

SECTION 2 INPATIENT HOSPITAL STAYS BY DIAGNOSIS

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HIGHLIGHTS

- Conditions related to pregnancy, childbirth, and liveborn infants were the most frequent reasons for hospitalization, accounting for nearly one in four discharges (23 percent) in 2008.
 - Stays with a principal diagnosis of previous C-section nearly doubled (up 96 percent) between 1997 and 2008.
 - Stays with a principal diagnosis of high blood pressure during pregnancy increased by 22 percent during this period.
- Pneumonia (2.9 percent of all discharges) and congestive heart failure (2.6 percent) were the most common reasons for hospitalization.
- Between 1997 and 2008, stays for osteoarthritis increased 118 percent and stays for septicemia increased by 91 percent.
- Mood disorders was ranked as the fifth most common condition in 1997 and 2008, but increased nearly 30 percent over this time period.
- Chronic obstructive pulmonary disease was the ninth ranked condition in 2008 and increased 30 percent since 1997.
- Complication of device, implant or graft increased 39 percent from 1997 to 2008 and was the tenth ranked condition in 2008.
- Hospital stays for acute myocardial infarction declined 12 percent and stays for acute cerebrovascular disease declined 8 percent from 1997 to 2008.
- Asthma stays declined 35 percent among children 1-17 years between 1997 and 2008, while stays for skin and subcutaneous tissue infections increased 97 percent.
- Mood disorders was the third most common diagnosis for children 1-17 and adults 18-44 years.
- Among adults 85 and older, hospitalizations for septicemia (up 95 percent) and urinary tract infections (up 81 percent) increased at more than twice the rate of all hospitalizations for this age group between 1997 and 2008.
- Osteoarthritis more than tripled among adults 45-64 and increased 73 percent among adults 65-84.
- Spondylosis, intervertebral disc disorders, and other back problems increased 51 percent for 45-64 year olds between 1997 and 2008.
- Medicaid accounted for 41 percent of all liveborn infant discharges in 2008. Three of the most common conditions with Medicaid as the primary payer were pregnancy and childbirth-related; altogether, stays for these conditions made up approximately 30 percent of all Medicaid stays.
- Three of the most common conditions for uninsured hospital stays increased from 1997 to 2008: mood disorders (44 percent), non-specific chest pain (73 percent), and skin and subcutaneous tissue infections (138 percent).

EXHIBIT 2.1 Most Frequent Principal Diagnoses

Number of Discharges, Percent Distribution, Rank, and Growth of the Most Frequent Principal Diagnoses for Inpatient Hospital Stays, 1997 and 2008

PRINCIPAL CCS DIAGNOSIS	NUMBER OF DISCHARGES IN THOUSANDS		PERCENT OF DISCHARGES		RANK ¹		CUMULATIVE GROWTH
	1997	2008	1997	2008	1997	2008	1997-2008
All discharges	34,679	39,885	100.0%	100.0%	—	—	15%
Pregnancy, childbirth, and newborn infants	8,233	9,084#	23.7	22.8	—	—	10
All maternal discharges*	4,338	4,667#	12.5	11.7	—	—	8
Trauma to vulva and perineum due to childbirth	713	820	2.1	2.1	—	—	15
Previous C-section	271	533	0.8	1.3	—	—	96
Normal pregnancy and/or delivery	544	279	1.6	0.7	—	—	-49
Hypertension complicating pregnancy, childbirth and the puerperium	185	227	0.5	0.6	—	—	22
Early or threatened labor	261	212	0.8	0.5	—	—	-19
Umbilical cord complication	259	202	0.7	0.5	—	—	-22
Polyhydramnios and other problems of amniotic cavity	202	185#	0.6	0.5	—	—	-9
All infant discharges	3,899	4,391	11.2	11.0	—	—	13
Pneumonia	1,232	1,156	3.6	2.9	2	1	-6
Congestive heart failure	991	1,020#	2.9	2.6	3	2	3
Coronary atherosclerosis	1,407	919	4.1	2.3	1	3	-35
Osteoarthritis	418	911	1.2	2.3	16	4	118
Mood disorders	641	824	1.8	2.1	5	5	29
Cardiac dysrhythmias	572	798	1.7	2.0	7	6	39
Septicemia	413	791	1.2	2.0	17	7	91
Non-specific chest pain	538	727	1.6	1.8	9	8	35
Chronic obstructive pulmonary disease and bronchiectasis	551	716	1.6	1.8	8	9	30
Complication of device, implant or graft	491	685	1.4	1.7	11	10	39
Acute myocardial infarction	732	645	2.1	1.6	4	11	-12
Acute cerebrovascular disease	616	565	1.8	1.4	6	14	-8

