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Emergency Department Visits and Hospital Inpatient Stays for Bicycle-Related Injuries, 2009

Elizabeth Stranges, M.S., Lori Uscher-Pines, Ph.D., and Carol Stocks, R.N., M.H.S.A.

Introduction

Bicycles are a source of recreation, transportation, and exercise for approximately 100 million bicycle owners in the U.S. Although bicycle use is promoted for its health and environmental benefits, it is not without risk.[1-3] Bicycle injuries result in approximately 800 deaths per year, and trends suggest that the rate of fatal injuries is increasing.[1,4] Bicycle accidents involving motor vehicles are especially dangerous for cyclists.[4] Although a large proportion of deaths and injuries from bicycles can be prevented with helmets, helmet use among cyclists in the U.S. remains low, particularly among adults.[4-6]

This Statistical Brief presents data from the Healthcare Cost and Utilization Project (HCUP) on bicycle-related emergency department (ED) visits and inpatient hospitalizations in 2009. These visits and stays are identified using the external cause of injury codes (E-codes), which appear on the record as a secondary diagnosis. Characteristics of all ED visits and hospitalizations for bicycle injuries are compared to the average injury-related ED visit and inpatient hospital stay. Furthermore, bicycle injuries involving motor vehicles are compared to those not involving motor vehicles. Age, patient residence, and utilization characteristics are explored, as well as the most common injuries and procedures performed for bicycle-related ED visits and hospital stays.

Highlights

- In 2009, there were 418,700 emergency department (ED) visits and 27,900 inpatient hospital stays for bicycle-related injuries; on average, over 1,100 ED visits and 76 hospitalizations every day.
- Approximately 1 in 10 ED visits for bicycle-related injuries also involved a motor vehicle. Bicycle-related injuries which involved a motor vehicle were more likely to result in hospital admission (16.3 percent) than those without motor vehicle involvement (6.7 percent).
- Inpatient stays for a bicycle-related injury in which a motor vehicle was involved were longer and more expensive than those for injuries without motor vehicle involvement (6.3 days versus 3.6 days, $18,900 average cost per stay versus $10,600 average cost per stay).
- Males were over 3 times more likely than females to have an ED visit for a bicycle-related injury without motor vehicle involvement, and nearly 5 times more likely than females to have an ED visit for a bicycle-related injury involving a motor vehicle.
- ED visits for bicycle-related injuries were most common among children ages 5–9 and adolescents age 10–14 (329 visits per 100,000 per population and 443 visits per 100,000 per population). Both types of visits peaked in this age group and then generally declined with age.
- Contusion (bruising) was the most common injury associated with bicycle-related ED visits, accounting for over one-quarter of such visits. Intracranial head injury was the most common injury associated with bicycle-related ED visits that resulted in hospital inpatient stays, accounting for one-fifth of such visits.

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[2]Mehan T, Gardner R, Smith G, McKenzie L. Bicycle-Related Injuries Among Children and Adolescents in the United States. *Clinical Pediatrics*. 2009;48(2):166-173.
[3]Reynolds C, Harris MA, Teschke K, Cripton P, Winters M. The impact of transportation infrastructure on bicycling injuries and crashes: a review of the literature. *Environmental Health*. 2009;8:47.
[4]Rivara F, Sattin R. Preventing bicycle-related injuries: next steps. *Injury Prevention*. 2011;17:215.
[5]Schulman J, Sacks J, Provenzano G. State level estimates of the incidence and economic burden of head injuries stemming from non-universal use of bicycle helmets. *Inj Prev*. 2002;8:47-52.
[6]Dellinger A, Kresnow M-J. Bicycle helmet use among children in the United States: The effects of legislation, personal and household factors. *Journal of Safety Research*. 2010;41:375-380.

Findings

Overview of ED visits related to bicycle injury
In 2009, there were 418,700 emergency department visits for injuries related to bicycle accidents in the U.S. In more than 1 in 10 of these visits (12 percent or 50,600 visits), a motor vehicle was also involved in the accident which caused the injury (table 1). Bicycle-related ED visits involving motor vehicles occurred at a rate of 16.5 visits per 100,000 population, while those not involving motor vehicles occurred at a rate of 119.9 visits per 100,000 population.

