

Hospitalization in the United States, 1997



HCUP Fact Book No.1

Anne Elixhauser, Ph. D.
Kelly Yu, B.S.
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| Diagnoses | Charges | Length of Stay | Insurance Coverage | Discharge Status | In-hospital Deaths |

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Healthcare Cost and Utilization Project

A Federal-State-Industry Partnership

 Agency for Healthcare Research and Quality

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The unprecedented volume and pace of change in the U.S. health care system requires new information on health care and its delivery. The mission of the Agency for Healthcare Research and Quality (AHRQ) is to provide information on the health care system—on quality, outcomes, access, cost, and utilization—that decisionmakers can use to improve health care. To help fulfill this mission, the Agency develops and sponsors a number of databases, including the powerful Healthcare Cost and Utilization Project (HCUP). HCUP is a Federal-State-Industry partnership to build a standardized, multi-State health data system.

Through HCUP, AHRQ has taken a lead in developing databases, software tools, and statistical reports to inform policymakers, health system leaders, and researchers at the Federal, regional, and State levels. But for data to be useful, they must be disseminated in a timely, accessible way. Recently AHRQ launched HCUPnet, an interactive, Internet-based tool for identifying, tracking, analyzing, and comparing statistics on hospital utilization, outcomes, and charges. Menu-driven HCUPnet guides users in tailoring specific queries about hospital care online; and, with a click of a button, users receive answers within seconds.

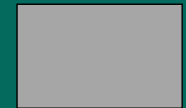
With *Hospitalization in the United States, 1997*, AHRQ launches a new strategy intended to provide timely data about hospital care in the United States in an easy-to-use, readily accessible format. Each Fact Book in the series will provide information about specific aspects of hospital care—the single largest component of our health care dollar.

This first Fact Book provides a general overview of hospital care: What types of conditions are treated? Who is admitted to the hospital through emergency departments? What are the most expensive conditions treated in the hospital? Who is billed for hospital care? What are the outcomes of care? Subsequent Fact Books will examine other topics such as the types of procedures performed in U.S. hospitals and hospital care for children and for women.

We invite you to tell us how you are using this Fact Book and other HCUP data and tools and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please email us at hcup@ahrq.gov or send a letter to the address below.

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Foreword



Without the following State partner organizations, the Healthcare Cost and Utilization Project would not be possible:



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Arizona Department of Health Services;
California Office of Statewide Health Planning and Development;
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Illinois Health Care Cost Containment Council;
Association of Iowa Hospitals and Health Systems;
Kansas Hospital Association;
Maryland Health Services Cost Review Commission;
Massachusetts Division of Health Care Finance and Policy;
Missouri Hospital Industry Data Institute;
New Jersey Department of Health and Senior Services;
New York State Department of Health;
Oregon Association of Hospitals and Health Systems and Office for Oregon Health Plan Policy and Research;
Pennsylvania Health Care Cost Containment Council;
South Carolina State Budget and Control Board;
Tennessee Hospital Association;
Utah Department of Health;
Washington State Department of Health; and
Wisconsin Department of Health and Family Services.

In May 2000, these 22 HCUP State partners and AHRQ received the Secretary of Health and Human Services' Award for Distinguished Service for "leadership, teamwork, and creative thinking in increasing availability, utility, and value of data for policy-makers and researchers concerned with hospital quality, utilization and cost."

About 40 percent of personal health care expenditures in the United States go towards hospital care,* making it the most expensive component of the health care sector. This report gives an overview of hospital care during 1997, providing insight for anyone interested in a better understanding of services provided by hospitals and the characteristics of patients who receive them.

This report summarizes information from the Nationwide Inpatient Sample, or NIS, a database maintained by the Agency for Healthcare Research and Quality (AHRQ). The NIS is uniquely suited to provide a comprehensive picture of hospital care.

Because of its tremendous size (7 million records), the NIS can provide information on relatively uncommon diagnoses and procedures, as well as on subpopulations, such as various age groups. The NIS covers all types of patients discharged from hospitals, including the uninsured, those covered by public payers (Medicare and Medicaid), and those with private insurance. It also provides information on total hospital charges for all patients, unlike any other data source in the United States.

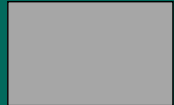
The NIS includes short-term, non-Federal, community hospitals — general and specialty hospitals such as pediatric, obstetrics-gynecology, short-term rehabilitation, and oncology hospitals are included, but long-term care and psychiatric hospitals are excluded.

This report provides information on:

- | | |
|--|-------------|
| ■ Age and gender of hospitalized patients | pages 5-6 |
| ■ Sources of admission to the hospital | page 7 |
| ■ Emergency admissions to the hospital | pages 8-9 |
| ■ Most frequent reasons for hospitalization | pages 10-13 |
| ■ Types of comorbidities, or coexisting conditions, seen in the hospital | pages 14-17 |
| ■ Charges for hospitalizations, by type of condition | pages 18-19 |
| ■ Conditions with the longest lengths of hospitalization | pages 20-21 |
| ■ Expected sources of payment for hospitalizations | pages 22-25 |
| ■ Discharges from the hospital | pages 26-29 |
| ■ Conditions with the highest in-hospital mortality | pages 30-32 |

*Health Care Financing Administration, Office of the Actuary, National Health Statistics Group.

Introduction





Executive Summary

AGE AND GENDER

- Nearly 60 percent of hospital stays are for women. Among individuals 18 to 44 years of age, there are nearly three times as many women in the hospital as men.
- People age 65 and older make up about 13 percent of the U.S. population but account for about 36 percent of all hospital stays.

ADMISSIONS THROUGH THE EMERGENCY DEPARTMENT (ED)

- Over a third of all hospital admissions are through the ED.
- Five of the top 10 conditions for which people are admitted through the ED are heart problems, like heart attack.
- Two of the top 10 conditions are infections: pneumonia and blood infection (septicemia).
- Nearly 55 percent of hospital stays for the very old (80 years and older) start in the ED, compared with 45 percent for younger age groups.

MOST FREQUENT REASONS FOR HOSPITALIZATION

- Eleven percent of all hospital stays are for infants born in the hospital.
- Depression is one of the top 10 conditions treated in short-term hospitals.
- Heart attack, hardening of the arteries, and congestive heart failure are in the top 10 conditions for all age groups 45 and older.
- Pneumonia is a top 10 condition for all age groups.
- Excluding pregnancy-related conditions, 4 of the top 10 conditions among people ages 18-44 are related to mental illness or substance abuse.

COMORBIDITIES

- Comorbidities are coexisting conditions that are not the main reason for the hospital stay. Comorbidities can make a hospital stay more expensive and complicated.
- High blood pressure (hypertension) is the most common comorbidity. Other common comorbidities are lung disease and diabetes.
- Over half of all hospitalized patients have at least one comorbidity. About a third of patients have two or more.
- Drug abuse, psychoses and depression are present as top 10 comorbidities for adolescents and adults up to age 44.
- Alcohol abuse is a top 10 comorbidity for adults ages 18-64.

