

STATISTICAL BRIEF #9

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Hospitalizations among Males, 2003

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Introduction

Life expectancy for males is about 7 percent lower than for females.* Because of differences in health-seeking behaviors and attitudes, males tend to delay the care and treatment of diseases more often than females. Policy makers and health care providers are concerned about the health status of men because many common chronic diseases afflict men more frequently than women.

This Statistical Brief presents data from the Healthcare Cost and Utilization Project (HCUP) on hospitalizations among males. General characteristics of hospital stays, including conditions that commonly cause male hospitalizations, are described. Additionally, comparisons of hospital stays between males and non-obstetric females are provided.† All differences between estimates noted in the text are statistically significant at the 0.05 level or better.

Findings

In 2003, males accounted for 15.5 million discharges from U.S. acute care, non-Federal hospitals (table 1). Male discharges comprised 40.6 percent of all hospital stays, or 46.2 percent of all non-obstetrical hospitalizations. The national bill for hospital stays among males was nearly \$353 billion—almost half of the total national hospital bill for non-obstetrical hospitalizations.

General characteristics of hospital stays among males compared with females

Table 1 also illustrates the characteristics of hospitalizations among males compared with females. The mean length of stay for males was 4.9 days—identical to that for non-obstetric females. The mean age for hospitalized males was nearly five years younger than the mean age for hospitalized non-obstetric females. The age distribution for hospitalized males and non-obstetric females was

Highlights

- In 2003, males accounted for more than 15.5 million hospital stays—46.2 percent of all non-obstetrical hospitalizations. The national bill for hospital stays among males totaled nearly \$353 billion.
- Compared with stays for non-obstetric females, the in-hospital death rate was about 12 percent higher for males—2.7 percent versus 2.4 percent.
- The daily mean hospital charge was 13 percent higher for males compared with non-obstetric females (\$22,700 versus \$20,000). The highest mean hospital charges for males were in the 45–64 and 65–84 age ranges.
- Nearly one in four hospital stays among males was for a condition of the circulatory system. Coronary atherosclerosis was the most common reason for admission among males, resulting in 4.9 percent of all hospital stays in this population.
- Respiratory and digestive conditions each accounted for approximately one in 10 hospitalizations among males.
- A number of conditions were seen at much higher rates among hospitalized males than among females. Rates were 50 percent higher or more among hospitalized males than among females for alcohol-related mental disorders, acute myocardial infarction (heart attack), hepatitis, gout, alcohol-related liver disease, injuries due to motor vehicle accidents, intracranial injuries, arterial aneurysms, and crushing or internal injuries. Many of these conditions are related to lifestyle.

*Arias, E. United States Life Tables, 2002. National Vital Statistics Reports; vol 53 no 6. Hyattsville, Maryland: National Center for Health Statistics. 2004.
http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_06.pdf

†The most common reason for hospitalization among females is pregnancy and childbirth. In order to provide more accurate descriptions of any sex differences in health status, hospital stays for males are compared with non-obstetric hospital stays for females; that is, only those stays that were not for pregnancy or delivery.

similar, except in the case of children (17 years and younger) and the very old (85 years and older). Compared with non-obstetric female hospitalizations, male children were hospitalized at a higher rate (21.4 percent versus 16.7 percent), and elderly males 85 years and older were hospitalized at a lower rate (5.7 percent versus 10.4 percent). The mean charge for hospitalizations for males was \$22,700 compared with \$20,000 for non-obstetric females. This resulted in a daily mean hospital charge that was 13 percent higher in males. Compared with stays among non-obstetric females, the in-hospital death rate was about 12 percent higher in males—2.7 percent versus 2.4 percent.

Figure 1 demonstrates the difference in mean hospital charges for males versus non-obstetrical females by age. For each age group, males had higher mean hospital charges than non-obstetric female patients. The highest mean hospital charges for males were in the 45–64 and 65–84 age ranges (\$27,500 and \$28,000, respectively). Compared with non-obstetric female hospitalizations, hospital charges for males were 20 percent higher in the 18–44 age group, 17 percent higher in the 45–64 age group, and about 15 percent higher in the 65 and older age groups.