The majority of bicycle-related ED visits were treated and released from the ED (82.4 percent of those involving motor vehicles, 92.9 percent of those not involving motor vehicles). Hospital admissions more frequently resulted from those injuries in which a motor vehicle was involved in the accident (16.3 percent were admitted) than from those in which there was no motor vehicle involvement (6.7 percent).

ED visits for injuries related to bicycle accidents were much more likely to occur among males than females; the magnitude of the gender difference was much greater than for all injury-related ED visits. Visits for bicycle-related injuries without motor vehicle involvement were 2.7 times more common among males than females (176.3 visits per 100,000 population versus 64.7 visits per 100,000 population); visits for bicycle-related injuries involving a motor vehicle were 4.5 more common among males than females (27.2 visits per 100,000 population versus 6.1 visits per 100,000 population).

Bicycle-related ED visits involving motor vehicles occurred twice as often among persons living in urban areas as they did among those living in rural areas (17.7 visits per 100,000 population versus 8.9 visits per 100,000 population). ED visits for bicycle-related injuries without motor vehicle involvement were slightly more likely to occur among those living in rural areas than in other areas (127.3 visits per population versus 117.1 visits per population).

ED visits for injuries related to bicycle accidents involving motor vehicles also occurred more frequently among those living in low income communities than among those living in other communities (19.7 visits per population versus 14.8 visits per population). There was no significant difference by income in the rates of bicycle accidents without motor vehicle involvement.

Private insurance was the most common expected primary payer for both types of bicycle-related ED visits, covering 42.7 percent of those involving motor vehicles and 48.4 percent of those without motor vehicle involvement. Almost one-third of bicycle-related ED visits for accidents involving motor vehicles were uninsured (29.0 percent); Medicaid was the expected payer for 17.4 percent. In contrast, Medicaid covered almost one-quarter of those accidents without motor vehicle involvement (26.5 percent), and only 16.3 percent were uninsured.

Table 1. Characteristics of bicycle injuries treated in emergency departments, 2009

	Bicycle-related ED visits		All injury-related ED visits
	Involving motor vehicles	***Not involving motor vehicles***	
Total number of visits	50,600	368,000	30,087,300
Rate per 100,000 population	16.5	119.9	9,800.2
Utilization characteristics			
Disposition at discharge (percentage distribution)			
Treated and released	82.4	92.9	89.0
Admitted to the hospital	16.3	6.7	10.5
Died in ED	0.3	0.0	0.1
Other	1.1	0.4	0.4
Expected primary payer (percentage distribution)			
Medicare	4.5	4.7	16.5
Medicaid	17.4	26.5	19.8
Private Insurance	42.7	48.4	37.9
Uninsured	29.0	16.3	17.4
Other	6.1	3.7	8.0
Patient characteristics (rate per 100,000 population*)			
Gender			
Males	27.2	176.3	10,301.5
Females	6.1	64.7	9,289.4
Patient residence			
Urban areas	17.7	117.1	9,239.8
Rural areas	8.9	127.3	12,228.8
Community-level income			
Low income ($39,999 and under)	19.7	114.9	11,342.1
Not low income ($40,000 and above)	14.8	117.6	8,983.8

* Denominator data for rates were based on Claritas Population Estimates, 2009
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2009

Overview of hospital stays related to bicycle injury

There were 27,900 inpatient community hospital stays for injuries related to bicycle accidents in 2009; in 26 percent of these, a motor vehicle was involved in the accident which caused the injury (table 2). Bicycle-related inpatient stays involving motor vehicles occurred at a rate of 2.4 visits per 100,000 population, while those not involving motor vehicles occurred at a rate of 6.7 visits per 100,000 population.

Stays for a bicycle-related injury involving a motor vehicle were longer and more expensive than for bicycle injuries with no motor vehicle involvement (6.3 days versus 3.6 days, $18,900 cost per stay versus $10,600 cost per stay). Patients whose bicycle injuries involved a motor vehicle were more likely to die in the hospital than were patients whose bicycle injuries did not involve a motor vehicle (3.1 percent versus 0.5 percent).

Inpatient stays for injuries related to bicycle accidents were much more likely to occur among males than females. Stays for bicycle-related injuries without motor vehicle involvement were 3.5 times more common among males than females (10.3 stays per 100,000 population versus 3.0 stays per 100,000 populations); visits for bicycle-related injuries involving a motor vehicle were 5.1 more common among males than females (3.9 stays per 100,000 population versus 0.8 stays per 100,000 population).