MOST EXPENSIVE AND LONGEST HOSPITAL STAYS

- The average charge for a hospital stay is over \$11,000 and the average hospital stay is about 5 days long.
- Infant respiratory distress is the most expensive condition treated in the hospital, with an average charge of \$68,000.
- Four of the top 10 most expensive conditions are related to the care of infants: respiratory distress, prematurity and low birth weight, heart defects, and lack of oxygen (intrauterine hypoxia).
- Two of the top 10 most expensive conditions are traumas: spinal cord injury (\$53,000) and burns (\$34,000).
- Even though long lengths of stay can result in high expense, four of the most expensive reasons for hospital stays are NOT among the longest stays: heart valve disorders, cardiac congenital anomalies, aneurysms, and burns.

INSURANCE AND HOSPITAL STAYS

- Government (Medicare and Medicaid) is billed for over half (54 percent) of all hospital stays.
- About 13 percent of the U.S. population is over 65, but about 35 percent of all hospital stays are paid by Medicare, the most common insurer for the elderly.
- About 17 percent of the U.S. population is uninsured, and about 5 percent of all hospital patients are uninsured.
- Among uninsured patients, 3 of the top 10 conditions are for substance abuse or mental health. It is not possible to determine if this is because insurance does not pay for these conditions or if these conditions occur more frequently among uninsured patients.
- Nearly 20 percent of hospital stays for alcohol-related mental disorders and 23 percent of stays for substance abuse are uninsured.
- Almost 12 percent of the U.S. population is covered by Medicaid; however, Medicaid is billed for:
 - Over a third of all stays for babies born in the hospital
 - Over a third of all stays for fetal distress
 - Nearly 42 percent of all stays for complicated pregnancy
 - Over a fourth of all stays for depression and half of all stays for schizophrenia

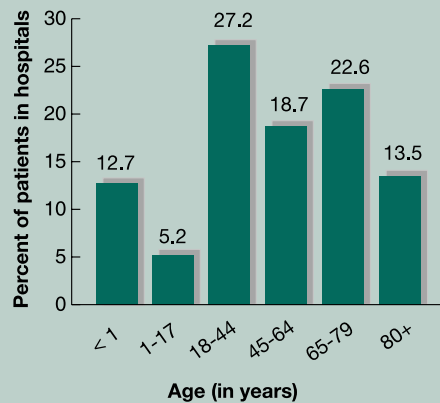
DISCHARGES FROM THE HOSPITAL

- Nearly 11 percent of patients discharged from the hospital go to some sort of long-term care: skilled nursing facilities, intermediate care, or nursing homes.

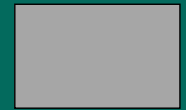
IN-HOSPITAL MORTALITY

- Some patients are admitted to the hospital for end-of-life care; therefore mortality for some conditions is expected to be high.
- About 2.5 percent of hospital stays end in death.
- Four of the top 10 conditions with the highest rates of in-hospital death are related to cancer.

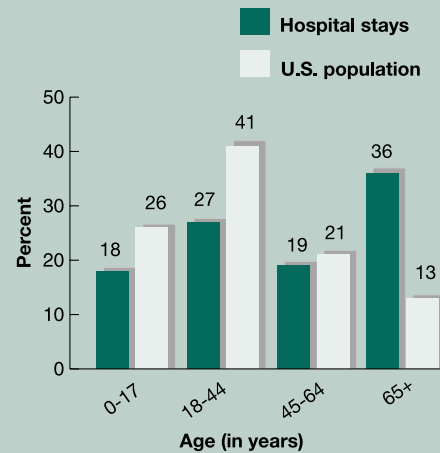
- In 1997, the average age for patients hospitalized in the United States was about 47 years.
- People ages 18-44 accounted for more hospital stays than any other age group in 1997, followed closely by people ages 65-79.
- The high percentage of hospitalizations for those 18-44 is due to pregnancy and childbirth. Nearly 45 percent of all hospital stays in this age group are for pregnancy and childbirth.
- The high percentage of hospitalizations for children less than 1 year is because newborn infants are included in this category. About 85 percent of all discharges in this age group are for newborn infants.



How old are patients in U.S. hospitals?

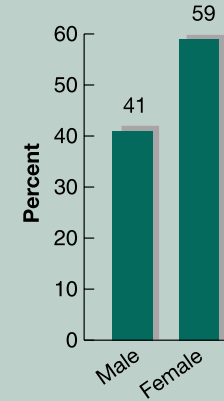


- People ages 18-44 make up about 41 percent of the U.S. population and account for 27 percent of all hospital stays.
- People 65 and older make up about 13 percent of the U.S. population, but account for about 36 percent of all hospital stays.



What is the gender of patients in U.S. hospitals?

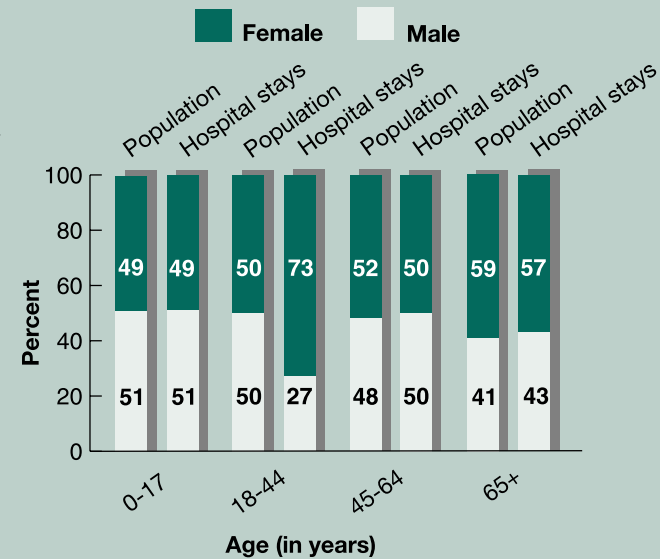
■ Nearly 60 percent of all hospital discharges are women.



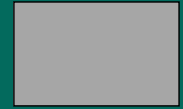
■ Among hospital patients 17 years and younger, there are nearly equal numbers of males and females. The same is true for patients ages 45 to 64.

■ For the age group 18 to 44 years of age, nearly three times as many women as men are in the hospital. Seventy-three percent of all hospitalized patients in this age group are women.

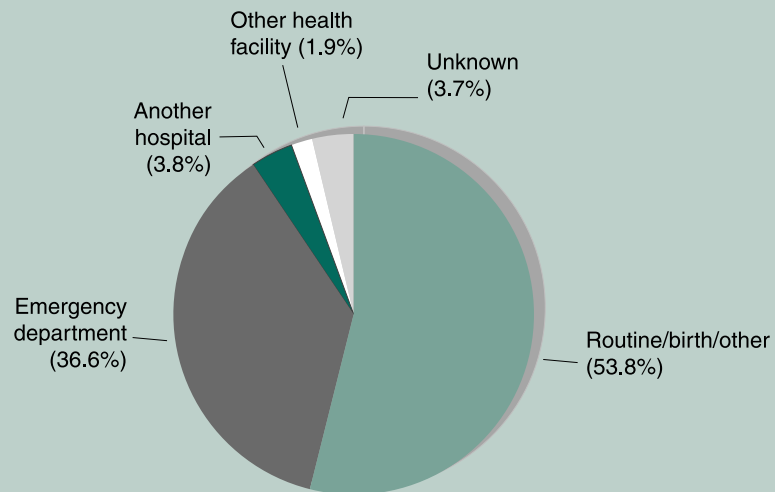
■ Males are hospitalized more frequently in the older age groups than are females. For example, males make up 41 percent of the total U.S. population 65 years of age and older, but account for 43 percent of all hospital stays.