Most frequent conditions causing hospital stays among males, by body system

Conditions of the circulatory system accounted for nearly a quarter of all hospitalizations among males (figure 2). Approximately one in 10 hospital stays among males was either for a respiratory or a digestive condition. One in 11 stays for males was related to injury. Compared with hospital stays among non-obstetric females, males experienced more hospital stays for conditions related to the circulatory system, injuries, and mental disorders. Conversely, there were fewer male hospital stays for digestive disorders, neoplasms, musculoskeletal disorders, endocrine disorders, and genitourinary disorders.

Newborn infants accounted for 14.0 percent of all male hospitalizations compared with 11.4 percent of all non-obstetric female hospital stays. However, most of this difference can be attributed to the lower overall number of hospital stays in males. The number of hospitalizations for male and female newborns was similar—2,173,400 for males and 2,050,300 for females.

Most frequent specific reasons for hospital stays among males

Table 2 highlights frequent specific health conditions causing hospitalization among males. Coronary atherosclerosis was the most common reason for admission among males, accounting for 4.9 percent of all hospital stays. Five of the top 10 principal conditions were related to the heart: coronary atherosclerosis, congestive heart failure, acute myocardial infarction, nonspecific chest pain, and cardiac dysrhythmias. Collectively, these five conditions accounted for over 2.4 million hospital discharges, or almost 16 percent of all hospital stays among males.

Pneumonia was the second most common reason for male hospitalization, accounting for 4.0 percent of all male hospital stays. Complications of medical devices, back problems, affective disorders (depression and bipolar disorder), and chronic obstructive pulmonary disease (COPD) each accounted for around 2 percent of all hospital stays among males.

Certain conditions ranked considerably higher among males than among females. Acute myocardial infarction ranked 4th among males and 12th among females. Complications of medical devices ranked 7th among males and 15th among females. Back problems ranked 8th among males and 11th among females.

Conditions noted more often during hospitalizations among males

Although the overall volume of hospital stays for non-obstetric females was higher than for males, the burden of disease for certain conditions was greater in males. Table 3 displays conditions noted during male hospital stays that were at least 15 percent higher than the rate observed in non-obstetric females. Figure 3 highlights conditions for which rates were 50 percent higher or more for male hospital stays than for female stays. Many of these conditions are related to lifestyle. Other high frequency conditions for which males made up a larger proportion of inpatients included coronary atherosclerosis, substance abuse, hyperlipidemia (high cholesterol), and conduction disorders (table 3).

Data Source

The estimates in this Statistical Brief are based upon data from the HCUP 2003 Nationwide Inpatient Sample (NIS).

Definitions

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 OB-GYN, ENT, orthopedic, cancer, pediatric, public, and academic medical hospitals. They exclude long-term care, rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals, but these types of discharges are included if they are from community hospitals.

Unit of analysis

The unit of analysis is the hospital discharge (i.e., the hospital stay), 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.

Charges

Charges represent what the hospital billed for the case. Hospital charges reflect the amount the hospital charged for the entire hospital stay and do not include professional (MD) fees. For the purposes of this Statistical Brief, charges are rounded to the nearest hundred dollars.

Diagnoses, ICD-9-CM, and Clinical Classification 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. All-listed diagnoses include the principal diagnosis plus these additional secondary conditions.

ICD-9-CM is the International Classification of Diseases, Ninth Revision, Clinical Modification, which assigns numeric codes to diagnoses. There are about 12,000 ICD-9-CM diagnosis codes.

CCS categorizes ICD-9-CM diagnoses into 260 clinically meaningful categories. This "clinical grouper" makes it easier to quickly understand patterns of diagnoses and procedures.

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, non-rehabilitation hospitals). The NIS is a sample of hospitals and it includes all patients from each hospital, regardless of payer. It is drawn from a sampling frame that contains hospitals comprising 90 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 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.

