

SECTION 4 COSTS FOR INPATIENT HOSPITAL STAYS

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HIGHLIGHTS

- Inflation-adjusted aggregate costs for hospital stays rose from \$222.4 billion in 1997 to \$343.9 billion in 2007 — an increase of 55 percent.
- The most important driver of cost increases was greater intensity of services provided during the hospital stay. Costs per discharge increased by 3.1 percent annually.
- Growth in intensity of services accounted for 70 percent of the growth in aggregate costs, while population growth was responsible for 24 percent and an increased number of discharges per population for 6 percent.
- Circulatory conditions accounted for 22 percent (\$74.6 billion) and injury and poisonings for 11 percent (\$37.2 billion) of all costs for inpatient stays in 2007.
- Hospital stays related to pregnancy, childbirth, and newborns together accounted for the most stays (9.7 million) and the third highest costs (\$34.2 billion) among body systems. The average hospital cost for these conditions was less than that for any other body system condition, making the aggregate costs relatively low despite the high volume of stays.
- The fastest increase in body system costs was for infections and parasitic diseases, more than doubling between 1997 (\$6.6 billion) and 2007 (\$15.3 billion).
 - Septicemia was responsible for almost all (94 percent) of the increase in costs of infectious and parasitic conditions as it tripled in costs from \$4.1 billion in 1997 to \$12.3 billion in 2007.
- Exhibiting the second fastest growth among body systems, costs for stays for musculoskeletal conditions also more than doubled—from \$11.8 billion in 1997 to \$26.8 billion in 2007.
 - Costs for osteoarthritis and back problems more than doubled and were together responsible for 80 percent of the increase in costs of musculoskeletal conditions between 1997 and 2007.

EXHIBIT 4.1 Cost by Body System

Aggregate Costs by Principal CCS Body System and Condition Category, 1997, 2002, and 2007

PRINCIPAL CCS BODY SYSTEM AND CONDITION CATEGORY	TOTAL INFLATION-ADJUSTED† HOSPITAL COSTS IN BILLIONS: 2007 DOLLARS			PERCENT OF TOTAL COSTS			AVERAGE ANNUAL GROWTH
	1997	2002	2007	1997	2002	2007	1997-2007
All body systems and condition categories	\$222.4	\$298.5	\$343.9	100.0%	100.0%	100.0%	4.5%
Circulatory	57.1	74.3	74.6‡	25.7	24.9	21.7	2.7
Injury and poisoning	23.0	31.0	37.2	10.4	10.4	10.8	4.9
Digestive	20.8	29.0	32.0	9.4	9.7	9.3	4.4
Respiratory	22.7	28.7	31.1	10.2	9.6	9.0	3.2
Neoplasms	19.3	24.2	28.2‡	8.7	8.1	8.2	3.9
Musculoskeletal	11.8	18.6	26.8	5.3	6.2	7.8	8.5
Pregnancy and childbirth	12.2	16.1	18.8	5.5	5.4	5.5	4.4
Perinatal (newborns)	9.7	11.8	15.5	4.4	4.0	4.5	4.8
Infectious and parasitic	6.6	7.9	15.3	3.0	2.6	4.4	8.8
Genitourinary	8.1	11.0	13.5	3.6	3.7	3.9	5.3
Mental	7.9	11.7	12.2‡	3.6	3.9	3.5	4.4
Endocrine	5.8	9.4	10.0‡	2.6	3.1	2.9	5.6
Symptoms	6.9	9.5	9.5‡	3.1	3.2	2.8	3.2
Nervous	3.9	5.7	6.7	1.8	1.9	2.0	5.6
Skin	2.4	3.6	4.8	1.1	1.2	1.4	7.2
Blood	1.8	2.9	3.5	0.8	1.0	1.0	6.7
Congenital	2.0	2.6‡	2.8‡	0.9	0.9	0.8	3.5

† Adjusted for inflation using the GDP deflator (<http://www.bea.gov/national/nipaweb/SelectTable.asp>, Table 1.1.4. Price Indexes for Gross Domestic Product).

‡ Costs are not statistically different from previously reported year shown on table at p<0.05.

