - ✓ e.g. functional limitation, health behavior
- **Linkable with other national data sets**
 - ✓ e.g. linked with mortality data through 2006

Conclusions

- **For more severe injuries, such as those requiring hospitalization, the NHIS may provide higher estimates than medical records based surveys.**
- **For less severe injuries, such as those seen in the ED, the NHIS may underestimate the rate of injury.**
- **Rate differences could be due to issues in injury enumeration (e.g. misclassification, recall) and population coverage.**

Questions?

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For more information on injury data and resources from NCHS,
see: www.cdc.gov/nchs/injury.htm.