¹ Rankings for principal diagnoses other than pregnancy, childbirth or newborn infant.

— Rank not applicable.

2008 discharges are not statistically different from 1997 discharges at p<0.05.

* Includes additional maternal CCS diagnoses not shown on this table but listed in the Sources and Methods of this report.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2008.

In 2008, there were 39.9 million hospital stays, an increase of 15 percent since 1997. Trends in these stays are displayed for pregnancy, childbirth and liveborn infants, and for other frequent conditions.

Pregnancy, childbirth, and liveborn infants:

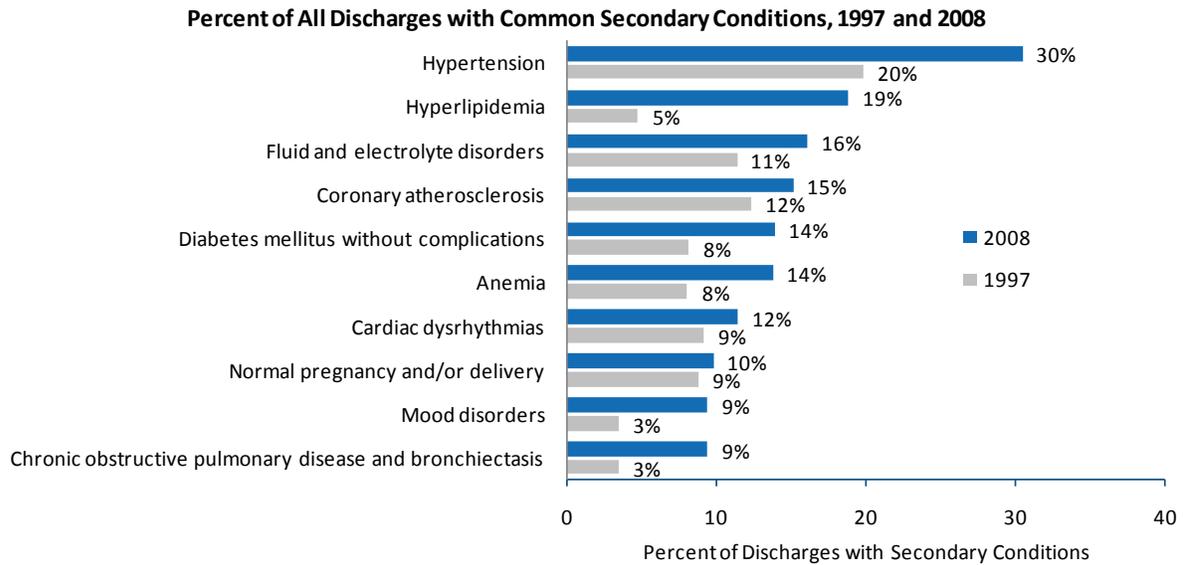
- Conditions related to pregnancy, childbirth, and liveborn infants were the most frequent reasons for hospitalization, accounting for nearly one in four discharges (23 percent) in 2008.
- There were 4.7 million maternal discharges in 2008. Not all of these maternal discharges involved the birth of an infant; some dealt with complications during pregnancy.
 - The most common principal diagnosis among maternal discharges was trauma to the vulva and perineum due to childbirth, which increased 15 percent between 1997 and 2008.
 - Normal pregnancy and delivery stays declined by 49 percent and stays with a principal diagnosis of umbilical cord complications declined by 22 percent from 1997 to 2008.

- In contrast, principal diagnosis of previous C-section nearly doubled (up 96 percent) during this period.
- Stays with a principal diagnosis of high blood pressure during pregnancy increased by 22 percent between 1997 and 2008.
- There were 4.4 million infant discharges in 2008, a 13-percent increase since 1997.