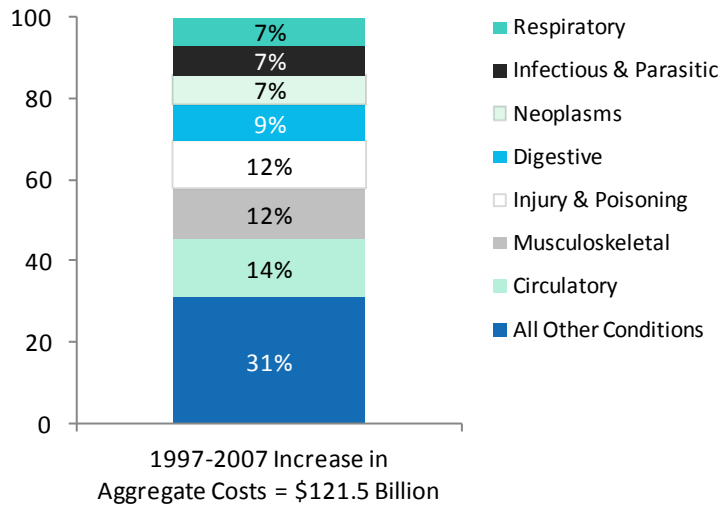
Note: Aggregate costs for residual codes and those not elsewhere classified are not shown here. As a result, aggregate costs for all body systems may be larger than the sum of the component parts.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997, 2002, and 2007.

Inflation-adjusted aggregate costs for community hospital stays rose from \$222.4 billion in 1997 to \$343.9 billion in 2007.

- Hospital stays for circulatory conditions accounted for the largest share of costs in 1997 (26 percent, \$57.1 billion) and 2007 (22 percent, \$74.6 billion). Most of the increase in costs for circulatory conditions occurred between 1997 and 2002; there was little measureable increase between 2002 and 2007.
- Injury and poisoning was the second most expensive condition in 2007. Stays cost \$37.2 billion (11 percent of aggregate costs) in 2007 and grew 4.9 percent annually from 1997 to 2007.
- Digestive conditions and respiratory conditions were each responsible for one-tenth of the aggregate costs in both 1997 and 2007.
- The fastest increase in costs was for infectious and parasitic diseases, which grew by 8.8 percent per year from 1997 to 2007.
- A close second in cost increases was musculoskeletal diseases, which grew 8.5 percent annually.

Percent Contribution to Aggregate Costs by Principal CCS Body System and Condition Category, 1997-2007

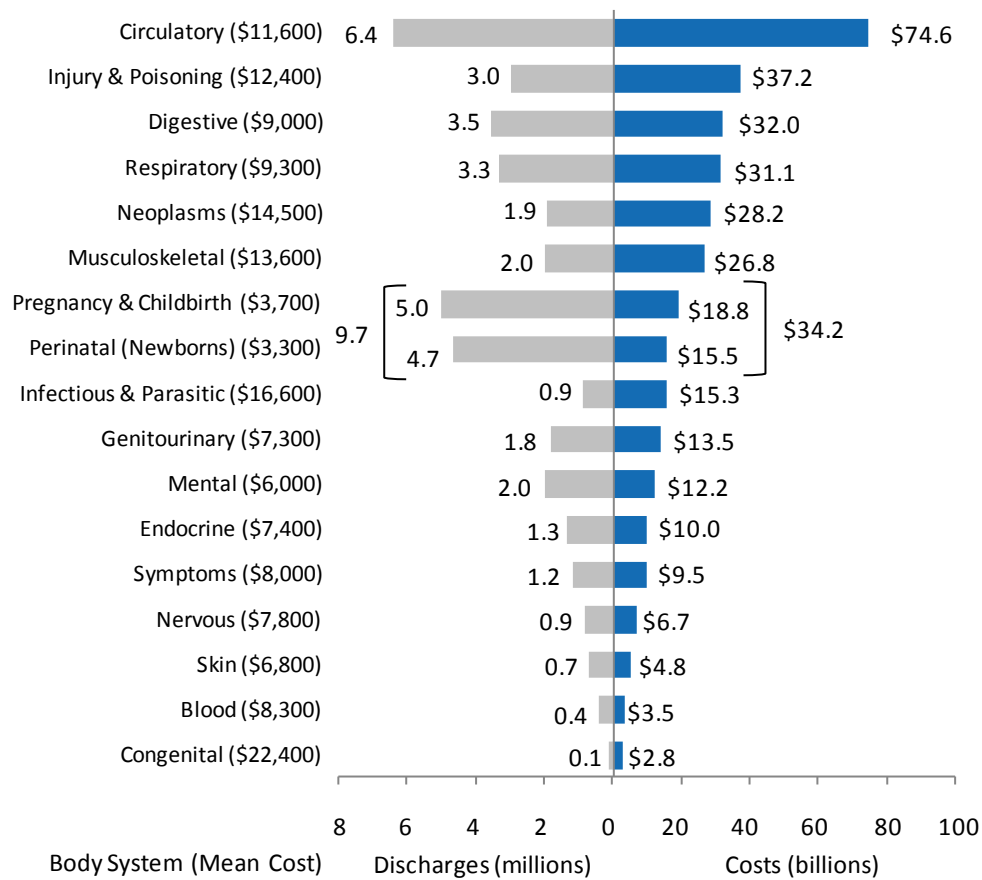


Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2007.