Hospital stays for bicycle-related injuries involving motor vehicles occurred over twice as often among persons living in urban areas as they did among those living in rural areas (2.6 stays per 100,000 population versus 0.9 stays per 100,000 population). Stays for bicycle-related injuries without motor vehicle involvement were also more likely to occur among those living in urban areas than in rural areas (7.0 stays per population versus 4.3 stays per 100,000 population) despite the similar rate of ED visits for these accidents in both areas (table 1).

Injuries related to bicycle accidents involving motor vehicles resulted in similar rates of hospital stays among those living in low income and other communities. Injuries related to bicycle accidents without motor vehicle involvement more frequently resulted in hospital stays among those living in higher income communities than lower income (6.8 stays per 100,000 population versus 5.5 stays per 100,000 population).

Private insurance was the most common expected primary payer for both types of bicycle-related ED stays, covering 51.9 percent of those involving motor vehicles and 50.7 percent of those without motor vehicle involvement. Almost one-fifth of bicycle-related hospital stays for accidents involving motor vehicles were uninsured (19.0 percent); Medicaid was the expected payer for 18.3 percent. Medicaid covered 15.2 percent of those accidents without motor vehicle involvement, and only 14.4 percent were uninsured (table 2).

Table 2. Characteristics of bicycle-related hospital inpatient stays, 2009

	Bicycle-related inpatient stays		All injury-related inpatient stays
	Involving motor vehicles	***Not involving motor vehicles***	
Total number of discharges	7,300	20,600	3,515,600
Rate per 100,000 population	2.4	6.7	1145.1
Utilization characteristics			
Mean length of stay, days	6.3	3.6	5.7
Average cost per stay	18,900.0	10,600.0	13,100.0
Average cost per day	4,100.0	3,700.0	2,800.0
Aggregate costs (million $)	138.0	219.4	45,983.3
Disposition			
Percentage died in hospital	3.1	0.5	2.6
Percentage routine discharge	74.0	81.3	52.9
Expected primary payer (percentage distribution)			
Medicare	5.2	13.0	47.4
Medicaid	18.3	15.2	12.6
Private Insurance	51.9	50.7	26.3
Uninsured	19.0	14.4	8.4
Other	5.5	6.3	5.1
Mean age, years	36.4	39.2	57.8
Patient characteristics (rate per 100,000 population*)			
Gender			
Males	3.9	10.3	1,114.0
Females	0.8	3.0	1,167.7
Patient residence			
Urban areas	2.6	7.0	1,095.0
Rural areas	0.9	4.3	1,215.7
Community-level income			
Low income ($39,999 and under)	2.8	5.5	1,221.8
Not low income ($40,000 and above)	2.1	6.8	1,073.8

