

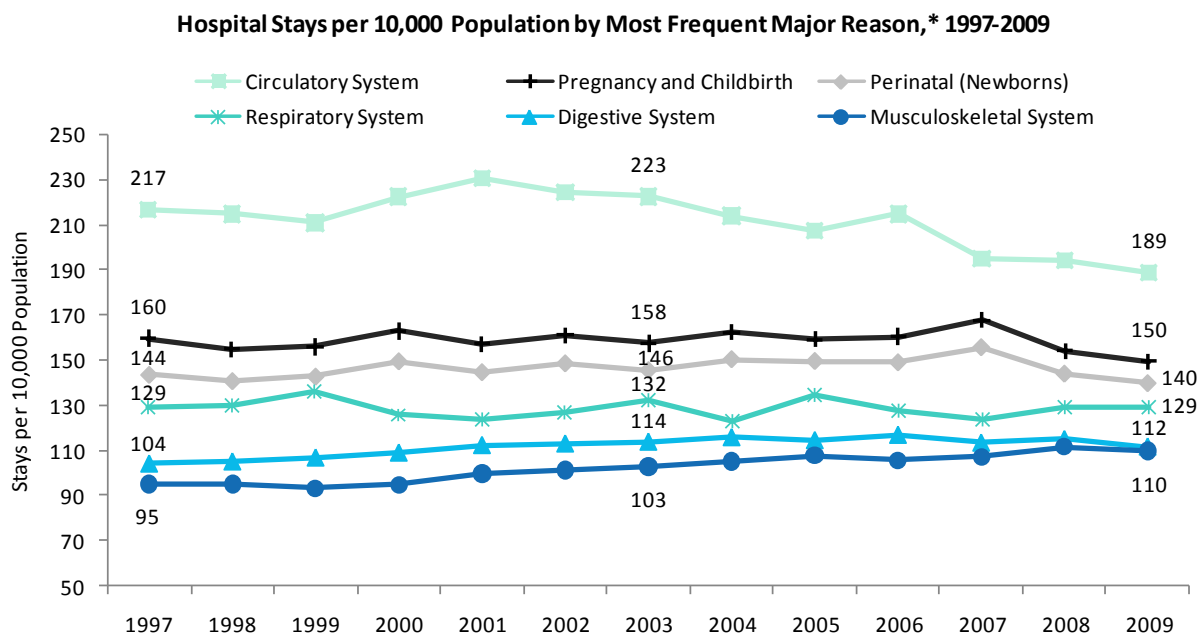
SECTION 2 INPATIENT HOSPITAL STAYS BY DIAGNOSIS

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HIGHLIGHTS

- Hospitalizations per 10,000 population for musculoskeletal conditions increased by 15 percent, from 95 stays per 10,000 population in 1997 to 110 stays per 10,000 population in 2009.
- The rate of stays for circulatory conditions decreased by 13 percent over the 12-year period, falling from 217 stays per 10,000 population in 1997 to 189 stays per 10,000 population in 2009.
- Liveborn (newborn infant) (4.2 million stays) was the most common diagnosis and accounted for more than 10 percent of all hospital stays. Since 1997, the rate of stays for newborn infants has remained stable (from 139 in 1997 to 135 in 2009 per 10,000 population).
- Pneumonia (3.0 percent of all stays) and congestive heart failure (2.6 percent) were the second and third most common reasons for hospitalization.
- The fourth and seventh most frequent principal diagnoses in 2009 (osteoarthritis and septicemia) were not among the most frequent diagnoses in 1997. Between 1997 and 2009, stays per 10,000 population for osteoarthritis increased 95 percent, and stays per 10,000 population for septicemia increased by 78 percent.
- Mood disorders was ranked seventh in 1997 and fifth in 2009, and increased nearly 20 percent per population over this time period, from 24 to 28 stays per 10,000.
- Three circulatory diseases—congestive heart failure, coronary atherosclerosis, and cardiac dysrhythmias—were among the top ten most frequent principal diagnoses in 2009.
- In 2009, acute renal failure was the most rapidly growing condition with an increase of 245 percent, from 3.6 to 12.4 stays per 10,000 population.
- Osteoarthritis was the most common condition for adults 45-64 with an increase of 151 percent in the rate of stays per 10,000 population. Between 1997 and 2009, osteoarthritis increased by 58 percent among adults aged 65-84 and was the second most common condition.
- Spondylosis, intervertebral disc disorders, and other back problems—the fourth most common condition among 45-64 year olds—remained relatively stable from 1997 to 2009.
- Three of the most common conditions with Medicaid as the primary payer were pregnancy and childbirth-related: liveborn (newborn infant), trauma to the vulva and perineum due to childbirth, and previous C-section. Altogether, stays for these conditions made up approximately 30 percent of all Medicaid stays.
- Four of the most common conditions for uninsured hospital stays increased from 1997 to 2009: alcohol-related disorders (36 percent), mood disorders (64 percent), non-specific chest pain (99 percent), and skin and subcutaneous tissue infections (176 percent).