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

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

Arizona Department of Health Services
California Office of Statewide Health Planning & Development
Colorado Health & Hospital Association
Connecticut Integrated Health Information (Chime, Inc.)
Florida Agency for Health Care Administration
Georgia GHA: An Association of Hospitals & Health Systems
Hawaii Health Information Corporation
Illinois Health Care Cost Containment Council and Department of Public Health
Indiana Hospital & Health Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Department for Public Health
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
Missouri Hospital Industry Data Institute
Nebraska Hospital Association
Nevada Division of Health Care Financing and Policy, Department of Human Resources
New Hampshire Department of Health & Human Services
New Jersey Department of Health & Senior Services
New York State Department of Health
North Carolina Department of Health and Human Services
Ohio Hospital Association
Oregon Office for Oregon Health Policy and Research and Oregon Association of Hospitals and Health Systems
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 & Family Services

For additional HCUP statistics, visit HCUPnet, our interactive query system at www.hcup.ahrq.gov.

References

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

Steiner, C., Elixhauser, A., Schnaier, J. The Healthcare Cost and Utilization Project: An Overview. *Effective Clinical Practice* 5(3):143–51, 2002

Design of the HCUP Nationwide Inpatient Sample, 2003. Online. June 14, 2005. U.S. Agency for Healthcare Research and Quality. http://www.hcup-us.ahrq.gov/db/nation/nis/reports/NIS_2003_Design_Report.jsp

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. http://www.hcup-us.ahrq.gov/reports/CalculatingNIS_Variences_200106092005.pdf

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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 hcp@ahrq.gov or send a letter to the address below:

Irene Fraser, Ph.D., Director
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540 Gaither Road
Rockville, MD 20850

Table 1. Characteristics of hospitalizations among males and females, 2003

	Males	Females	
Percentage of U.S. population*	49.2%	50.8%	
		Stays for non-obstetric females	Stays for all females
Number of hospital stays (percent)	15,534,700 (46.2%; 40.6%) [†]	17,955,400 (53.4%)	22,533,700 (59.0%)
Mean length of stay, days	4.9	4.9	4.4
Mean charges	\$22,700	\$20,000	\$17,700
Mean age, years	47.8	52.5	47.4
Age distribution			
17 and younger	21.4%	16.7%	14.1%
18–44	16.6%	17.1%	33.1%
45–64	26.2%	23.6%	18.9%
65–84	30.2%	32.2%	25.7%
85 and older	5.7%	10.4%	8.3%
National bill (aggregate charges) (percent)	\$353 billion (49.3%; 46.8%) [†]	\$359 billion (50.3%)	\$398 billion (52.8%)
Percentage admitted through the emergency department	48.5%	48.5%	40.1%
Percentage died in hospital	2.7%	2.4%	1.9%

*U.S. Census Bureau, Population Division, Census 2003.

[†]Percentages are for all non-obstetrical hospital stays and all stays, respectively.

Note: A small number of hospital stays not represented in the table were missing sex classifications.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2003.

Table 2. Top 10 Conditions causing hospitalization among males, 2003

Rank for male hospital stays*	Principal diagnosis	Number of male hospital stays	Percentage of all male hospital stays	Rank for non-obstetric female hospital stays*
1	Coronary atherosclerosis	764,900	4.9	3
2	Pneumonia (except that caused by tuberculosis and sexually transmitted diseases)	626,400	4.0	1
3	Congestive heart failure, nonhypertensive	517,900	3.3	2
4	Acute myocardial infarction (heart attack)	443,400	2.9	12
5	Nonspecific chest pain	378,000	2.4	4
6	Cardiac dysrhythmias	344,200	2.2	7
7	Complication of medical devices	310,800	2.0	15
8	Back problems	309,700	2.0	11
9	Affective disorders (depression and bipolar disorder)	278,300	1.8	5
10	Chronic obstructive pulmonary disease (COPD)	273,100	1.8	10
Total for the top 10 conditions		4,246,700	27.3	

*Excludes newborn infants.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2003.

