SECTION 5 WOMEN'S HEALTH

HIGHLIGHTS

Overview of Female and Male Hospital Stays

- In 2009, almost 6 out of every 10 hospital stays were for females. Specifically, 42 percent of all stays were for males, 12 percent were for females hospitalized for pregnancy and childbirth (maternal stays), and 46 percent were for females hospitalized for non-maternal conditions.
- Females were more likely than males to be hospitalized across all communities and all regions. For example, the rate of hospitalization for females in the lowest income communities was 34 percent higher than males and the female hospitalization rate in the highest income communities was 38 percent higher. Similarly, females were 20-41 percent more likely than males to be hospitalized across all regions in the U.S.
- Medicare was the primary payer for the largest percentage of male stays (39 percent) and non-maternal female stays (45 percent).
- Forty-five percent of maternal stays had Medicaid as the primary payer.
- The number of uninsured hospital stays was similar for males (1.2 million) and females (1.1 million).
- The average length of hospital stay declined for males and non-maternal females from 5.2 to 4.8-4.9 days from 1997 to 2009; however, the average length of hospital stay increased slightly for maternal females from 2.5 to 2.7 days.
- On average, hospital stays for non-maternal females cost less than stays for males ($9,400 versus $10,400).
- Stays for maternal females cost an average of $3,900, less than half of the cost of a non-maternal stay.
- The total cost for hospital care in the U.S. was $361.5 billion in 2009—47 percent for males, 48 percent for non-maternal females, and 5 percent for maternal females.

Common Conditions During Hospital Stays for Females

- Pregnancy and childbirth was the most common reason for hospitalizations of females – 295 hospital stays per 10,000 population.
- Circulatory conditions were less common reasons for hospital stays for females (176 per 10,000 population) than for males (202 per 10,000 population). On the other hand, respiratory system conditions were more common for females (135 per 10,000 population) than for males (123 per 10,000 population).
- Hospitalization for urinary tract infections in females was 2.5 times higher than in males.
- Biliary tract hospital stays were 67 percent higher in females than males.
- Osteoarthritis occurred at a 47-percent higher rate in females than males.

- Compared with females, males had higher rates of hospitalization for coronary atherosclerosis (77 percent higher) and acute myocardial infarction, or heart attack (62 percent higher).
- Average hospital costs were lower for females than males for congestive heart failure, acute cerebrovascular disease, coronary atherosclerosis, and acute myocardial infarction.
- Hospital costs were similar for females and males for stays involving complication of device, implant or graft; osteoarthritis; spondylosis; and complication of surgical procedures or medical care.

Mood Disorders

- Females accounted for a higher rate of hospital stays for mood disorders in 2009 than males (41 stays per 10,000 population for females and 34 stays per 10,000 population for males).
- The rate of mood disorders has been greater for females compared with males over the 12-year period from 1997 to 2009. Females had a 42-percent higher rate of hospitalization for mood disorders than males in 1997, a difference that narrowed to 21 percent in 2009.
- The rate of stays for mood disorders was consistently higher among females than males across all age groups in 2009, with the exception of adults age 85 and older, where the rates were similar for males and females.
- The highest rate of hospitalization among females for mood disorders was in the Midwest (50 stays per 10,000 population)—2.5 times higher than the lowest rate in the West (20 stays per 10,000).
- The largest male-to-female difference in hospitalizations for mood disorders was in the South, where the hospitalization rate for females (34 per 10,000 population) was 36 percent higher than for males (25 per 10,000 population).

Procedures

- The rate of cholecystectomy was 71 percent higher for females than for males.
- The rate of knee arthroplasty for females was 57 percent higher than for males.
- The rate of knee arthroplasty increased by 69 percent for females 65 to 84 years old (from 72 stays per 10,000 population in 1997 to 122 stays per 10,000 population in 2009), while it increased by only 55 percent for males (from 58 stays per 10,000 population in 1997 to 90 stays per 10,000 population in 2009).
- The rate of hip replacement for females was 38 percent higher than for males.
- Hip replacements for females age 45 to 64 years old increased by 81 percent from 10 per 10,000 population in 1997 to 17 per 10,000 population in 2009. The rate for males in this period nearly doubled, from 10 per 10,000 population in 1997 to 19 per 10,000 population in 2009.