Two body system and condition categories (musculoskeletal and infectious and parasitic conditions) contributed substantially more to the increase in costs between 1997 and 2007 than their share of overall 2007 costs would suggest—an indication of their rapid growth.

- Costs for hospitalizations for infectious and parasitic conditions amounted to \$15.3 billion in 2007, 4.4 percent of aggregate costs. Costs more than doubled between 1997 (\$6.6 billion) and 2007 (\$15.3 billion) and were responsible for 7 percent of the increase in aggregate hospitalization costs.
- Costs for stays for musculoskeletal conditions increased by \$15 billion and were responsible for more than 12 percent of the total cost increase. These costs more than doubled, from \$11.8 billion to \$26.8 billion, between 1997 and 2007. By 2007, costs for stays for musculoskeletal conditions accounted for 8 percent of all costs, up from a 5 percent share in 1997.

**Number of Discharges and Aggregate Costs
by Principal CCS Body System and Condition Category, 2007**



Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2007.

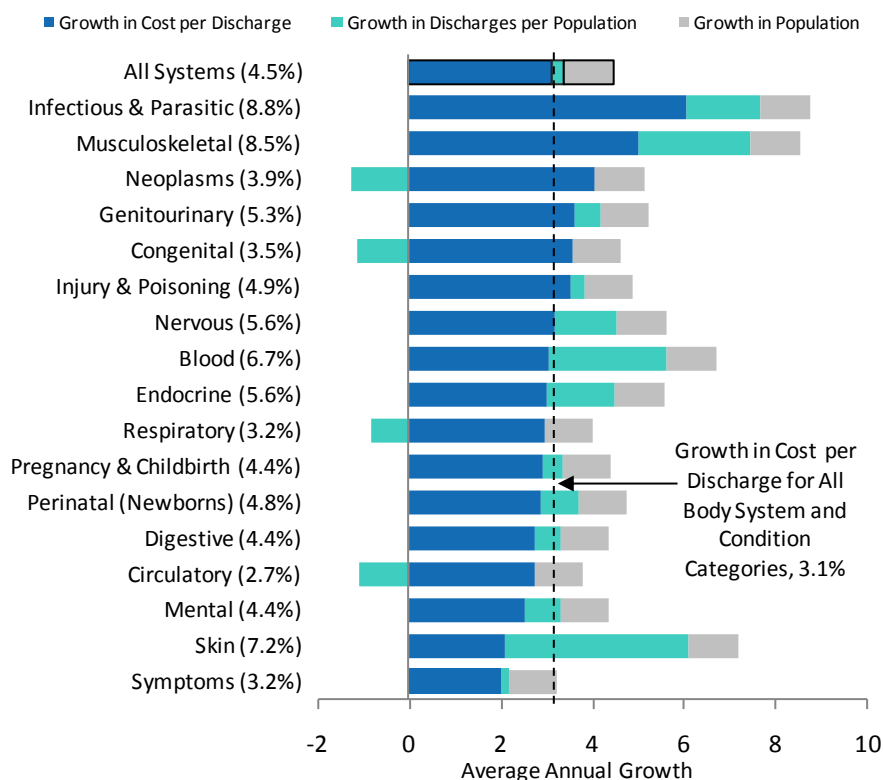
Aggregate costs and the number of discharges varied widely across body system and condition categories.

- In 2007, circulatory conditions, which accounted for the highest aggregate costs across all body systems, also accounted for the greatest number of discharges. On average, these hospitalizations cost \$11,600.
- Injury and poisoning was, in aggregate, the second most expensive condition type in 2007 and the sixth most common reason for a hospital stay. Hospital stays for injury and poisoning cost an average of \$12,400.
- Conditions related to pregnancy and childbirth and perinatal (newborn) conditions were the second and third most frequent reasons for hospitalizations. The average hospital cost for these conditions (\$3,700 for pregnancy and childbirth and \$3,300 for perinatal (newborn) conditions) was less than that for any other type of condition, making the aggregate costs—\$18.8 billion and \$15.5 billion, respectively—relatively low, despite the high volume of these conditions.
- Combined, hospital stays related to pregnancy, childbirth, and newborns accounted for the most stays (9.7 million) and \$34.2 billion in costs.