CCS principal diagnoses:

- The 10 most frequent principal diagnoses outside of pregnancy, childbirth and liveborn infants accounted for about one-quarter of all discharges in 2008.
 - Pneumonia (2.9 percent of all discharges) and congestive heart failure (2.6 percent) were the most common reasons for hospitalization.
 - The fourth and seventh most frequent principal diagnoses in 2008 (osteoarthritis and septicemia) were not among the most frequent diagnoses in 1997. Between 1997 and 2008, stays for osteoarthritis increased 118 percent and stays for septicemia increased by 91 percent.
 - Mood disorders was ranked fifth in 1997 and 2008, but increased nearly 30 percent over this time period.
 - Chronic obstructive pulmonary disease was the ninth ranked condition in 2008 and increased 30 percent since 1997.
 - Complication of device, implant or graft increased 39 percent from 1997 to 2008 and was the tenth ranked condition in 2008.
- Four circulatory diseases—congestive heart failure, coronary artery disease, non-specific chest pain, and irregular heartbeat—were among the top ten most frequent principal diagnoses in 2008.
 - Stays for irregular heart beat increased 39 percent between 1997 and 2008 and stays for non-specific chest pain grew 35 percent. Stays for coronary artery disease declined 35 percent. Stays for congestive heart failure changed very little from 1997 to 2008.
- Two conditions were among the top ten conditions in 1997, but were not in 2008.
 - Hospital stays for acute myocardial infarction declined 12 percent. This condition ranked fourth in 1997, but dropped to eleventh by 2008.
 - Acute cerebrovascular disease ranked sixth in 1997 and declined 8 percent to rank fourteenth in 2008.

EXHIBIT 2.2 Most Frequent Secondary Diagnoses



Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2008.

- From 1997 to 2008, there was a substantial increase in the share of discharges with a secondary diagnosis of hypertension (from 20 to 30 percent).
- Stays with a secondary diagnosis of hyperlipidemia increased from 5 percent in 1997 to 19 percent in 2008.
- The percent of stays with a secondary diagnosis of mood disorders or chronic obstructive pulmonary disease and bronchiectasis tripled from 3 percent in 1997 to 9 percent in 2008.

EXHIBIT 2.3 Most Frequent Principal Diagnoses by Age

Number of Discharges, Percent Distribution, and Growth of the Most Frequent Principal Diagnoses for Inpatient Hospital Stays by Age, 1997 and 2008

AGE GROUP AND PRINCIPAL CCS DIAGNOSIS	NUMBER OF DISCHARGES IN THOUSANDS		PERCENT OF AGE-SPECIFIC TOTAL DISCHARGES		CUMULATIVE GROWTH
	1997	2008	1997	2008	1997-2008
All ages, total discharges*	34,679	39,885			15%
< 1 year, total discharges	4,426	4,775‡	100.0%	100.0%	8
Liveborn infant	3,776	4,247	85.3	88.9	12
Acute bronchitis	108	82	2.4	1.7	-24
Hemolytic jaundice and perinatal jaundice	33	41	0.7	0.9	24
Pneumonia	55	34	1.3	0.7	-39
Short gestation, low birth weight, and fetal growth retardation	22	20‡	0.5	0.4	-10
1-17 years, total discharges	1,821	1,574‡	100.0	100.0	-14
Pneumonia	135	110	7.4	7.0	-19
Asthma	159	103	8.7	6.5	-35
Mood disorders	64	83‡	3.5	5.2	29
Appendicitis and other appendiceal conditions	65	75‡	3.6	4.8	15
Skin and subcutaneous tissue infections	29	57	1.6	3.6	97
18-44 years, total discharges	9,444	10,026‡	100.0	100.0	6
Trauma to vulva and perineum due to childbirth	676	787	7.2	7.8	17
Previous C-section	270	529	2.9	5.3	96
Mood disorders	335	415	3.5	4.1	24
Normal pregnancy and/or delivery	511	268	5.4	2.7	-48
Hypertension complicating pregnancy, childbirth and the puerperium	172	217	1.8	2.2	26
45-64 years, total discharges	6,496	9,504	100.0	100.0	46
Coronary atherosclerosis	526	385	8.1	4.1	-27
Osteoarthritis	105	368	1.6	3.9	249
Non-specific chest pain	242	349	3.7	3.7	44
Spondylosis, intervertebral disc disorders, and other back problems	190	287	2.9	3.0	51
Pneumonia	199	255	3.1	2.7	28
65-84 years, total discharges	10,121	10,761‡	100.0	100.0	6
Congestive heart failure	581	510	5.7	4.7	-12
Osteoarthritis	281	486	2.8	4.5	73
Pneumonia	514	449	5.1	4.2	-13
Coronary atherosclerosis	741	447	7.3	4.2	-40
Cardiac dysrhythmias	333	415	3.3	3.9	25
85+ years, total discharges	2,362	3,196	100.0	100.0	35
Congestive heart failure	202	246	8.6	7.7	22
Pneumonia	197	199‡	8.3	6.2	1
Septicemia	76	149	3.2	4.7	95
Urinary tract infections	75	135	3.2	4.2	81
Cardiac dysrhythmias	70	125	3.0	3.9	79