How are patients admitted to the hospital?



- Over a third of all hospital admissions are through the emergency department (ED).
- Most admissions are routine admissions to the hospital — not through the ED or from another hospital or other health facilities, such as nursing homes.



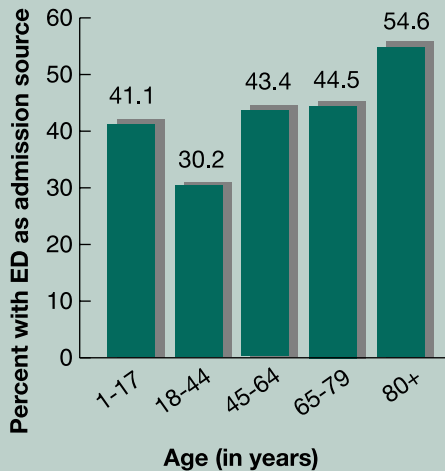
- Five of the top 10 conditions for which patients are admitted to the hospital through the emergency department are related to heart problems.
- Three of the top 10 conditions are related to respiratory problems (pneumonia, chronic obstructive lung disease, and asthma). Nearly 6 percent of all admissions to the hospital through the ED are due to pneumonia.
- Two of the top 10 conditions are infections: pneumonia and blood infection (septicemia).

What are the most frequent reasons for being admitted to the hospital through the emergency department?

Principal diagnoses	Total number of discharges (in thousands)	Percent of all hospital discharges admitted through the ED
1. Pneumonia	756	5.8
2. Congestive heart failure	652	5.0
3. Hardening of the arteries of the heart (coronary atherosclerosis)	587	4.5
4. Heart attack (acute myocardial infarction)	450	3.5
5. Stroke (acute cerebrovascular disease)	434	3.4
6. Nonspecific chest pain	396	3.1
7. Chronic obstructive lung disease (emphysema or chronic bronchitis)	350	2.7
8. Irregular heartbeat (cardiac dysrhythmia)	312	2.4
9. Asthma	282	2.2
10. Blood infection (septicemia)	271	2.1

How do hospital admissions through the emergency department differ by age groups?

- Over 40 percent of all children's hospitalizations begin in the emergency department.
- Over half of admissions for people age 80 and over begin in the ED (comprising over 2.6 million admissions), compared with 45 percent for people ages 65-79 years.



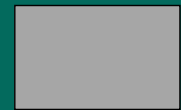
- The most common reason for hospitalization is infant birth. About 11 percent of all discharges from the hospital are infants born in the hospital.
- Five of the top 10 conditions are cardiovascular diseases, encompassing nearly 13 percent of all discharges.
- One of the top 10 conditions treated in short-term hospitals is a mental health diagnosis—depression.

What are the most frequent reasons for hospitalization?

Principal diagnoses	Total number of discharges (in thousands)	Percent of all discharges
1. Infants born in the hospital	3,845	10.9
2. Hardening of the arteries of the heart (coronary atherosclerosis)	1,432	4.1
3. Pneumonia	1,258	3.6
4. Congestive heart failure	1,011	2.9
5. Heart attack (acute myocardial infarction)	746	2.1
6. Trauma to perineum due to childbirth	726	2.1
7. Stroke (acute cerebrovascular disease)	638	1.8
8. Depression (affective disorders)	596	1.7
9. Irregular heartbeat (cardiac dysrhythmia)	583	1.7
10. Chronic obstructive lung disease (emphysema or chronic bronchitis)	565	1.6

- Looking at the most common conditions by body system, diseases of the circulatory system are the most frequent reasons for hospitalization. These include conditions such as coronary atherosclerosis, congestive heart failure, heart attack, and cardiac dysrhythmia.
- The next most common reasons for hospitalization include pregnancy and childbirth (diagnoses received by women), followed by newborns and other perinatal conditions (diagnoses received by babies).
- Hospitalizations for all mental disorders combined make up about 3.5 percent of all hospital stays.

What are the most common reasons for hospital stays, by body system?



Reasons for hospital stay, by body system	Total number of discharges (in thousands)	Percent of all discharges
1. Diseases of the circulatory system	5,990	16.9
2. Pregnancy and childbirth	4,411	12.5
3. Newborns and perinatal conditions	3,970	11.2
4. Diseases of the respiratory system	3,588	10.1
5. Diseases of the digestive system	2,887	8.2
6. Diseases of the musculoskeletal system	2,667	7.5
7. Diseases of the nervous system	2,041	5.8
8. Mental disorders	1,238	3.5
9. Diseases of the kidney and urinary tract	1,126	3.2
10. Diseases of the female reproductive system	984	2.8



What are the most common reasons for hospitalization for various age groups?

- Depression is one of the top 10 conditions for children and adolescents 1 to 17 years of age and adults 18-44.
- For the group 18 to 44 years of age, 9 of the top 10 reasons for hospitalization pertain to pregnancy and delivery. When these conditions are excluded, 4 of the top 10 conditions relate to mental illness or substance abuse.
- For all age groups 45 and older, hardening of the arteries, heart attack, and congestive heart failure are among the top 10 reasons for hospitalization.
- Some conditions, such as pneumonia, appear in the top 10 for several age groups.
- Some conditions are unique to particular age groups. Hip fracture and septicemia (blood infection) are among the top 10 conditions only for patients ages 80 or older.

MOST COMMON REASONS FOR HOSPITALIZATION BY AGE GROUP

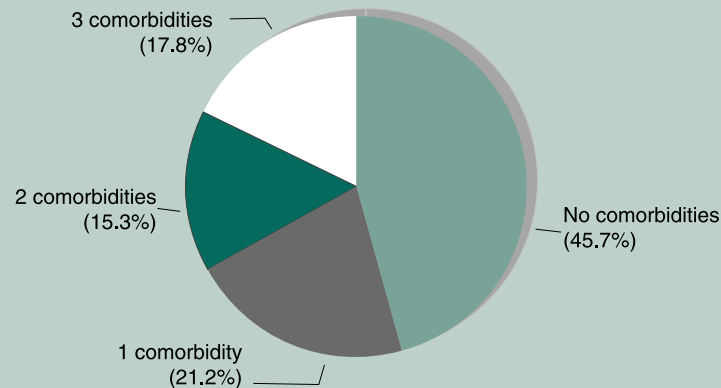
Top 10 diagnoses* by age group	<1 yr	1-17 yr	18-44 yr	45-64 yr	65-79 yr	80+ yr
Number of discharges (in thousands)						
Infants born in the hospital	3,844					
Acute bronchitis	110					
Other perinatal conditions	57					
Hemolytic jaundice and perinatal jaundice	34					
Other viral infections	29					
Prematurity (short gestation) and low birth weight	23					
Urinary tract infection	21					127
Other upper respiratory infections	20	42				
Fluid and electrolyte disorders	24	65				135
Pneumonia	57	138	133	203	374	353
Appendicitis		67				
Epilepsy		47				
Intestinal infection		38				
Noninfectious gastroenteritis		38				
Asthma		161	112			
Depression (affective disorder)		57	307			
Intervertebral disc disorders and other back problems		38	190			
Schizophrenia and related disorders			171			
Substance-related mental disorders			147			
Alcohol-related mental disorders			142			
Benign neoplasm of the uterus			130			
Gall bladder (biliary tract) disease			146	136		
Nonspecific chest pain			111	246		
Degenerative joint disease of spine (spondylosis)				194		
Diabetes mellitus with complications				133		
Chronic obstructive lung disease (emphysema or chronic bronchitis)				151	269	
Complication of device, implant or graft				145	182	
Hardening of the arteries of the heart (coronary atherosclerosis)				535	636	189
Heart attack (acute myocardial infarction)				247	300	156
Congestive heart failure				180	426	374
Osteoarthritis					250	
Rehabilitation care					183	
Stroke (acute cerebrovascular disease)					269	214
Irregular heartbeat (cardiac dysrhythmia)					258	152
Hip fracture						205
Blood infection (septicemia)						136