EXHIBIT 2.1 Reasons for Hospital Stays



* Based on principal diagnosis defined by Major Diagnostic Category (MDC).

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997-2009.

Changes in stays per 10,000 population between 1997 and 2009 for the most common reasons for hospitalization varied by condition.

- Hospitalizations per 10,000 population for musculoskeletal conditions increased by 15 percent, from 95 stays per 10,000 population in 1997 to 110 stays per 10,000 population in 2009.
- The rate of stays for circulatory conditions decreased by 13 percent over the 12-year period, falling from 217 stays per 10,000 population in 1997 to 189 stays per 10,000 population in 2009.
- The rate of stays was similar in 1997 and 2009 for respiratory, digestive, pregnancy and childbirth-related, and perinatal conditions. Some of these conditions experienced variation in the rates in the intervening years.

EXHIBIT 2.2 Most Frequent Principal Diagnoses

Number of Stays, Stays per 10,000 Population, and Growth of the Most Frequent Principal Diagnoses for Hospital Stays, 1997 and 2009

PRINCIPAL CCS DIAGNOSIS	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION		CUMULATIVE GROWTH IN RATE
	1997	2009	1997	2009	1997-2009
All stays	34,679	39,435	1,278	1,284	1% ‡
Liveborn (newborn infant)	3,777	4,159	139	135	-3% ‡
Pneumonia	1,232	1,165	45	38	-16%
Congestive heart failure	991	1,023	37	33	-9%
Osteoarthritis	418	921	15	30	95%
Mood disorders	641	873	24	28	20%
Coronary atherosclerosis	1,407	832	52	27	-48%
Septicemia	413	831	15	27	78%
Cardiac dysrhythmias	572	807	21	26	25%
Trauma to vulva and perineum due to childbirth	713	751	26	24	-7% ‡
Chronic obstructive pulmonary disease and bronchiectasis	551	733	20	24	18%

‡ 2009 stays per 10,000 population are not statistically different from 1997 stays per 10,000 population at $p < 0.05$.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2009.

In 2009, there were 39.4 million hospital stays or 1,284 stays per 10,000 population. The number of stays per population has remained stable since 1997.

- The 10 most frequent principal diagnoses accounted for about 30 percent of all stays in 2009.
 - Liveborn (newborn infant) (4.2 million stays) was the most common diagnosis and accounted for more than 10 percent of all hospital stays. Since 1997, the rate of stays for newborn infants has remained stable (from 139 in 1997 to 135 in 2009 per 10,000 population).
 - Trauma to vulva and perineum due to childbirth ranked ninth in 2009 and the rate per 10,000 population remained relatively stable between 1997 and 2009.
 - Pneumonia (3.0 percent of all stays) and congestive heart failure (2.6 percent) were the second and third most common reasons for hospitalization.
 - The fourth and seventh most frequent principal diagnoses in 2009 (osteoarthritis and septicemia) were not among the most frequent diagnoses in 1997. Between 1997 and 2009, stays per 10,000 population for osteoarthritis increased 95 percent, and stays per 10,000 population for septicemia increased by 78 percent.
 - Mood disorders was ranked seventh in 1997 and fifth in 2009, and increased nearly 20 percent per population over this time period, from 24 to 28 stays per 10,000.
 - Chronic obstructive pulmonary disease was the tenth most common condition in 2009 and increased 18 percent since 1997.
- Three circulatory diseases—congestive heart failure, coronary atherosclerosis, and cardiac dysrhythmias—were among the top ten most frequent principal diagnoses in 2009.
 - Stays for both congestive heart failure and coronary atherosclerosis decreased between 1997 and 2009. Congestive heart failure accounted for 37 stays per 10,000 population in 1997 and 33 stays per 10,000 population in 2009, a decrease of 9 percent. Coronary atherosclerosis decreased by 48 percent per 10,000 population between 1997 and 2009.
 - Hospital stays per 10,000 population for cardiac dysrhythmias increased by 25 percent.