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

‡ 2008 discharges are not statistically different from 1997 discharges at p<0.05.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2008.

The principal diagnoses for hospitalizations generally varied by age, although some conditions were frequent among all ages.

Infants, children and young adults:

- Pregnancy, childbirth, and liveborn infants:
 - In 2008, most discharges for children under one year old (89 percent) were for liveborn infants, which increased 12 percent between 1997 and 2008.
 - Among 18-44 year olds, previous C-sections increased 96 percent between 1997 and 2008, while normal pregnancy and/or delivery fell 48 percent.
- Asthma stays declined 35 percent among children 1-17 years between 1997 and 2008, while stays for skin and subcutaneous tissue infections increased 97 percent.
- Appendicitis accounted for 4.8 percent of discharges among children 1-17 years.
- Mood disorders was the third most common diagnosis for children 1-17 and adults 18-44 years.

Older adults:

- Cardiovascular conditions were the most common diagnoses for adults over 44 years old. However, specific diagnoses differed between age groups for older adults:
 - Coronary atherosclerosis accounted for 4.1 percent of all discharges for adults 45-64; these stays declined by 27 percent between 1997 and 2008. This condition also ranked fourth for 65-84 year olds (4.2 percent of stays in 2008), with stays declining 40 percent between 1997 and 2008.
 - Congestive heart failure (CHF) was the most common condition for adults 65-84 and 85 and older. In 2008, CHF accounted for 4.7 percent of all stays among adults 65-84 and 7.7 percent of all stays among adults 85 and older.
 - Cardiac dysrhythmias was the reason for 125,000 hospitalizations (3.9 percent) in 2008 among adults age 85 years and older, an increase of 79 percent since 1997.
- Among adults 85 and older, hospitalizations for septicemia (up 95 percent) and urinary tract infections (up 81 percent) increased at more than twice the rate of all hospitalizations for this age group between 1997 and 2008.
- Musculoskeletal conditions:
 - Osteoarthritis more than tripled among adults 45-64 and increased 73 percent among adults 65-84.
 - Spondylosis, intervertebral disc disorders, and other back problems increased 51 percent for 45-64 year olds between 1997 and 2008.

All patients:

- Pneumonia was a top five condition for all age groups except 18-44 year olds:
 - Hospital stays for pneumonia declined among children (a drop of 39 percent for children less than one and a 19-percent decline for children 1-17 years).
 - Pneumonia stays rose among 45-64 year olds (28 percent), but fell among 65-84 year olds (down 13 percent).
 - The number of pneumonia stays remained relatively stable for adults 85 years and older.