*Excludes pregnancy-related conditions.

- Comorbidities* are coexisting medical problems that are listed as secondary diagnoses (not principal diagnoses, or the main reason for admission).
- About 54 percent of hospitalized patients have at least one comorbidity.
- Patients can have more than one comorbidity; about 1/3 of patients have two or more.

Do patients in the hospital have medical problems in addition to the main reason for admission?

Comorbidities Among Hospitalized Patients

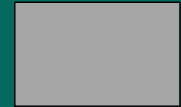


* Comorbidities can make a hospital stay more expensive and complicated. Conditions are designated as comorbidities if they are not directly related to the principal diagnosis and are likely to have originated prior to the hospital stay.

SOURCE: Elixhauser A, Steiner C, Harris DR, Coffey RM. Comorbidity measures for use with administrative data. *Medical Care* 1998, 36(1):8-27.

- About 1 in 5 patients has hypertension in addition to the principal diagnosis.
- The second most common comorbidity—fluid and electrolyte disorders—is associated with many conditions and may be a marker for the severity of the principal diagnosis.

What are the most common comorbidities?



Top 10 comorbidities	Total number of cases with each comorbidity (in thousands)	Percent of all discharges
1. Hypertension	7,231	20.4
2. Fluid and electrolyte disorders	4,798	13.6
3. Chronic obstructive lung disease (emphysema or chronic bronchitis)	3,843	10.9
4. Diabetes mellitus	3,375	9.5
5. Irregular heartbeat (cardiac dysrhythmia)	2,398	6.8
6. Anemias	2,164	6.1
7. Solid tumor without metastasis	2,021	5.7
8. Congestive heart failure	1,880	5.3
9. Hypothyroidism	1,375	3.9
10. Hardening of the arteries (peripheral vascular disease)	1,045	3.0



How do comorbidities differ for various age groups?

- Three conditions rank among the top 10 comorbidities in each age group: fluid and electrolyte disorders, chronic obstructive lung disease, and anemias.
- Hypertension and diabetes are among the top 10 comorbidities in all adult age groups (18 years and older).
- Drug abuse, pschoses and depression are present as top 10 comorbidities for adolescents and adults up to age 44.
- Alcohol abuse is a top 10 comorbidity for adults ages 18-64.

TOP 10 COMORBIDITIES BY AGE GROUP

Comorbidity	< 1 yr	1-17 yr	18-44 yr	45-64 yr	65-79 yr	80+ yr
Number of discharges (in thousands)						
Fluid and electrolyte disorders	104	228	665	947	1,525	1,330
Chronic obstructive lung disease (emphysema or chronic bronchitis)	14	106	382	843	1,629	869
Anemias	23	49	411	421	681	580
Other neurological disorders	8	45	182			
Blood clotting disorder (coagulopathy)	6	16				
Irregular heartbeat (cardiac dysrhythmia)	18			295	993	970
Hypothyroidism	2				552	413
Congestive heart failure	2				753	823
Heart valve disease	4					339
Pulmonary circulation disease	3					
Drug abuse		33	517			
Depression (affective disorders)		27	230			
Psychoses		17	185			
Solid tumor without metastasis		15		425	934	548
Paralysis		42				
Hypertension			472	1,942	3,073	1,735
Diabetes mellitus without complications			239	961	1,505	665
Alcohol abuse			366	303		
Kidney (renal) failure				297		
Diabetes with chronic complications				365		
Hardening of the arteries (peripheral vascular disease)					523	



Which conditions have the highest charges on average?

- The conditions with the highest charges are relatively uncommon. The 10 most expensive conditions combined represent less than 1 percent of all discharges.
- Many of these expensive conditions involve invasive or high technology procedures. For example, infant respiratory distress syndrome can involve lengthy stays in intensive care.
 - Four of the top 10 most expensive conditions in the hospital are related to care of infants with complications (respiratory distress, prematurity, heart defects, lack of oxygen).
 - Two of the top 10 most expensive conditions are related to trauma (spinal cord injury and burns).
- Three of the top 10 most expensive conditions are related to the circulatory system (heart valve disorders, heart defects, aneurysms).
- Even though long lengths of stay can result in high expense, four of the most expensive reasons for hospital stays are NOT among the longest stays: heart valve disorders, cardiac congenital anomalies, aneurysms, and burns.
- For all conditions, the average charge for a hospital stay is \$11,000.

CONDITIONS WITH THE HIGHEST CHARGES

Principal diagnoses	Mean charges*	Mean length of stay (in days)
1. Respiratory distress syndrome (infant)	\$68,000	24.6
2. Spinal cord injury	53,000	15.9
3. Prematurity (short gestation) and low birth weight	50,000	21.7
4. Heart valve disorders	48,000	9.1
5. Leukemias	44,000	13.5
6. Heart defects (cardiac and circulatory congenital anomalies)	42,000	7.9
7. Lack of oxygen in infants (intrauterine hypoxia and birth asphyxia)	39,000	12.7
8. Central nervous system infections other than meningitis	39,000	13.6
9. Aortic, peripheral, and visceral artery aneurysms	38,000	8.9
10. Burns	34,000	8.9

*Charges shown reflect those only for acute hospital care and do not include professional fees, rehabilitation, followup care or home care costs.

NOTE: Shaded diagnoses are also among the longest lengths of stay in the hospital.



What conditions lead to the longest hospital stays?

- The two conditions with the longest hospital stays are related to infants (respiratory distress and prematurity).
- Conditions with lengthy hospital stays are relatively uncommon. Collectively, the 10 conditions with the longest stays represent less than 2 percent of all discharges.
- Six of the most expensive conditions also have the longest lengths of stay in the hospital.
- For all conditions, the average overall length of stay is 5 days.