Number of Stays, Stays per 10,000 Population, and Growth of Selected Principal Diagnoses for Hospital Stays, 1997 and 2009

PRINCIPAL CCS DIAGNOSIS	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION		CUMULATIVE GROWTH IN RATE
	1997	2009	1997	2009	1997-2009
All stays	34,679	39,435	1,278	1,284	1% ‡
Diagnoses with most rapid growth in stays per population*					
Acute renal failure	98	382	3.6	12.4	245%
Prolonged pregnancy	104	275	3.8	9.0	134%
Acute posthemorrhagic anemia	10	26	0.4	0.9	123%
Anemia	100	231	3.7	7.5	104%
Diabetes mellitus without complications	10	22	0.4	0.7	103%
Malaise and fatigue	13	30	0.5	1.0	101%
Pulmonary heart disease	80	182	3.0	5.9	101%
Osteoarthritis	418	921	15.4	30.0	95%
Septicemia	413	831	15.2	27.1	78%
Maternal stay with previous C-section	271	542	10.0	17.7	77%

‡ 2009 stays per 10,000 population are not statistically different from 1997 stays per 10,000 population at $p < 0.05$.

* Includes only conditions with at least 100,000 stays in either 2009 or 1997.

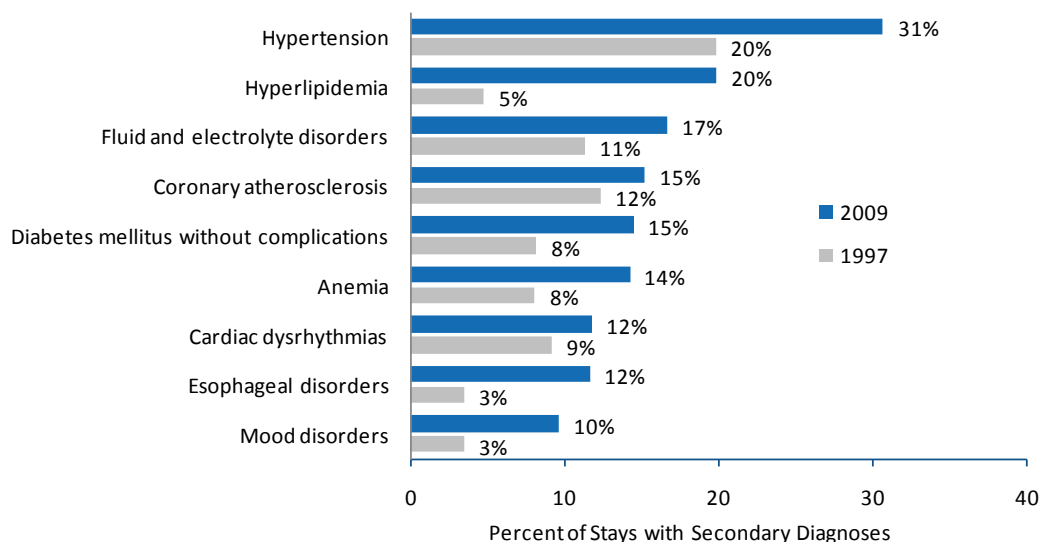
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2009.