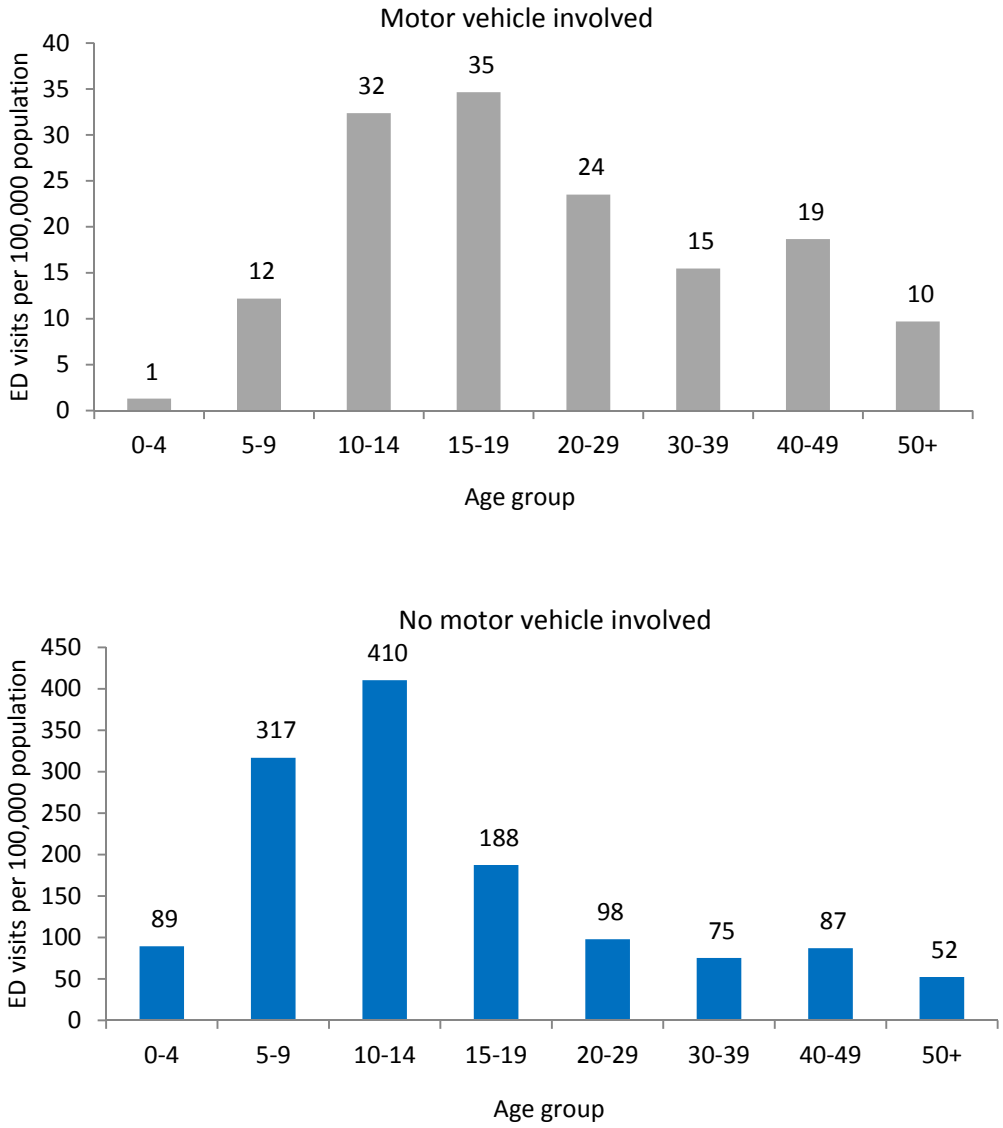
* Denominator data for rates were based on Claritas Population Estimates, 2009
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009

Rates of bicycle-related hospitalizations and ED visits, 2009

ED visits for bicycle-related injuries in which a motor vehicle was also involved in the accident were most common among individuals 10–14 years old (32 visits per 100,000 per population) and 15–19 years old (35 visits per 100,000 per population) (figure 1). Among adults, individuals 20–29 years old were most likely to be hospitalized for a bicycle-related injury involving a motor vehicle, followed by individuals 40–49 years old.

ED visits for bicycle-related injuries without motor vehicle involvement were more common among children and adolescents than adults. There were 410 visits per 100,000 population for individuals 10–14 years old, with the rate of injuries peaking in this age group and then generally decreasing with age. Adults age 50 and older had 52 visits per 100,000 per population.

Figure 1. Rates of ED visits for bicycle-related injuries by age and motor-vehicle involvement, 2009



Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2009

Most common injuries associated with bicycle-related ED visits and hospitalizations, 2009
Contusion was the most common first-listed diagnosis among ED visits for bicycle-related injuries, accounting for over one-quarter of such visits (table 3). Fractures, open wounds, sprains and strains, intracranial injury and joint disorders and dislocations were also among the 10 most common first-listed diagnoses for ED visits related to bicycle injuries.

Intracranial injury, the sixth most common first-listed diagnosis among bicycle-related injury ED visits, was the most common principal diagnosis among hospital stays for bicycle-related injury (5,800 inpatient stays, or 21 percent of hospital stays for bicycle-related injury) (table 4). Fractures accounted for over 40 percent of such stays and included fractures of lower limbs, upper limbs, hip, skull and face and other fractures.