- Infectious and parasitic conditions accounted for just under 1 million hospital stays; these stays cost \$15.3 billion, or an average of \$16,600 per hospitalization—the second highest average cost for a hospitalization.
- Hospital stays for congenital anomalies cost an average of \$22,400 in 2007—the highest average cost per stay of any body system or condition type. Because hospital stays for these conditions are relatively infrequent—there were just 124,100 of these stays in 2007—the aggregate cost was the lowest of any body system or condition type.

EXHIBIT 4.2 Cost by Diagnosis

Average Annual Growth* in Inflation-adjusted Aggregate Costs by Principal CCS Body System and Condition Category, 1997-2007



The growth in aggregate costs for stays in community hospitals averaged 4.5 percent annually between 1997 and 2007.

- The most important driver of cost increases was greater intensity of services (cost per discharge) provided during the hospital stay (averaging 3.1 percent annually), followed by population growth (up 1.1 percent annually). Growth in the number of stays per person (use) was responsible for an increase of only 0.3 percent annually.
- Growth in intensity of services accounted for 70 percent of the growth in aggregate costs, while population growth was responsible for 24 percent and an increased number of discharges per population for 6 percent.
- The cost growth for infectious and parasitic conditions, musculoskeletal conditions, neoplasms, genitourinary conditions, congenital anomalies and injury and poisoning was predominantly driven by higher than average growth in cost per discharge, indicating greater intensity of use of services and more expensive interventions.
- Although growth in stays per person is seldom a major factor in increasing costs, it was for one body system:

- Skin conditions were the only body condition where more than half of the growth in costs was attributable to growth in hospital use per person (discharges per population).
- In five additional body systems, the increase in use per person was also a relatively more important factor in cost growth than in other body systems. These five body system and condition categories were infectious and parasitic, musculoskeletal, nervous, blood, and endocrine body systems and conditions.
- Increases in the net cost of hospital stays for neoplasms, congenital conditions, respiratory conditions, and circulatory conditions were dampened by an actual decline in hospitalizations per population.

Cost, Growth and Contribution to CCS Body System Growth for Selected Principal Diagnoses, 1997-2007

PRINCIPAL CCS BODY SYSTEM AND CONDITION CATEGORY & PRINCIPAL CCS DIAGNOSIS	TOTAL INFLATION- ADJUSTED [†] HOSPITAL COSTS IN BILLIONS: 2007 DOLLARS		AVERAGE ANNUAL GROWTH	PERCENT CONTRIBUTION TO GROWTH IN AGGREGATE COSTS	PERCENT CONTRIBUTION TO GROWTH IN BODY SYSTEM COSTS
	1997	2007	1997-2007		
Infectious and parasitic					
Septicemia (blood infection)	\$4.1	\$12.3	11.6%	6.8%	94.4%
Musculoskeletal					
Osteoarthritis (degenerative joint disease)	4.8	11.8	9.5	5.8	47.0
Disorders of intervertebral discs and bones in spinal column (back problems)	3.5	8.5	9.3	4.1	33.2
Genitourinary					
Acute renal failure	1.0	4.0	15.3	2.5	56.5
Injury and poisoning					
Complication of device, implant or graft	5.6	9.9	5.8	3.5	30.1
Complication of surgical procedures or medical care	2.9	5.4	6.2	2.0	17.1
Respiratory					
Respiratory failure	3.3	7.8	8.8	3.6	52.8
Perinatal (newborns)					
Liveborn (newborn infant)	8.1	12.7	4.6	3.8	80.3
Circulatory					
Congestive heart failure	6.8	10.5	4.5	3.0	21.1
Cardiac dysrhythmias (irregular heart beat)	3.6	6.7	6.4	2.5	17.5

[†] Adjusted for inflation using the GDP deflator (<http://www.bea.gov/national/nipaweb/SelectTable.asp>, Table 1.1.4. Price Indexes for Gross Domestic Product).

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2007.

Ten specific CCS conditions with the greatest increase in costs drove more than one-third (38 percent) of the overall hospitalization inflation-adjusted cost increase between 1997 and 2007. In several body system or condition categories, a single condition was responsible for most of the growth for the entire body system.

- The cost of hospital stays for septicemia tripled—from \$4.1 billion in 1997 to \$12.3 billion in 2007. Septicemia was responsible for 7 percent of the increase in costs across all hospitalizations and for 94 percent of the increase in costs of infectious and parasitic conditions.