This exhibit shows the top ten conditions with the most growth in the number of hospital stays per 10,000 population. Overall, hospital stays remained stable from 1997 to 2009, with a 1-percent change in stays per 10,000 population over this time period. However, there is variation in growth rates among conditions.

- In 2009, acute renal failure was the most rapidly growing condition with an increase of 245 percent, from 3.6 to 12.4 stays per 10,000 population.
- Two of the most rapidly growing conditions were related to pregnancy and childbirth. Prolonged pregnancy (ranked second) and maternal stay with a previous C-section (ranked 10th) grew at 134 and 77 percent per 10,000 population, respectively.
- Although circulatory diseases are common conditions, only one was among the top ten most rapidly growing in 2009. Pulmonary heart disease, ranked 7th, increased by over 100 percent per 10,000 population in 2009.

EXHIBIT 2.3 Most Frequent Secondary Diagnoses

Percent of All Hospital Stays with Common Secondary Diagnoses, 1997 and 2009*



* Excludes stays related to pregnancy, childbirth, and newborn infants.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2009.

- From 1997 to 2009, there was a substantial increase in the share of stays with a secondary diagnosis of hypertension (from 20 to 31 percent).
- Stays with a secondary diagnosis of hyperlipidemia increased from 5 percent in 1997 to 20 percent in 2009.
- The percent of stays with a secondary diagnosis of mood disorders more than tripled from 3 percent in 1997 to 10 percent in 2009.
- Stays with esophageal disorders have more than quadrupled since 1997, accounting for 3 percent of stays with a secondary diagnosis in 1997 and 12 percent of stays with a secondary diagnosis in 2009.

EXHIBIT 2.4 Most Frequent Principal Diagnoses by Age

Number of Stays, Stays per 10,000 Population, and Growth of the Most Frequent Principal Diagnoses for Hospital Stays by Age, 1997 and 2009

AGE GROUP AND PRINCIPAL CCS DIAGNOSIS	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION		CUMULATIVE GROWTH IN RATE
	1997	2009	1997	2009	1997-2009
All ages, total stays*	34,679	39,435	1,278	1,284	1% ‡
< 1 year, total stays	4,426	4,678	11,799	10,977	-7% ‡
Liveborn (newborn infant)	3,776	4,155	10,067	9,751	-3% ‡
Acute bronchitis	108	85	288	201	-30%
Hemolytic jaundice and perinatal jaundice	33	44	88	102	16%
Pneumonia	55	33	148	77	-48%
Short gestation, low birth weight, and fetal growth retardation	22	21	59	49	-17% ‡
1-17 years, total stays	1,821	1,611	271	229	-15% ‡
Asthma	159	126	24	18	-24%
Pneumonia	135	125	20	18	-12% ‡
Mood disorders	64	86	10	12	29% ‡
Appendicitis and other appendiceal conditions	65	81	10	12	19%
Fluid and electrolyte disorders	64	63	10	9	-6% ‡
18-44 years, total stays	9,444	9,922	860	874	2% ‡
Trauma to vulva and perineum due to childbirth	676	721	62	64	3% ‡
Maternal stay with previous C-section	270	539	25	47	93%
Mood disorders	335	436	30	38	26%
Prolonged pregnancy	99	265	9	23	159%
Normal pregnancy and/or delivery	511	256	47	23	-51%
45-64 years, total stays	6,496	9,629	1,155	1,213	5% ‡
Osteoarthritis	105	372	19	47	151%
Coronary atherosclerosis	526	348	94	44	-53%
Non-specific chest pain	242	345	43	43	1% ‡
Spondylosis, intervertebral disc disorders, and other back problems	190	286	34	36	6% ‡
Pneumonia	199	271	35	34	-3% ‡
65-84 years, total stays	10,121	10,468	3,319	3,084	-7%
Congestive heart failure	581	507	191	149	-22%
Osteoarthritis	281	494	92	146	58%
Pneumonia	514	432	168	127	-25%
Cardiac dysrhythmias	333	417	109	123	13%
Coronary atherosclerosis	741	405	243	119	-51%
85+ years, total stays	2,362	3,076	6,047	5,463	-10%
Congestive heart failure	202	244	517	433	-16%
Pneumonia	197	183	504	325	-36%
Septicemia	76	148	196	263	35%
Urinary tract infections	75	137	191	243	27%
Cardiac dysrhythmias	70	126	179	224	25%

* Includes a small number of stays (50,000 or 0.1 percent) with missing age.