CONDITIONS LEADING TO THE LONGEST HOSPITAL STAYS

Principal diagnoses	Mean length of stay (in days)	Mean charges*
1. Respiratory distress syndrome (infant)	25	\$68,000
2. Prematurity (short gestation) and low birth weight	22	50,000
3. Spinal cord injury	16	53,000
4. Paralysis	15	22,000
5. Tuberculosis	14	27,000
6. Rehabilitation care	14	17,000
7. Late effects of stroke (cerebrovascular disease)	14	16,000
8. Central nervous system infections other than meningitis	14	39,000
9. Leukemias	14	44,000
10. Lack of oxygen during birth (intrauterine hypoxia and birth asphyxia)	13	40,000

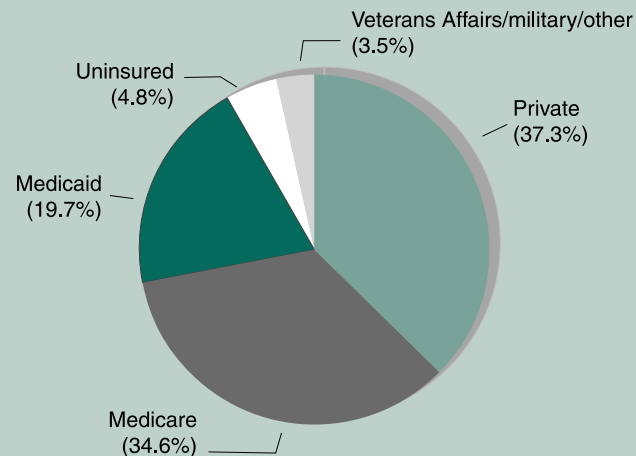
*Charges shown reflect those only for acute hospital care and do not include professional fees, rehabilitation, followup care or home care costs.

NOTE: Shaded diagnoses are also among the highest charges in the hospital.

Who is billed for the largest share of hospital stays?

- Private insurance is billed for 37 percent of all hospitalizations.
- Government (Medicare and Medicaid) is billed for over half (54 percent) of all hospitalizations.
- Elderly people (65 and over) in the United States comprise about 13 percent¹ of the population. However, about 35 percent of all hospitalizations are covered by Medicare, the most common insurance for the elderly.
- Although nearly 17 percent² of people in the United States are uninsured, only 5 percent of hospitalized patients are uninsured at discharge from the hospital.

PRIMARY PAY SOURCE

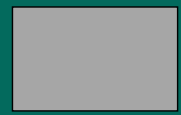


¹ U.S. Census Bureau, *Statistical Abstract of the United States: 1998* (www.census.gov).

² Vistnes JP, Zuvekas SH. Health insurance status of the civilian noninstitutionalized population: 1997. MEPS Research Findings No. 8. AHCPR Pub. No. 99-0030. Rockville (MD): Agency for Health Care Policy and Research; 1999.

- Private insurers are billed for 57 percent of all stays for infants born in the hospital, 59 percent of all stays for trauma to perineum due to childbirth, and 51 percent of all normal pregnancy stays.
- Five of the top 10 conditions billed to private insurers are related to infancy and childbirth. These conditions make up about one-quarter of all private pay discharges.
- Three of the top 10 conditions billed to private insurers are related to the heart.

What sorts of hospital care are billed to private insurers?



PRIVATELY INSURED

Principal diagnoses	Number of discharges (in thousands)	Private insurers' share of all hospital stays for this condition (in percent)
1. Infants born in the hospital	2,195	57.1
2. Hardening of the arteries of the heart (coronary atherosclerosis)	473	33.0
3. Trauma to perineum due to childbirth	428	58.9
4. Normal pregnancy	284	51.2
5. Pneumonia	271	21.5
6. Degenerative joint disease of spine (spondylosis)	265	48.4
7. Fetal distress and abnormal forces of labor	247	57.8
8. Other complications of birth	242	59.9
9. Nonspecific chest pain	240	43.9
10. Heart attack (acute myocardial infarction)	235	31.5

What sorts of hospital care are billed to Medicaid?

- Six of the top 10 reasons for hospitalization billed to Medicaid are related to infancy and childbirth. These 6 conditions make up one-third of all Medicaid hospitalizations.
- Almost 12 percent³ of the U.S. population is covered by Medicaid. However, Medicaid is billed for over a third of all hospital stays for infants born in the hospital, normal pregnancy and delivery, fetal distress, and other complications of pregnancy.
- Medicaid is billed for over half of all hospital stays for schizophrenia and over a fourth of all stays for depression.
- Medicaid is billed for about one-third of all hospital stays for asthma.

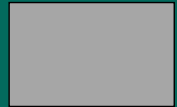
MEDICAID

Principal diagnoses	Number of discharges (in thousands)	Medicaid's share of all hospital stays for this condition (in percent)
1. Infants born in the hospital	1,303	33.9
2. Pneumonia	242	19.2
3. Trauma to perineum due to childbirth	241	33.2
4. Normal pregnancy and/or delivery	224	40.4
5. Depression (affective disorders)	166	27.9
6. Other complications of pregnancy	155	41.6
7. Fetal distress and abnormal forces of labor	147	34.3
8. Asthma	144	33.2
9. Schizophrenia and related disorders	135	50.7
10. Other complications of birth	131	32.4

³ U.S. Census Bureau, *Statistical Abstract of the United States: 1998* (www.census.gov).

- Five percent of stays for infants born in the hospital are uninsured.
- Among uninsured patients, 3 of the top 10 conditions are related to mental health or substance abuse. It is not possible to determine if this is because insurance does not pay for these conditions or if these conditions occur more frequently among uninsured patients.
- About 19 percent of hospital stays for alcohol-related mental disorders, 23 percent of stays for substance-related mental disorders, and 8 percent of stays for depression are uninsured.
- Asthma and diabetes are both ambulatory care sensitive conditions—conditions for which appropriate outpatient care should be able to prevent the need for hospitalization.

What sorts of hospital care are uninsured?

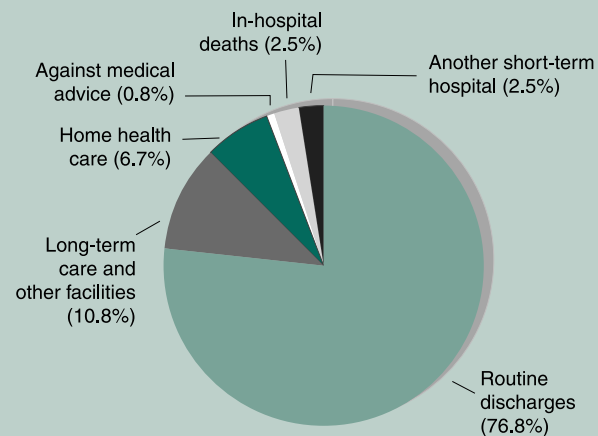


UNINSURED

Principal diagnoses	Number of discharges (in thousands)	Percent of all hospital stays for this condition that are uninsured
1. Infants born in the hospital	191	5.0
2. Pneumonia	51	4.0
3. Alcohol-related mental disorders	47	19.3
4. Depression (affective disorders)	45	7.6
5. Substance-related mental disorders	43	22.5
6. Hardening of the arteries of the heart (coronary arteriosclerosis)	41	2.8
7. Nonspecific chest pain	40	7.3
8. Asthma	34	7.9
9. Diabetes mellitus with complications	31	7.5
10. Trauma to perineum due to childbirth	30	4.1