Table 3. Ten most common injuries in bicycle injury related ED visits, 2009

Principal diagnosis	Bicycle-related ED visits		
	Rank	Number	Percentage
All bicycle injury related visits	--	418,700	100%
Superficial injury; contusion	1	108,200	26%
Fracture of upper limb	2	66,500	16%
Open wounds of head; neck; and trunk	3	50,600	12%
Sprains and strains	4	40,800	10%
Open wounds of extremities	5	28,400	7%
Intracranial injury	6	21,300	5%
Fracture of lower limb	7	14,400	3%
Joint disorders and dislocations; trauma-related	8	9,500	2%
Skull and face fractures	9	6,600	2%
Crushing injury or internal injury	10	3,800	1%

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2009

Table 4. Ten most common injuries in bicycle injury related hospital inpatient stays, 2009

Principal diagnosis	Bicycle-related hospitalizations		
	Rank	Number	Percentage
All bicycle injury related stays	--	28,000	100%
Intracranial injury	1	5,800	21%
Fracture of lower limb	2	4,400	16%
Fracture of upper limb	3	3,800	14%
Crushing injury or internal injury	4	2,700	10%
Fracture of neck of femur (hip)	5	1,900	7%
Skull and face fractures	6	1,800	6%
Open wounds of head; neck; and trunk	7	600	2%
Superficial injury; contusion	8	500	2%
Skin and subcutaneous tissue infections	9	400	1%
Open wounds of extremities	10	400	1%

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009

Most common procedures associated bicycle-related hospitalizations, 2009
Approximately one-third of bicycle-related hospital stays involved a procedure for treatment of a fracture. Other procedures commonly performed on patients hospitalized for a bicycle-related injury included sutures, chest drainage, respiratory intubation and mechanical ventilation and hip replacement (table 5).

Table 5. Stays for top ten principal procedures for bicycle injury related hospital inpatient stays, 2009

CCS procedure	Bicycle injury related hospitalizations		
	Rank	Number	Percentage
All bicycle injury related stays	--	28,000	100%
Treatment; fracture or dislocation of lower extremity (other than hip or femur)	1	3,100	11%
Treatment; fracture or dislocation of hip and femur	2	2,200	8%
Treatment; fracture or dislocation of radius and ulna	3	1,800	6%
Suture of skin and subcutaneous tissue	4	1,500	5%
Incision of pleura; thoracentesis; chest drainage	5	700	3%
Respiratory intubation and mechanical ventilation	6	700	3%
Treatment; facial fracture or dislocation	7	600	2%
Incision and excision of central nervous system	8	600	2%
Hip replacement; total and partial	9	300	1%
Spinal fusion	10	300	1%

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009

Data Source

The estimates in this Statistical Brief are based upon data from the HCUP 2009 NIS and HCUP 2009 NEDS. Supplemental sources included data from the U.S. Census Bureau, Population Division, Annual Estimates of the Population for the United States, Regions, and Divisions and U.S. Census Bureau, Current Population Reports, P60–226, Coverage by Type of Health Insurance and Claritas Population Estimates, 2009.

Hypothesis tests were conducted at the.05 significance level for this Statistical Brief.

Definitions

Diagnoses, ICD-9-CM, E-codes, and Clinical Classifications Software (CCS)
The *principal diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital. *Secondary diagnoses* are concomitant conditions that coexist at the time of admission or that develop during the stay.

ICD-9-CM is the International Classification of Diseases, Ninth Revision, Clinical Modification, which assigns numeric codes to diagnoses. There are about 14,000 ICD-9-CM diagnosis codes.

The External Cause of Injury Codes (commonly referred to as E-codes) supplement the ICD-9-CM diagnosis codes. These codes designate the cause of injury. Multiple E-codes may be present on a single hospital record.

CCS categorizes ICD-9-CM diagnoses into a manageable number of clinically meaningful categories.[7] This "clinical grouper" makes it easier to quickly understand patterns of diagnoses. CCS categories identified as “Other” are typically not reported; these categories include miscellaneous, otherwise unclassifiable diagnoses that may be difficult to interpret as a group.

Procedures, ICD-9-CM, and Clinical Classifications Software (CCS)
The *principal procedure* is the procedure that is performed for definitive treatment rather than performed for diagnostic or exploratory purposes (i.e., the procedure that was necessary to take care of a complication). If two procedures appear to meet this definition, the procedure most related to the principal diagnosis is selected as the principal procedure.

ICD-9-CM is the International Classification of Diseases, Ninth Revision, Clinical Modification, which assigns numeric codes to procedures. There are about 4,000 ICD-9-CM procedure codes.