‡ 2009 stays per 10,000 population are not statistically different from 1997 stays per 10,000 population at p<0.05.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2009.

Infants, children and young adults:

- Overall, the rate of stays for infants, children 1-17, and adults 18-44 remained relatively stable from 1997 to 2009.
- Pregnancy, childbirth, and liveborn infants:
 - In 2009, most stays for children under one year old were for liveborn (newborn infants).
 - Among 18-44 year olds, previous C-sections increased 93 percent between 1997 and 2009, while normal pregnancy and/or delivery fell 51 percent.
- The rate of asthma stays declined 24 percent among children 1-17 years between 1997 and 2009, while the rate of stays for appendicitis increased 19 percent.
- Mood disorders was the third most common diagnosis for children 1-17 and adults 18-44 years.

Older adults:

- Musculoskeletal conditions:
 - Osteoarthritis was the most common condition for adults 45-64 with an increase of 151 percent in the rate of stays per 10,000 population.
 - Between 1997 and 2009, osteoarthritis increased by 58 percent among adults aged 65-84 and was the second most common condition.
 - Spondylosis, intervertebral disc disorders, and other back problems—the fourth most common condition among 45-64 year olds—remained relatively stable from 1997 to 2009.
- Cardiovascular conditions were common diagnoses for adults 45 years and older. However, specific diagnoses differed between age groups for older adults:
 - Coronary atherosclerosis was the second most common condition for adults 45-64; the rate of these stays declined by 53 percent between 1997 and 2009. This condition ranked fifth for 65-84 year olds, with the rate of stays declining 51 percent between 1997 and 2009.
 - Congestive heart failure (CHF) was the most common condition for adults 65-84 and 85 and older. In 2009, CHF accounted for 149 hospital stays per 10,000 population among all adults in the U.S. aged 65-84 and 433 stays per 10,000 population among all adults 85 and older.
 - Congestive heart failure decreased per 10,000 population for both 65-84 year olds and those 85 and older, by 22 and 16 percent, respectively.
 - Cardiac dysrhythmias was the reason for 224 hospitalizations per 10,000 population in 2009 among adults age 85 years and older, an increase of 25 percent since 1997.
- Among adults 85 and older, hospitalizations for septicemia (up 35 percent) and urinary tract infections (up 27 percent) increased at more than twice the rate of all hospitalizations for this age group between 1997 and 2009.

All patients:

- Pneumonia was a top five condition for all groups except 18-44 year olds and declined for most ages:
 - Hospital stays for pneumonia declined for infants (down 48 percent).
 - In 2009, stays for pneumonia remained relatively stable among children 1-17 years and adults 45-64 years old.
 - Stays for pneumonia fell among 65-84 year olds (down 25 percent) and for adults aged 85 and older (36 percent).

EXHIBIT 2.5 Most Frequent Principal Diagnoses by Payer

Number of Stays, Percent Distribution, and Growth of the Most Frequent Principal Diagnoses for Hospital Stays by Payer, 1997 and 2009