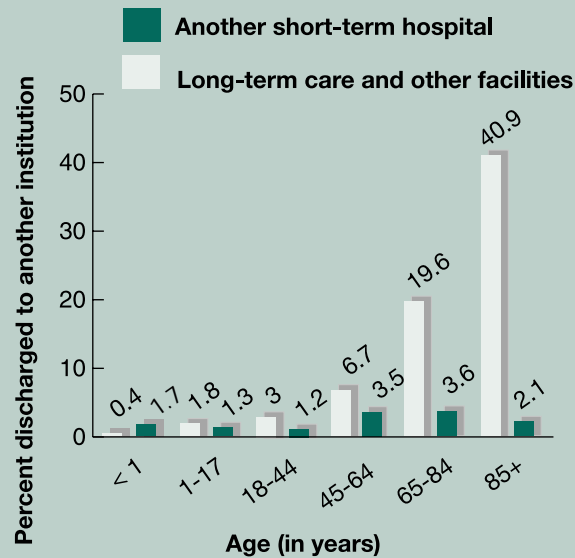
What happens to patients when they are discharged from the hospital?

- Most discharges are routine; patients return home following completion of treatment in the hospital.
- Overall, 2.5 percent of all hospitalizations end in death.
- Another 2.5 percent of patients are sent to different hospitals.
- About 11 percent of discharges go to long-term care and other facilities.
- Less than 1 percent of hospital discharges leave against medical advice.

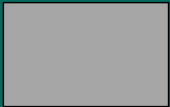


- Older patients are more often discharged to other institutions from the hospital than are younger patients.
- About 41 percent of patients ages 85 and older are discharged to long-term care and other facilities, including skilled nursing facilities, intermediate care facilities, and nursing homes.

How do discharges to other institutions vary by age?



- Among the top 10 diagnoses for patients who leave the hospital against medical advice, 4 are mental health-related illnesses.
- Over 20 percent of all patients who leave the hospital against medical advice have a substance- or alcohol-related diagnosis.
- The other most common conditions among patients who leave against medical advice are medical problems, such as pneumonia or diabetes, rather than surgical problems.
- Conditions where discharge is to other institutions tend to be those in which functional status has been compromised, such as stroke and hip fracture.



What conditions are most common in patients who leave against medical advice or are discharged to another institution?

LEFT AGAINST MEDICAL ADVICE

Principal diagnoses	Total number of discharges (in thousands)	Percent of all discharges who left against medical advice
1. Substance-related mental disorder	32	11.0
2. Alcohol-related mental disorder	28	9.9
3. Affective disorders (principally depression)	15	5.4
4. Coronary atherosclerosis	11	3.9
5. Nonspecific chest pain	10	3.5
6. Pneumonia	9	3.3
7. Diabetes	7	2.5
8. Congestive heart failure	7	2.4
9. Asthma	6	2.2
10. Schizophrenia	6	2.2

DISCHARGED TO OTHER INSTITUTIONS

Principal diagnoses	Total number of discharges (in thousands)	Percent of all discharges to other institutions
1. Acute cerebrovascular disease (stroke)	291	6.5
2. Hip fracture	259	5.8
3. Pneumonia	248	5.6
4. Acute myocardial infarction (heart attack)	211	4.8
5. Coronary atherosclerosis	202	4.6
6. Congestive heart failure	183	4.1
7. Osteoarthritis	179	4.0
8. Septicemia	120	2.7
9. Urinary tract infections	96	2.2
10. Fluid and electrolyte disorder	95	2.1

- Some patients are admitted to the hospital for end-of-life care; therefore mortality for some conditions is expected to be high.
- Four of the top 10 conditions with the highest in-hospital mortality are related to cancer:
 - Malignant neoplasm without specification of site
 - Leukemias
 - Cancer of liver and intrahepatic bile duct
 - Cancer of bronchus or lung
- Some of the conditions listed below are not necessarily the underlying cause of death. For example, shock and cardiac arrest are immediate reasons for death, but other conditions such as trauma may be the underlying reasons.

Which conditions have the highest in-hospital mortality?

Principal diagnoses	In-hospital mortality (percent)
1. Shock	51.2
2. Cardiac arrest and ventricular fibrillation	51.0
3. Malignant neoplasm without specification of site	29.8
4. Adult respiratory failure, insufficiency, arrest	22.7
5. Lack of oxygen in infants (intrauterine hypoxia and birth asphyxia)	20.4
6. Aspiration pneumonitis (from food or vomit)	19.0
7. Leukemias	18.9
8. Cancer of liver and intrahepatic bile duct	17.8
9. Coma, stupor, and brain damage	16.3
10. Cancer of bronchus or lung	15.2

- Among infants less than 1 year old, the major causes of in-hospital mortality include lack of oxygen, low birth weight, birth trauma, respiratory distress syndrome, heart defects, and immunity disorders.
- For children and adolescents up to 17 years of age, the major causes of in-hospital mortality include immunity disorders, injuries, cancers, and cystic fibrosis.
- For people ages 18-44, major causes of in-hospital mortality include HIV infection, cancers, injury, and alcohol-related liver disease.
- For people ages 45-64, liver disease (alcohol-related and other) and cancers are the major causes of mortality in the hospital.
- For people 65-79 years old, major causes of mortality in the hospital include aneurysm and cancers.
- For people 80 years of age and older, the major causes of mortality include stroke, blood infection, kidney failure, aspiration pneumonitis (from food or vomit), aneurysm, and cancers.

Which conditions have the highest in-hospital mortality for various age groups?



CONDITIONS WITH THE HIGHEST IN-HOSPITAL MORTALITY

Top 10 diagnoses by age group	< 1yr	1-17 yr	18-44 yr	45-64 yr	65-79 yr	80+ yr
In-hospital mortality (percent)						
Lack of oxygen in infants (intrauterine hypoxia and birth asphyxia)	20.4					
Prematurity (short gestation) and low birth weight	4.6					
Respiratory distress syndrome (infant)	4.6					
Birth trauma	4.0					
Other perinatal conditions	1.6					
Other congenital anomalies	0.6					
Nervous system congenital anomalies	0.4					
Heart defects (cardiac and circulatory congenital anomalies)	2.6	0.4				
Immunity disorders	0.4	1.4				
Cardiac arrest and ventricular fibrillation	0.5	0.5	3.3	12.5	21.1	12.9
Cystic fibrosis		0.6				
Other injuries and conditions due to external causes		0.5				
Cancer, other and unspecified primary		0.5				
Intracranial injury		0.8	2.5			
Coma, stupor, and brain damage		0.6	1.8			4.0
Leukemia		0.5	2.1	4.6	7.9	
Shock		0.7	3.1	8.4	17.2	21.5
HIV infection			6.1			
Hodgkin's disease			3.3			
Crushing injury or internal injury			1.9			
Liver disease, alcohol-related			2.5	6.4		
Malignant neoplasm without specification of site			1.8	8.4	13.7	5.8
Cancer of esophagus				5.1		
Secondary malignancy				4.2		
Other liver diseases				3.9		
Cancer of liver and intrahepatic bile duct				6.0	7.0	
Cancer of bronchus or lung				4.7	7.9	
Cancer of pancreas					6.4	
Myeloma					6.2	
Respiratory failure, insufficiency, arrest (adult)					10.2	7.4
Aneurysm					6.9	4.5
Aspiration pneumonitis (from food or vomit)						11.2
Acute and unspecified kidney failure						6.4
Blood infection (septicemia)						6.4
Stroke (acute cerebrovascular disease)						4.2

The data presented in this report are drawn from the Healthcare Cost and Utilization Project (HCUP), a Federal-State industry partnership to build a multi-State health care data system. This partnership is sponsored by the Agency for Healthcare Research and Quality and is managed by staff in AHRQ's Center for Organization and Delivery Studies. HCUP is based on data collected by individual States and forwarded to AHRQ by the States. HCUP would not be possible without State data collection projects and their partnership with AHRQ.