Table 3. Selected conditions noted more often in hospital stays among males than in hospital stays among females, 2003*

All-listed diagnoses	Total number of male hospital stays	Percentage of hospital stays that were for males	Rate per 1,000 male hospital stays	Rate per 1,000 female hospital stays [†]
Coronary atherosclerosis	3,667,300	55.5	236.1	163.7
Substance-related mental disorders	2,520,600	53.0	162.3	124.3
High cholesterol	2,132,300	50.2	137.3	117.8
Alcohol-related mental disorders (abuse)	912,900	71.9	58.8	‡ 19.6
Conduction disorders	685,500	53.0	44.1	33.8
Acute myocardial infarction (heart attack)	591,900	56.9	38.1	‡ 25.0
Complication of medical devices	583,500	53.7	37.6	28.0
Peripheral and visceral atherosclerosis	571,500	50.8	36.8	30.8
Skin and subcutaneous tissue infections	558,400	50.3	35.9	30.5
Peri-, endo-, and myocarditis, cardiomyopathy	543,200	55.8	35.0	23.9
Acute renal failure	531,800	52.0	34.2	27.3
Hemolytic and perinatal jaundice	424,400	52.7	27.3	21.1
Coagulation and hemorrhagic disorders	414,300	50.9	26.7	22.2
Chronic renal failure	299,600	53.2	19.3	14.7
Hepatitis	294,400	58.7	19.0	‡ 11.5
Short gestation, low birth weight, and fetal growth retardation	275,300	52.0	17.7	14.1
Lung cancer	274,200	54.3	17.7	12.8
Schizophrenia	266,300	51.6	17.1	13.8
Gout	259,200	66.9	16.7	‡ 7.1
Paralysis	242,900	53.8	15.6	11.6
Aspiration pneumonitis, food/vomitus	225,000	55.6	14.5	10.0
Calculus of urinary tract	195,600	52.3	12.6	9.9
Occlusion or stenosis of precerebral arteries	191,200	51.7	12.3	9.9
Liver disease, alcohol-related	186,600	73.4	12.0	‡ 3.8
Injuries due to motor vehicle traffic (MVT) accidents	184,800	59.3	11.9	‡ 6.9
Intracranial (head) injury	172,200	63.1	11.1	‡ 5.5
Arterial aneurysms	172,000	63.3	11.1	‡ 5.6
Appendicitis	171,200	52.9	11.0	8.0
Parkinson's disease	171,000	52.2	11.0	8.7
Crushing injury or internal injury	153,200	70.5	9.9	‡ 3.5

*Includes conditions noted during hospital stays for males that were at least 15 percent higher than the rate observed in non-obstetric females.

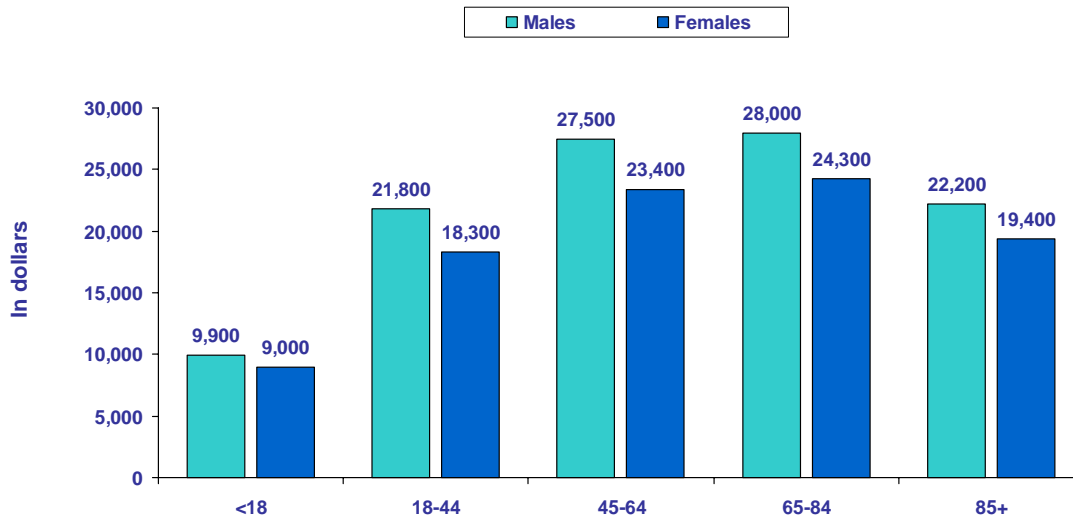
[†]Figures for females include hospitalizations for non-obstetrical diagnoses only.

[‡]Rates in males are at least 50 percent higher.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2003.