Children

- Asthma was a common condition among children 1 to 2, 3 to 5, 6 to 9, and 10 to 14 years old. Among 1 to 9 year olds, males had 64- to 75-percent higher rates of stays for asthma compared to females.
- Mood disorders were common among 10 to 14 and 15 to 17 year olds. Females 15 to 17 years old had a 70-percent higher rate of hospitalization for mood disorders in 2009 than males (46 female stays per 10,000 population versus 27 male stays per 10,000 population).
- Diagnostic spinal tap was a top five procedure among children less than 1, 1 to 2, 6 to 9, and 10 to 14 years old. Among 6 to 9 year olds, males had a higher rate of diagnostic spinal tap in the hospital than females (3 male stays versus 2 female stays per 10,000 children). For all other age groups, the rate of diagnostic spinal tap was similar between males and females.

- Appendectomy was frequently performed in children 3 to 5, 6 to 9, 10 to 14, and 15 to 17 years old. With the exception of children 3 to 5 years, males had 36- to 50-percent higher rates of appendectomy than females.

Childbirth

- There were 4.6 million maternal stays in 2009, up from 4.3 million in 1997.
- The rate of stays for childbirth among 20 to 24 year olds remained stable from 1997 to 2007 and then declined 14 percent from 2007 to 2009 (from 1,082 to 951 stays per 10,000 population).
- The rate of stays for childbirth among 25-34 year olds increased 20 percent between 1997 to 2007 (from 950 to 1,141 stays per 10,000 population) and then declined 13 percent to 1,012 stays per 10,000 population.
- The rate of vaginal deliveries decreased 16 percent, from 79 percent of all deliveries in 1997 to 66 percent in 2009. The rate of Cesarean sections increased by 60 percent between 1997 and 2009, from 21 percent of all deliveries to 34 percent of all deliveries.
- The highest rate of C-sections was for females 35-44 years old—44 percent of all deliveries in this age group were via C-section in 2009, a 52-percent increase since 1997 (when the C-section rate was 29 percent in this age group).
- For teenage births (15-19 years old), 24 percent of all deliveries were via C-section in 2009, up 71 percent from 14 percent in 1997.
- The rate of vaginal delivery with episiotomy decreased 66 percent – from 23 percent of all deliveries in 1997 to 8 percent in 2009.
- The rate of vaginal birth following induction increased 24 percent (from 124 to 154 stays per 1,000 deliveries). However, the increase for C-section following induction was even higher—a 73-percent increase from 1997 to 2009 (from 22 to 38 stays per 1,000 deliveries).
- The rate of vaginal birth after C-section declined 67 percent from 1997 to 2009 (from 42 to 14 stays per 1,000 deliveries).
- During this same time period, the rate of repeat C-sections nearly doubled from 77 to 149 repeat C-sections per 1,000 deliveries.

EXHIBIT 5.1 Overview of Female and Male Hospital Stays

Number of Stays and Stays per 10,000 Population by Age, Income, Region, Patient Residence, and Payer by Sex, 2009