For 1997, 22 State data organizations contributed their data to AHRQ where all data are edited and transformed into a uniform format. The uniform data in HCUP databases make possible comparative studies of health care services and the use and cost of hospital care, including:

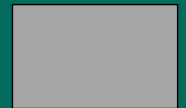
- the effects of market forces on hospitals and the care they provide,
- variations in medical practice,
- the effectiveness of medical technology and treatments, and
- use of services by special populations.

HCUP includes short-term, non-Federal, community hospitals. General and specialty hospitals such as pediatric, obstetrics-gynecology, short-term rehabilitation, and oncology hospitals are included, but long-term care and psychiatric hospitals are excluded.

HCUP includes two sets of databases for health services research. The State Inpatient Databases (SID) for 1997 cover inpatient care in community hospitals in 22 States and include nearly 60 percent of all hospital discharges in the U.S. The Nationwide Inpatient Sample includes all discharges from a sample of about 1,000 hospitals drawn from the SID, adjusted to approximate a national sample.

This report is based on data from the NIS. The NIS approximates a 20-percent sample of U.S. "community" hospitals, as defined by the American Hospital Association (AHA). The NIS for 1997 includes information from 7.1 million discharges which were weighted to obtain estimates that represent the total number of inpatient hospital discharges in the United States (35.4 million).

Source of Data for This Report





Methods

The Clinical Classifications Software (CCS), developed by AHRQ, has been used throughout this chartbook to aggregate diagnosis codes into a limited number of categories. Diagnoses recorded on hospital discharge records are coded using the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM), Fifth Edition. Although ICD-9-CM may be used to provide descriptive statistics, aggregating similar diagnoses or procedures into clinically meaningful categories, such as the CCS, can be more helpful. More information on CCS can be downloaded from AHRQ's Web site (www.ahrq.gov/data/hcup).

Frequencies and rankings of diagnoses are based on principal, or first-listed, diagnosis. The unit of analysis is the inpatient stay rather than the patient. All discharges have been weighted to produce national estimates.

Total charges in HCUP data are the amount the hospital charged or billed for the entire hospital stay and do not necessarily reflect reimbursements or costs. Charges do not include professional (physician) fees. Charge data were present for 98 percent of all discharges. Charges are generally higher than costs.

Because the NIS is limited to inpatient hospital data, conditions treated in outpatient settings are not reflected here.

Many medical terms are used throughout this report. For help in understanding these terms, refer to the Glossary.

Acute - describes a condition or illness that begins suddenly and is short-lasting.

Affective disorder - a mental disorder involving abnormal moods and emotions; affective disorders primarily consist of depression for the data reported here.

Anemia - a condition in which the blood does not contain enough hemoglobin, the compound that carries oxygen from the lungs to other parts of the body.

Aneurysm - an abnormal swelling of the wall of an artery, caused by a weakening in the vessel wall.

Anomaly - deviation from the normal standard, especially as a result of congenital defects.

Arrhythmias - abnormal heart rhythms.

Artery - a large blood vessel that carries oxygen in the blood from the heart to tissues and organs in the body.

Asphyxia - suffocation, which can be caused by choking on an object, by lack of oxygen in the air, or by chemicals such as carbon monoxide, which reduce the amount of oxygen in the blood.

Asthma - a disorder characterized by inflamed airways and difficulty breathing.

Atherosclerosis - the progressive narrowing and hardening of the arteries over time, known to occur to some degree with aging; but other risk factors (such as high cholesterol, high blood pressure, smoking, diabetes and family history for atherosclerotic disease) that accelerate this process have been identified.

Biliary tract - the system of organs and ducts through which bile is made and transported from the liver. Bile is a liquid produced in the liver whose function is to remove waste from the liver and break down fats as food is digested.

Cancer - a group of diseases in which cells grow unrestrained in an organ or tissue in the body. It can spread to tissues around it and destroy them or be transported through blood or lymph pathways to other parts of the body.

Cardiac arrest - the sudden cessation of the heart's pumping action, possibly due to a heart attack, respiratory arrest, electrical shock, extreme cold, blood loss, drug overdose, or a severe allergic reaction.

Central nervous system - the brain and spinal cord.

Cerebrovascular disease - a disease affecting any artery supplying blood to the brain; may cause blockage or rupture of a blood vessel, leading to a stroke. An artery is a large blood vessel that carries oxygen in the blood from the heart to tissues and organs in the body. Stroke is damage to part of the brain because of a lack of blood supply (due to a blockage in an artery or the rupturing of a blood vessel). Stroke can lead to complete or partial loss of function in the area of the body that is controlled by the damaged part of the brain.

Chest pain - there are many causes of chest pain, principally angina (which results from inadequate oxygen supply to the heart muscle, also caused by coronary artery disease or spasm of the coronary arteries) and heart attack (coronary

Glossary



occlusion). A diagnosis of chest pain upon discharge from the hospital can indicate that the underlying cause of the pain was not discovered during the hospital stay.

Chronic obstructive lung (pulmonary) disease (COPD) - a combination of lung diseases including emphysema and bronchitis. Emphysema is a chronic disease in which the small air sacs in the lungs (the alveoli) become damaged, resulting in difficulty breathing. Bronchitis is an inflammation of the bronchial tubes (which connect the trachea to the lungs), characterized by blockage of airflow in and out of the lungs.

Circulatory system — cardiovascular system consisting of the heart, blood vessels, and lymphatics. Common diseases of the circulatory system include coronary atherosclerosis, congestive heart failure, heart attack, and cardiac dysrhythmia.

Coagulopathy - coagulation is a process that plays a large role in the hardening and thickening of blood to form a clot; coagulopathy is a disorder of this clotting mechanism.

Congenital - present or existing at the time of birth.

Congestive heart failure - inability of the heart to efficiently pump blood through the body, causing buildup of blood in the veins and of other body fluids in tissue.

Coronary - structures that encircle another structure (such as the coronary arteries, which encircle the heart); commonly used to refer to a coronary thrombosis or a heart attack.

Coronary thrombosis - the blockage of a coronary artery by a blood clot.

Diabetes - general term usually referring to diabetes mellitus, a state of inadequate insulin production.