EXHIBIT 2.4 Most Frequent Principal Diagnoses by Gender

Number of Discharges, Percent Distribution, and Growth of the Most Frequent Principal Diagnoses for Inpatient Hospital Stays by Gender, 2008

PRINCIPAL CCS DIAGNOSIS	NUMBER OF DISCHARGES IN THOUSANDS		PERCENT OF GENDER-SPECIFIC DISCHARGES		MALE PERCENT OF DIAGNOSIS-SPECIFIC DISCHARGES	CUMULATIVE GROWTH 1997-2008	
	MALES	FEMALES	MALES	FEMALES		MALES	FEMALES
All discharges*	16,499	23,275	100.0%	100.0%	41.4%	16%	14%
All maternal discharges	—	4,667	—	20.1	—	—	8
Liveborn infant	2,176	2,069‡	13.2	8.9	51.3	13	12
Coronary atherosclerosis	581	337	3.5	1.4	63.3	-30	-41
Pneumonia	554	600	3.4	2.6	48.0	-7	-5
Congestive heart failure	501	519‡	3.0	2.2	49.1	11	-4
Cardiac dysrhythmias	392	405‡	2.4	1.7	49.2	43	36
Acute myocardial infarction	384	260	2.3	1.1	59.6	-13	-10
Septicemia	374	417	2.3	1.8	47.3	106	80
Osteoarthritis	358	550	2.2	2.4	39.4	124	114
Mood disorders	358	463	2.2	2.0	43.6	44	19
Non-specific chest pain	325	401	2.0	1.7	44.8	32	38
Urinary tract infections	158	420	1.0	1.8	27.3	35	45
Chronic obstructive pulmonary disease and bronchiectasis	317	399	1.9	1.7	44.3	32	28

* Excludes a small number of discharges (111,000 or 0.3 percent) with missing gender.

‡ Female discharges are not statistically different from male discharges at $p < 0.05$.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997 and 2008.

Females accounted for almost 6 out of every 10 hospital stays—23.3 million stays in 2008. About 20 percent of all female hospitalizations were related to pregnancy and childbirth. Males accounted for 16.5 million hospitalizations in 2008. If childbirth is excluded, most diagnoses are common to both males and females. However, some diagnoses were more frequent in one gender.

- Five heart-related diagnoses—coronary atherosclerosis, congestive heart failure, cardiac dysrhythmias, acute myocardial infarction, and non-specific chest pain—were among the ten most common principal inpatient diagnoses for both males and females.
 - Males accounted for 63 percent of hospital stays for coronary atherosclerosis and 60 percent of stays for acute myocardial infarction (AMI). Hospitalizations for coronary atherosclerosis and AMI decreased for males (30 and 13 percent, respectively) and females (41 and 10 percent, respectively) between 1997 and 2008.
 - The number of hospital stays for cardiac dysrhythmias (392,000 stays for males and 405,000 for females) and congestive heart failure (501,000 stays for males and 519,000 for females) were similar for males and females.
 - Women accounted for a greater share of hospitalizations for non-specific chest pain (55 percent of stays) than men (45 percent of stays).
- Women accounted for a greater number of hospital stays for mood disorders in 2008 than men (463,000 female versus 358,000 male discharges). The number of stays for mood disorders grew 44 percent for men and 19 percent for women between 1997 and 2008.

- Infections such as septicemia and urinary tract infections were common reasons for hospital stays among both men and women in 2008 and grew rapidly for both genders between 1997 and 2008.
 - Stays for septicemia rose 106 percent among men and 80 percent among women. In 2008, 2.3 percent of male hospital stays and 1.8 percent of female hospital stays were due to septicemia.
 - Growth was similar in stays for urinary tract infections for women (35 percent) and men (45 percent); however, 73 percent of all stays for urinary tract infections were for women.
- Osteoarthritis caused more hospitalizations for females (550,000 discharges) than for males (358,000 discharges) in 2008; 61 percent of stays for this condition were for females. Hospital stays for osteoarthritis more than doubled for men (124 percent) and women (114 percent) between 1997 and 2008.