	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION	
PRINCIPAL CCS DIAGNOSIS	MALES	FEMALES	MALES	FEMALES
All stays*	16,440	22,891	1,086	1,472 §
Percent of all hospital stays	42%	58%	-	-
Age				
< 1 year	2,425	2,264	11,132	10,867
1-17 years	775	813	216	237
18-44 years	2,581	7,321	447	1,313 §
45-64 years	4,790	4,822	1,236	1,187
65-84 years	4,814	5,651	3,201	2,990
85+ years	1,055	2,021	5,917	5,251 §
Median household income of patient's ZIP Code				
Quartile 1 (lowest)	4,549	6,304	1,209	1,619 §
Quartile 2	4,227	5,944	1,095	1,502 §
Quartile 3	3,737	5,272	987	1,355 §
Quartile 4 (highest)	3,342	4,735	903	1,245 §
Region				
Northeast	3,379	4,284	1,267	1,523 §
Midwest	3,758	5,231	1,143	1,545 §
South	6,171	8,974	1,111	1,561 §
West	3,132	4,403	870	1,224 §
Patient residence				
Large central metro	4,838	6,762	1,081	1,462 §
Large fringe metro	3,804	5,510	1,036	1,455 §
Medium and small metro	4,329	6,001	970	1,306 §
Micropolitan and noncore	3,041	4,138	1,215	1,631 §
Primary expected payer†			**PERCENT DISTRIBUTION**	
Medicare	6,452	8,251	44%	56% §
Medicaid	2,866	5,130	36%	64% §
Private insurance	5,176	7,730	40%	60% §
Uninsured**	1,238	1,143	52%	48%
Other***	670	592	53%	47%

* Excludes a small number of stays (155,000 or 0.4 percent) with missing age or sex.

§ Female stays per 10,000 population are statistically different from male stays per 10,000 population at p<0.05. For payers, female stays are statistically different from male stays at p<0.05.

† Population denominators are not available by payer.

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

*** Includes other payers such as Workers' Compensation, TRICARE, CHAMPUS, CHAMPVA, Title V, and other government programs.

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

Males accounted for 42 percent of all hospital stays and females accounted for 58 percent of all hospital stays in 2009. Almost 6 out of every 10 hospital stays in 2009 were for females.

- There were 11,132 male stays and 10,867 female stays for every 10,000 children less than 1 year old in the United States in 2009, although the number of stays between sexes was similar.
- The rate of stays among 18-44 year old females was about three times the rate of similarly aged males (1,313 versus 447 stays per 10,000 population); this difference is largely due to childbirth-related hospitalizations among females.
- Among those 85 years and older, the rate of stays was higher for males than females (5,917 male stays and 5,251 female stays per 10,000 persons).
- Females were more likely to be hospitalized than males across all communities:
  - In the lowest income communities, the rate of female stays was 34 percent higher than for males.
  - In higher income communities, the rate for females was 37-38 percent higher than for males.
- Similarly, females were more likely to be hospitalized across all four regions:
  - In the South, the rate of hospitalization for females was 41 percent higher than for males (1,561 female stays per 10,000 population compared to 1,111 male stays).
  - In the West, the rate for females was also 41 percent higher than for males (1,224 female stays per 10,000 population compared to 870 male stays).
  - In the Midwest, the rate of female stays was 35 percent higher than for males (1,545 versus 1,143 stays per 10,000 population).
  - In the Northeast, the rate of female stays was only 20 percent higher than for males (1,523 versus 1,267 male stays per 10,000 population).
- Female rates of hospitalization were also higher than male rates across all areas of patient residence:
  - The largest difference between females and males was in large fringe metro areas (suburbs), where the rate of female stays (1,455 female stays per 10,000 population) was 40 percent higher than the male rate of stays (1,036 male stays per 10,000 population).
  - The rate of female stays was 34-35 percent higher than the rate of male stays in large central metro, medium and small metro, and micropolitan and noncore areas.
- In 2009, Medicare was the primary payer for 6.5 million (44 percent) male stays and 8.3 million (56 percent) female stays.
- Medicaid was the primary payer for an additional 2.9 million (36 percent) male stays and 5.1 million (64 percent) female stays. The Medicaid program covers childbirth-related stays, resulting in a large difference in the number of Medicaid stays for males and females.
- The number of uninsured stays between females and males was similar (1.1 million female stays and 1.2 million male stays).