Electrolyte - substance that dissociates into ions when fused or in solution and thus becomes capable of conducting electricity, an ionic solute. Fluid and electrolyte disorders have many causes including water deficit, gastrointestinal losses (such as diarrhea), and excessive diuretic therapy (treatments to decrease urine secretion).

Epilepsy - a disorder of the nervous system in which abnormal electrical activity in the brain causes seizures (sudden uncontrolled waves of electrical activity in the brain, causing involuntary movement or loss of consciousness).

Fetal distress - physical distress experienced by a fetus because of lack of oxygen.

Gestation - the period of time between fertilization of an egg by a sperm and birth of a baby.

Heart valve - the structure at each exit of the four chambers of the heart that allows blood to exit but not to flow back in.

Hodgkin's disease - a cancer of lymphoid tissue (found in lymph nodes and the spleen) that causes the lymph nodes to enlarge and function improperly; may cause illness, fever, loss of appetite, and weight loss.

Human immunodeficiency virus (HIV) - a retrovirus that attacks helper T cells of the immune system and causes acquired immunodeficiency syndrome (AIDS); transmitted through sexual intercourse or contact with infected blood.

Hypertension - abnormally high blood pressure, even when at rest.

Hypothyroidism - underactivity of the thyroid gland, causing tiredness, cramps, a slowed heart rate, and possibly weight gain.

Hypoxia - a reduced level of oxygen in tissues.

Infection - disease-causing microorganisms that enter the body, multiply, and damage cells or release toxins (poisonous substances). Microorganisms are tiny, single-celled organisms (such as a bacterium, virus, or fungus).

Intracranial - within the skull.

Intrauterine - in the uterus (womb).

Leukemia - bone marrow cancers in which white blood cells divide uncontrollably, affecting the production of normal white blood cells, red blood cells, and platelets.

Malignant - a word used to describe a condition that is characterized by uncontrolled growth and/or that can be fatal, such as a cancerous tumor.

Metastasis - the spreading of a cancerous tumor to another part of the body through the lymph, blood, or across a cavity; also sometimes refers to a tumor that has been produced in this way.

Myeloma - a cancer affecting cells in the bone marrow; sometimes used as an abbreviation for multiple myeloma.

Myocardial infarction - the death of an area of heart muscle as a result of being deprived of its blood supply; characterized by severe pain in the chest; commonly called a heart attack.

Neoplasm - another term for a tumor (may be benign or malignant).

Obstetrics - branch of medicine dealing with the care of women during pregnancy, childbirth, and the period during which they recover from childbirth.

Osteoarthritis - a disease that breaks down the cartilage that lines joints, especially weight-bearing or misaligned joints; leads to pain, stiffness, and inflammation (redness, pain, and swelling in an injured or infected tissue produced as a result of the body's healing response).

Paralysis - the inability to use a muscle because of injury to or disease of the nerves leading to the muscle.

Perinatal - occurring just before or just after birth.

Perineum - region between the thighs, in the female between the vulva and the anus; in males, between the scrotum and the anus.

Peripheral - pertaining to or situated at or near the periphery, situated away from a center or central structure.

Pneumonia - inflammation of the lungs due to a bacterial or viral infection, which causes fever, shortness of breath, and the coughing up of phlegm (mucus and other material produced by the lining of the respiratory tract; also called sputum).

Pneumonitis - inflammation of the lung secondary to viral or bacterial infection; common symptoms include a productive cough, fever, chills, and shortness of breath.

Puerperium - the time period after childbirth (about 6 weeks) during which a woman's body returns to its normal physical state.

Rehabilitation - treatment for an injury or illness aimed at restoring physical abilities.

Renal failure - decline in kidney function over time; caused by a number of disorders which include longstanding hypertension, diabetes, congestive heart failure, lupus, or sickle cell anemia.

Respiratory distress syndrome - a condition experienced after an illness or injury damages the lungs, causing severe breathing difficulty and resulting in a life-threatening lack of oxygen in the blood. In premature infants, it is caused by immaturity of the lungs.

Respiratory failure - the failure of the body to exchange gases properly, which leads to a buildup of carbon dioxide and a lack of oxygen in the blood.

Schizophrenia - a group of mental disorders characterized by abnormal thoughts, moods, and actions; sufferers have a distorted sense of reality and thoughts that do not logically fit together.

Septicemia - systemic disease associated with the presence and persistence of pathogenic microorganisms or their toxins in the blood; blood poisoning.

Shock - a reduced flow of blood throughout the body, usually caused by severe bleeding or a weak heart; without treatment, can lead to a collapse, coma, and death.

Spinal cord - a long tube of nerve tissue inside the spinal column running from the brain down the length of the back inside of the spine.

Spinal cord injury - any injury to the spinal cord via blunt or penetrating trauma. Extreme flexion or extension (particularly in the neck) of the spine can result in traction on the spinal cord with subsequent injury and the development of neurologic symptoms.

Spondylolysis - a disorder in which the lower part of the spine is weakened by an abnormally soft vertebra.

Trauma - physical injury or emotional shock.

Tuberculosis - an infectious bacterial disease transmitted through the air that mainly affects the lungs.

Tumor - an abnormal mass that occurs when cells in a certain area reproduce unchecked; can be cancerous (malignant) or noncancerous (benign).

Thyroid gland - a gland located in the front of the neck below the voice box that plays an important role in metabolism (the chemical processes in the body) and growth; produces thyroid hormone.

Umbilical cord - the tubal structure (consisting of two arteries and one vein) that connects the fetus to the placenta, supplying the fetus with oxygen and nutrients and removing some waste products.

Urinary tract - the structures in the body that are responsible for the production and release of urine, including the kidneys, ureters, bladder, and urethra.

Vascular - pertaining to blood vessels.

Ventricular fibrillation - rapid, irregular contractions of the heart.

Visceral - pertaining to a viscus (one of the organs, as the brain, heart, or stomach, in the great cavities of the body; especially used in the plural, and applied to the organs contained in the abdomen).

Vulva - the outer, visible portion of the female genitals.

SOURCES:

Young, T. American Medical Association medical glossary (www.ama-assn.org/insight/gen_hlth/glossary/).

Dark, G. On-line medical dictionary (www.graylab.ac.uk/omd).

More information on HCUP data and the CCS can be obtained at www.ahrq.gov/data/hcup.

Additional descriptive statistics (national, regional, and for selected States) can be viewed through HCUPnet, a Web-based tool providing easy access to information on hospital stays. HCUPnet is available at www.ahrq.gov/data/hcup/hcupnet.

NIS data can be purchased for research through the National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: 1-800-553-6847 or 703-605-6000) or order online at <http://www.ntis.gov/fcpc>. Following is a list of products currently available:

- Release 6, 1997 data (PB 2000-500006)
- Release 5, 1996 data (PB 99-500480)
- Release 4, 1995 data (PB 98-500440)
- Release 3, 1994 data (PB 97-500433)
- Release 2, 1993 data (PB 96-501325)
- Release 1, 1988-1992 data (PB 95-503710)

Price for Release 1 is \$322; price for Releases 2 through 6 is \$160 per year. All prices may be higher for customers outside the United States, Canada, and Mexico.

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