PAYER† AND PRINCIPAL CCS DIAGNOSIS	NUMBER OF STAYS IN THOUSANDS		PERCENT OF PAYER-SPECIFIC TOTAL STAYS		CUMULATIVE GROWTH IN NUMBER OF STAYS
	1997	2009	1997	2009	1997-2009
All payers, total stays*	34,679	39,435	100%	100%	14%
Medicare	12,618	14,708	100%	100%	17%‡
Congestive heart failure	757	762	6%	5%	1%
Pneumonia	703	643	6%	4%	-9%
Septicemia	276	547	2%	4%	98%
Cardiac dysrhythmias	375	525	3%	4%	40%
Chronic obstructive pulmonary disease and bronchiectasis	380	507	3%	3%	34%
Medicaid	5,644	8,027	100%	100%	42%
Liveborn (newborn infant)	1,224	1,874	22%	23%	53%
Trauma to vulva and perineum due to childbirth	224	291	4%	4%	30%
Mood disorders	147	239	3%	3%	63%
Maternal stay with previous C-section	84	237	1%	3%	182%
Pneumonia	166	178	3%	2%	7%‡
Private insurance	13,388	12,958	100%	100%	-3%‡
Liveborn (newborn infant)	2,204	1,948	16%	15%	-12%‡
Trauma to vulva and perineum due to childbirth	431	401	3%	3%	-7%‡
Osteoarthritis	117	359	1%	3%	207%
Spondylosis, intervertebral disc disorders, and other back problems	258	288	2%	2%	11%‡
Mood disorders	227	285	2%	2%	26%
Uninsured**	1,676	2,388	100%	100%	42%
Liveborn (newborn infant)	191	218	11%	9%	15%‡
Mood disorders	55	90	3%	4%	64%
Non-specific chest pain	39	78	2%	3%	99%
Skin and subcutaneous tissue infections	28	77	2%	3%	176%
Alcohol-related disorders	48	65	3%	3%	36%

† Population denominators are not available by payer.

* Excludes a small number of stays (68,000 or 0.2 percent) with missing payer.

‡ 2009 stays are not statistically different from 1997 stays at $p < 0.05$.

** Includes stays classified as self-pay or no charge.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2009.

This exhibit shows the top five reasons for hospital stays for each primary payer. The principal diagnoses for hospitalizations by primary payer generally varied, although some conditions were frequent across payers.

Medicare:

- Congestive heart failure (CHF) was the most common principal diagnosis among stays with Medicare as a primary payer, making up 5 percent of all Medicare stays in 2009.
- Pneumonia (643,000 Medicare stays in 2009) was the second most common diagnosis.
- Septicemia, cardiac dysrhythmias, and chronic obstructive pulmonary disease were also frequent reasons for hospital stays among Medicare stays. The number of Medicare stays for septicemia grew by 98

percent between 1997 and 2009. The number of stays for cardiac dysrhythmias and chronic obstructive pulmonary disease grew by 40 percent and 34 percent, respectively.

Medicaid:

- Three of the most common conditions with Medicaid as the primary payer were pregnancy and childbirth-related: liveborn (newborn infant), trauma to the vulva and perineum due to childbirth, and previous C-section. Altogether, stays for these conditions made up approximately 30 percent of all Medicaid stays.
- Liveborn (newborn infants) with a primary payer of Medicaid grew 53 percent from 1997 to 2009. Previous C-section grew 182 percent over this same time period.
- Mood disorders was the third most common condition with Medicaid as the primary payer and grew 63 percent from 1997 to 2009.

Private Insurance:

- Liveborn (newborn infant) stays were the most common hospital stay paid for by private insurance, accounting for 15 percent of all private insurance stays. The number of liveborn (newborn infants) covered by private insurance remained relatively stable between 1997 and 2009.
- Osteoarthritis and back problems were also among the top conditions for private insurance. Private insurance stays for osteoarthritis increased by 207 percent between 1997 and 2009. Stays for treatment of a back problem remained relatively stable during this period.
- Mood disorders was a frequent cause of hospitalization among the privately insured, and increased by 26 percent between 1997 and 2009.

Uninsured:

- Although the uninsured stays comprised only 6 percent of total stays in 2009, they accounted for about one-quarter (23 percent) of all stays for alcohol-related conditions and over 10 percent of all stays for skin infections, mood disorders, and non-specific chest pain.
- Mood disorders was the second most common principal diagnosis among uninsured stays, making up 4 percent of all uninsured stays in 2009.
- Four of the most common conditions for uninsured hospital stays increased from 1997 to 2009: alcohol-related disorders (36 percent), mood disorders (64 percent), non-specific chest pain (99 percent), and skin and subcutaneous tissue infections (176 percent).