Number of Stays and Stays per 10,000 Population by Age, Income, Region, Patient Residence, and Payer for Maternal and Non-maternal Females,* 2009

PRINCIPAL CCS DIAGNOSIS	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION	
	MATERNAL FEMALES (15-44 YEARS)	NON-MATERNAL FEMALES (ALL AGES)	MATERNAL FEMALES (15-44 YEARS)	NON-MATERNAL FEMALES (ALL AGES)
All stays**	4,568	18,279	737	1,175 §
Percent of all hospital stays	12%	46%	-	-
Age				
0-14 years	-	2,729	-	902
15-19 years	468	285	446	272 §
20-24 years	1,121	351	1,073	336 §
25-34 years	2,320	939	1,141	462 §
35-44 years	659	1,480	319	716 §
45+ years	-	12,485	-	1,970
Median household income of patient's ZIP Code				
Quartile 1 (lowest)	1,191	5,103	747	1,311 §
Quartile 2	1,164	4,771	737	1,206 §
Quartile 3	1,077	4,186	690	1,075 §
Quartile 4 (highest)	1,009	3,714	681	977 §
Region				
Northeast	709	3,566	643	1,268 §
Midwest	964	4,257	722	1,257 §
South	1,846	7,110	805	1,237 §
West	1,049	3,347	706	930 §
Patient residence				
Large central metro	1,482	5,265	774	1,139 §
Large fringe metro	1,187	4,310	789	1,138 §
Medium and small metro	1,162	4,830	631	1,051 §
Micropolitan and noncore	680	3,454	713	1,362 §
Primary expected payer†				
Medicare	29	8,221 §	-	-
Medicaid	2,044	3,067 §	-	-
Private insurance	2,169	5,541 §	-	-
Uninsured***	198	942 §	-	-
Other****	120	471 §	-	-

* Maternal female stays are hospital stays for females ages 15 to 44 who are pregnant or gave birth. Non-maternal female stays are hospital stays for females of all ages who are not pregnant and did not give birth.

** Excludes a small number of stays (155,000 or 0.4 percent) with missing age or sex.

§ Non-maternal female stays per 10,000 population are statistically different from maternal female stays per 10,000 population at $p<0.05$. For payers, non-maternal female stays are statistically different from maternal female stays at $p<0.05$.

† Population denominators are not available by payer.

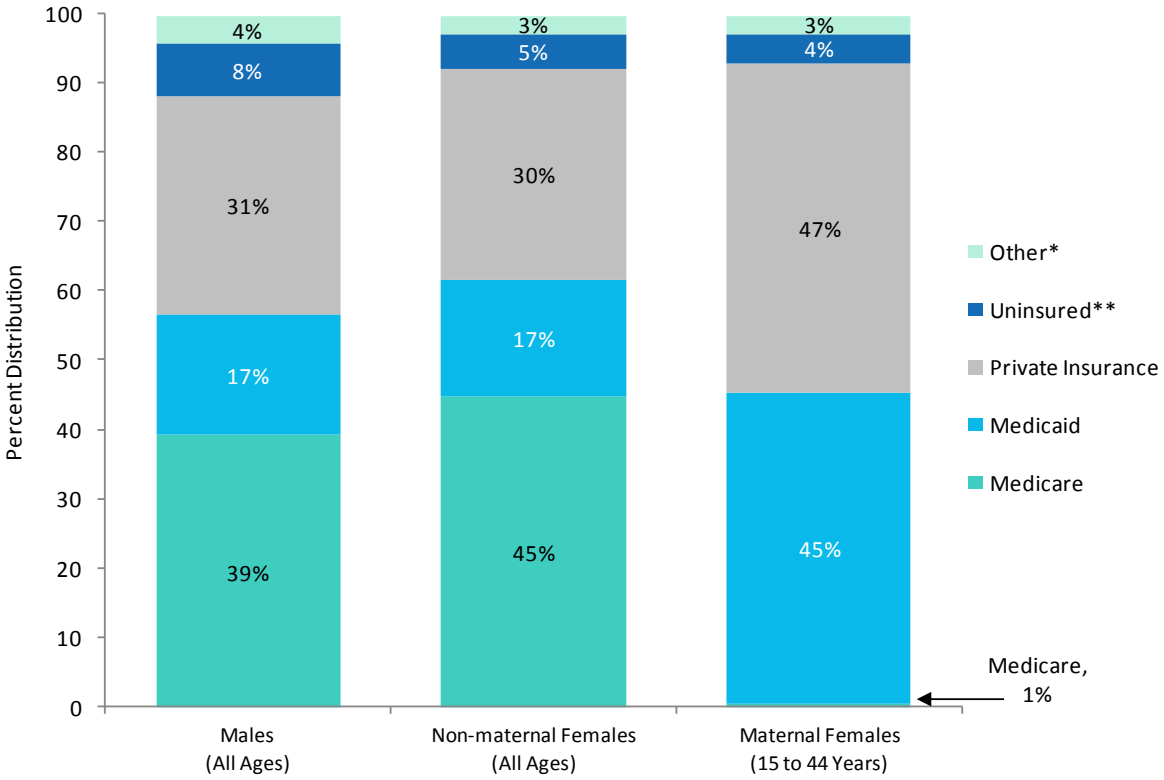
*** Includes stays classified as self-pay or no charge.