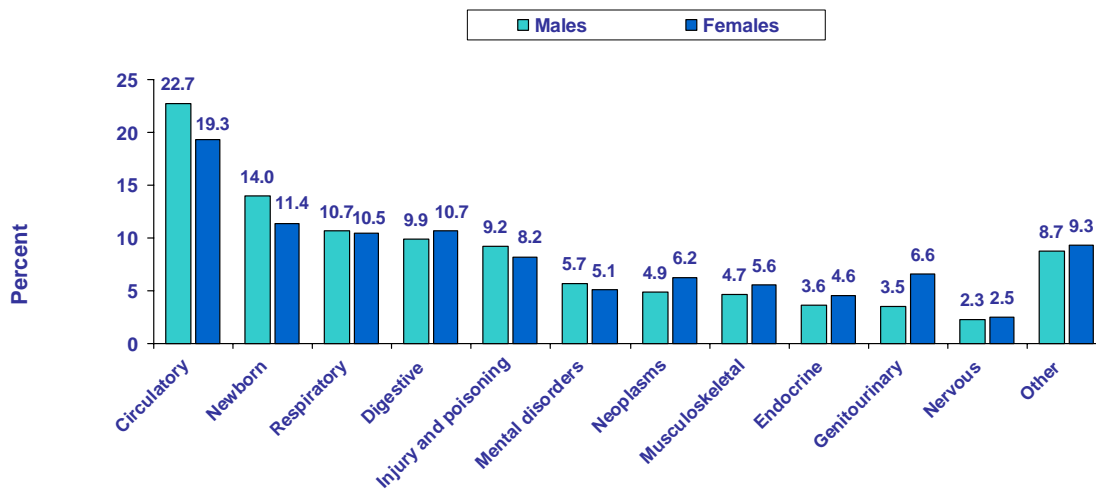
Figure 1. Average hospital charge for males versus non-obstetric females, by age, 2003



Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2003



Figure 2. Most common reason for hospitalization among males and non-obstetric females, by body system, 2003*



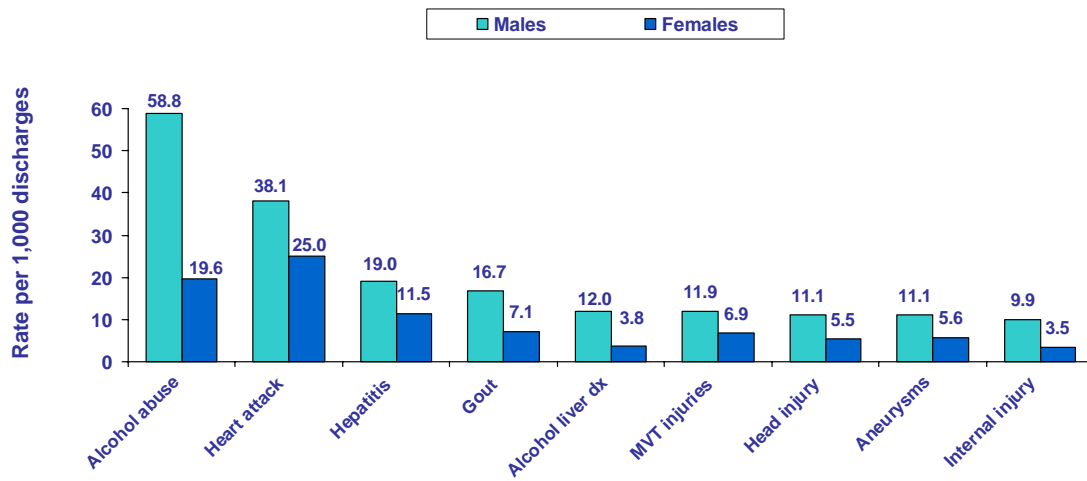
*Based on principal diagnosis.

Note: Other includes infections, skin disorders, blood disorders, congenital disorders, and other ill-defined conditions.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2003



Figure 3. Conditions for which rates were 50 percent higher or more for male hospital stays than for female stays, 2003*



*Based on all-listed diagnoses.

Note: Alcohol liver dx = alcohol-related liver disease, and MVT = motor vehicle traffic.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2003