CCS categorizes procedure codes into clinically meaningful categories.[8] This "clinical grouper" makes it easier to quickly understand patterns of procedure use. CCS categories identified as “Other” are typically not reported; these categories include miscellaneous, otherwise unclassifiable procedures that may be difficult to interpret as a group.

Case definition
The ICD-9-CM codes defining bicycle-related injuries in which a motor vehicle was involved include diagnosis codes in the following range: E810.6, E811.6, E812.6, E813.6, E814.6, E815.6, E816.6, E817.6, E818.6, E819.6. The ICD-9-CM codes defining bicycle-related injuries with no motor vehicle involvement include diagnosis codes in the following range: E800.3, E801.3, E802.3, E803.3, E804.3, E805.3, E806.3, E807.3; E820.6, E821.6, E822.6, E823.6, E824.6, E825.6; E826.1, E826.9, E827.1, E828.1, E829.1.

Types of hospitals included in HCUP
HCUP is based on data from community hospitals, defined as short-term, non-Federal, general and other hospitals, excluding hospital units of other institutions (e.g., prisons). HCUP data include obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical hospitals. Excluded are long-term care, rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. However, if a patient received long-term care, rehabilitation, or treatment for psychiatric or chemical dependency conditions in a community hospital, the discharge record for that stay will be included in the NIS.

Unit of analysis
The unit of analysis is the hospital discharge (i.e., the hospital stay) or emergency department visit, not a person or patient. This means that a person who is admitted to the hospital multiple times in one year will be counted each time as a separate "discharge" from the hospital.

Costs and charges
Total hospital charges were converted to costs using HCUP Cost-to-Charge Ratios based on hospital accounting reports from the Centers for Medicare & Medicaid Services (CMS).[9] *Costs* will reflect the actual expenses incurred in the production of hospital services, such as wages, supplies, and utility costs;

[7]HCUP Clinical Classifications Software (CCS). Healthcare Cost and Utilization Project (HCUP). U.S. Agency for Healthcare Research and Quality, Rockville, MD. Available at http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp. Updated March 2012. (Accessed May 3, 2012).
[8]Ibid.
[9]HCUP Cost-to-Charge Ratio Files (CCR). Healthcare Cost and Utilization Project (HCUP). 2001–2009. U.S. Agency for Healthcare Research and Quality, Rockville, MD. Available at http://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp. Updated August 2011. (Accessed May 3, 2012).

charges represent the amount a hospital billed for the case. For each hospital, a hospital-wide cost-to-charge ratio is used. Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include professional (physician) fees. For the purposes of this Statistical Brief, costs are reported to the nearest hundred.

Mean cost per day is calculated as the mean cost per stay divided by the mean length of stay.

Location of patients' residence
Place of residence is based on the urban-rural classification scheme for U.S. counties developed by the National Center for Health Statistics (NCHS). For this Statistical Brief, we collapsed the NCHS categories into either urban or rural according to the following:

Urban:

- Large Central Metropolitan: includes metropolitan areas with 1 million or more residents
- Large Fringe Metropolitan: includes counties of metropolitan areas with 1 million or more residents
- Medium and Small Metropolitan: includes areas with 50,000 to 999,999 residents.

Rural:

- Micropolitan and Noncore: includes nonmetropolitan counties (i.e., counties with no town greater than 50,000 residents).

Median community-level income
Median community-level income is the median household income of the patient's ZIP Code of residence. The cut-offs for the quartile designation are determined using ZIP Code demographic data obtained from Claritas. The income quartile is missing for homeless and foreign patients.

Payer
Payer is the expected primary payer for the hospital stay. To make coding uniform across all HCUP data sources, payer combines detailed categories into more general groups:

- Medicare: includes fee-for-service and managed care Medicare patients
- Medicaid: includes fee-for-service and managed care Medicaid patients. Patients covered by the State Children's Health Insurance Program (SCHIP) may be included here. Because most State data do not identify SCHIP patients specifically, it is not possible to present this information separately.
- Private Insurance: includes Blue Cross, commercial carriers, and private HMOs and PPOs
- Other: includes Worker's Compensation, TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs
- Uninsured: includes an insurance status of "self-pay" and "no charge."

When more than one payer is listed for a hospital discharge, the first-listed payer is used.