EXHIBIT 2.5 Most Frequent Principal Diagnoses by Payer

Number of Discharges, Percent Distribution, and Growth of the Most Frequent Principal Diagnoses for Inpatient Hospital Stays by Payer, 1997 and 2008

PAYER AND PRINCIPAL CCS DIAGNOSIS	NUMBER OF DISCHARGES IN THOUSANDS		PERCENT OF PAYER-SPECIFIC TOTAL DISCHARGES		PERCENT OF TOTAL DISCHARGES FOR DIAGNOSIS		CUMULATIVE GROWTH
	1997	2008	1997	2008	1997	2008	1997-2008
All payers, total discharges*	34,679	39,885					15%
Medicare	12,618	14,917	100.0%	100.0%	36.4%	37.4%	18
Congestive heart failure	757	759‡	6.0	5.1	76.4	74.4	0.2
Pneumonia	703	666‡	5.6	4.5	57.1	57.7	-5
Septicemia	276	535	2.2	3.6	66.9	67.6	94
Cardiac dysrhythmias	375	515	3.0	3.5	65.6	64.5	37
Chronic obstructive pulmonary disease and bronchiectasis	380	502	3.0	3.4	68.8	70.1	32
Medicaid	5,644	7,355	100.0	100.0	16.3	18.4	30
Liveborn infant	1,224	1,722	21.7	23.4	32.4	40.5	41
Trauma to vulva and perineum due to childbirth	224	288	4.0	3.9	31.5	35.1	28
Previous C-section	84	214	1.5	2.9	31.0	40.1	155
Mood disorders	147	210	2.6	2.9	22.9	25.5	43
Pneumonia	166	157‡	2.9	2.1	13.5	13.6	-6
Private Insurance	13,388	14,108‡	100.0	100.0	38.6	35.4	5
Liveborn infant	2,204	2,169‡	16.5	15.4	58.4	51.0	-2
Trauma to vulva and perineum due to childbirth	431	476‡	3.2	3.4	60.4	58.0	10
Osteoarthritis	117	358	0.9	2.5	27.9	39.3	207
Spondylosis, intervertebral disc disorders, and other back problems	258	305	1.9	2.2	48.1	46.0	18
Coronary atherosclerosis	484	302	3.6	2.1	34.4	32.9	-38
Uninsured**	1,676	2,126	100.0	100.0	4.8	5.3	27
Liveborn infant	191	240‡	11.4	11.3	5.0	5.7	26
Mood disorders	55	79	3.3	3.7	8.6	9.6	44
Non-specific chest pain	39	68	2.3	3.2	7.3	9.4	73
Skin and subcutaneous tissue infections	28	67	1.7	3.1	8.5	10.8	138
Alcohol-related disorders	48	61‡	2.8	2.9	19.7	23.2	27

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

‡ 2008 discharges are not statistically different from 1997 discharges at p<0.05.

** Includes discharges 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 2008.

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 was the most common principal diagnosis among discharges with Medicare as a primary payer. Medicare was responsible for payment for nearly 75 percent of all congestive heart failure discharges.
- Pneumonia, septicemia, cardiac dysrhythmias, and chronic obstructive pulmonary disease were also frequent reasons for hospital stays among Medicare discharges. In each case, the Medicare-covered discharges accounted for the majority of total discharges for the condition.

Medicaid:

- Three of the most common conditions with Medicaid as the primary payer were pregnancy and childbirth-related: liveborn 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 infants covered by Medicaid accounted for 41 percent of all liveborn infant discharges in 2008. In 1997, just 32 percent of all liveborn infant discharges were covered by Medicaid.

Private Insurance:

- Liveborn infant stays were the most common hospital stay paid for by private insurance, accounting for 15 percent of all private insurance stays. There was no significant change in the number of private insurance liveborn infant stays between 1997 and 2008.
- Osteoarthritis and back problems were also among the top conditions for private insurance. Private insurance discharges for osteoarthritis increased by 207 percent between 1997 and 2008. Stays for treatment of a back problem increased by 18 percent during this period.

Uninsured:

- Three of the most common conditions for uninsured hospital stays increased from 1997 to 2008: mood disorders (44 percent), non-specific chest pain (73 percent), and skin and subcutaneous tissue infections (138 percent). Hospital stays for liveborn infants and alcohol-related disorders did not increase significantly between 1997 and 2008.
- Although the uninsured stays comprised only 5 percent of total discharges in 2008, they accounted for about one-quarter (23 percent) of all discharges for alcohol-related conditions and about 10 percent of all discharges for skin infections, mood disorders, and non-specific chest pain.