Discharge status
Discharge status indicates the disposition of the patient at discharge from the hospital and includes the following six categories: routine (to home); transfer to another short-term hospital; other transfers (including skilled nursing facility, intermediate care, and another type of facility such as a nursing home); home health care; against medical advice (AMA); or died in the hospital.

About HCUP

HCUP is a family of powerful health care databases, software tools, and products for advancing research. Sponsored by the Agency for Healthcare Research and Quality (AHRQ), HCUP includes the largest all-payer encounter-level collection of longitudinal health care data (inpatient, ambulatory surgery, and

emergency department) in the United States, beginning in 1988. HCUP is a Federal-State-Industry Partnership that brings together the data collection efforts of many organizations—such as State data organizations, hospital associations, private data organizations, and the Federal government—to create a national information resource.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Louisiana Department of Health and Hospitals
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Division of Health Care Finance and Policy
Michigan Health & Hospital Association
Minnesota Hospital Association
Mississippi Department of Health
Missouri Hospital Industry Data Institute
Montana MHA - An Association of Montana Health Care Providers
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health
New Mexico Department of Health
New York State Department of Health
North Carolina Department of Health and Human Services
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Oregon Health Policy and Research
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina State Budget & Control Board
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information
Washington State Department of Health
West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About the NIS

The HCUP Nationwide Inpatient Sample (NIS) is a nationwide database of hospital inpatient stays. The NIS is nationally representative of all community hospitals (i.e., short-term, non-Federal, nonrehabilitation hospitals). The NIS is a sample of hospitals and includes all patients from each hospital, regardless of payer. It is drawn from a sampling frame that contains hospitals comprising about 95 percent of all discharges in the United States. The vast size of the NIS allows the study of topics at both the national and regional levels for specific subgroups of patients. In addition, NIS data are standardized across years to facilitate ease of use.

About the NEDS

The HCUP Nationwide Emergency Department Database (NEDS) is a unique and powerful database that yields national estimates of emergency department (ED) visits. The NEDS was constructed using records from both the HCUP State Emergency Department Databases (SEDD) and the State Inpatient Databases (SID). The SEDD capture information on ED visits that do not result in an admission (i.e., treat-and-release visits and transfers to another hospital); the SID contain information on patients initially seen in the emergency room and then admitted to the same hospital. The NEDS was created to enable analyses of ED utilization patterns and support public health professionals, administrators, policymakers, and clinicians in their decisionmaking regarding this critical source of care. The NEDS is produced annually beginning in 2006.

For More Information

For more information about HCUP, visit http://www.hcup-us.ahrq.gov/.

For additional HCUP statistics, visit HCUPnet, our interactive query system, at http://hcupnet.ahrq.gov/.

For information on other hospitalizations in the U.S., download *HCUP Facts and Figures: Statistics on Hospital-Based Care in the United States in 2009*, located at http://www.hcup-us.ahrq.gov/reports.jsp.

For a detailed description of HCUP, more information on the design of the NIS, and methods to calculate estimates, please refer to the following publications:

Introduction to the HCUP Nationwide Inpatient Sample, 2009. Online. May 2011. U.S. Agency for Healthcare Research and Quality. Available at http://hcup-us.ahrq.gov/db/nation/nis/NIS_2009_INTRODUCTION.pdf. (Accessed May 2, 2012).

Introduction to the HCUP Nationwide Emergency Department Sample, 2009. Online. September 2011. U.S. Agency for Healthcare Research and Quality. Available at http://hcup-us.ahrq.gov/db/nation/neds/NEDS2009Introductionv3.pdf. (Accessed May 2, 2012).

Houchens R, Elixhauser A. *Final Report on Calculating Nationwide Inpatient Sample (NIS) Variances, 2001*. HCUP Methods Series Report #2003-2. Online. June 2005 (revised June 6, 2005). U.S. Agency for Healthcare Research and Quality. Available at http://www.hcup-us.ahrq.gov/reports/CalculatingNISVariances200106092005.pdf. (Accessed May 2, 2012).

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* * *

AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please e-mail us at hcup@ahrq.gov or send a letter to the address below:

Irene Fraser, Ph.D., Director
Center for Delivery, Organization, and Markets
Agency for Healthcare Research and Quality
540 Gaither Road
Rockville, MD 20850