**** Includes other payers such as Workers' Compensation, TRICARE, CHAMPUS, CHAMPVA, Title V, and other government programs.

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

- In 2009, maternal females accounted for 737 stays per 10,000 population and non-maternal females comprised 1,175 stays per 10,000 population.
- The rates of maternal stays were highest among 20 to 24 year olds and 25 to 34 year olds, as expected. The rate of non-maternal stays tended to increase by age group, with the exception of 0 to 14 year olds, a group that includes newborns. Non-maternal females 45 years and older had the highest hospitalization rate (1,970 stays per 10,000 population).
- In the poorest communities, the rate of non-maternal female stays was 75 percent higher than the rate of maternal female stays (747 maternal stays and 1,311 non-maternal stays per 10,000 population).
- Among maternal females, the rate of hospital stays in the lowest income quartile was 10 percent higher than in the highest income quartile. However, among non-maternal females, the rate of stays in the lowest income quartile was 34 percent higher than in the highest income quartile.
- The rate of non-maternal female hospitalizations was higher than the rate for maternal females across all regions:
  - The greatest difference occurred in the Northeast, where the rate of non-maternal stays was 97 percent higher than the rate of maternal stays (1,268 non-maternal stays per 10,000 population versus 643 maternal stays).
  - In the Midwest, the rate of non-maternal female stays was 74 percent higher than the rate of maternal female stays (1,257 non-maternal female stays per 10,000 population versus 722 maternal female stays).
  - In the South, the rate of non-maternal female stays was 54 percent higher than the rate of maternal female stays (1,237 non-maternal female stays per 10,000 population versus 805 maternal female stays).
  - In the West, the rate of non-maternal female stays was only 32 percent higher than the rate of maternal female stays (930 non-maternal female stays per 10,000 population versus 706 maternal female stays).
- Non-maternal females also experienced higher rates of stays than maternal females across all areas of patient residence:
  - The largest difference (91 percent) in the rate of hospital stays between maternal and non-maternal females by patient residence was in micropolitan and noncore areas (713 maternal and 1,362 non-maternal stays per 10,000 population).
  - In medium and small metro areas, non-maternal females had a 67-percent higher rate of stays than maternal females (631 maternal female and 1,051 non-maternal female stays per 10,000 population).
  - The rate of stays among non-maternal females was 47 percent higher than the rate for maternal females in large central metro areas (774 maternal female and 1,139 non-maternal female stays per 10,000 population).
  - The rate of non-maternal female stays (1,138 non-maternal female stays per 10,000 population) was 44 percent higher than the rate of maternal female stays (789 maternal female stays per 10,000 population) in large fringe metro areas.
- In 2009, private insurance was the primary payer for 2.2 million maternal stays. Medicaid was the primary payer for an additional 2.0 million maternal stays.
- Medicare was the primary payer for the greatest number of non-maternal stays (8.2 million non-maternal stays), followed by private insurance (5.5 million non-maternal stays).

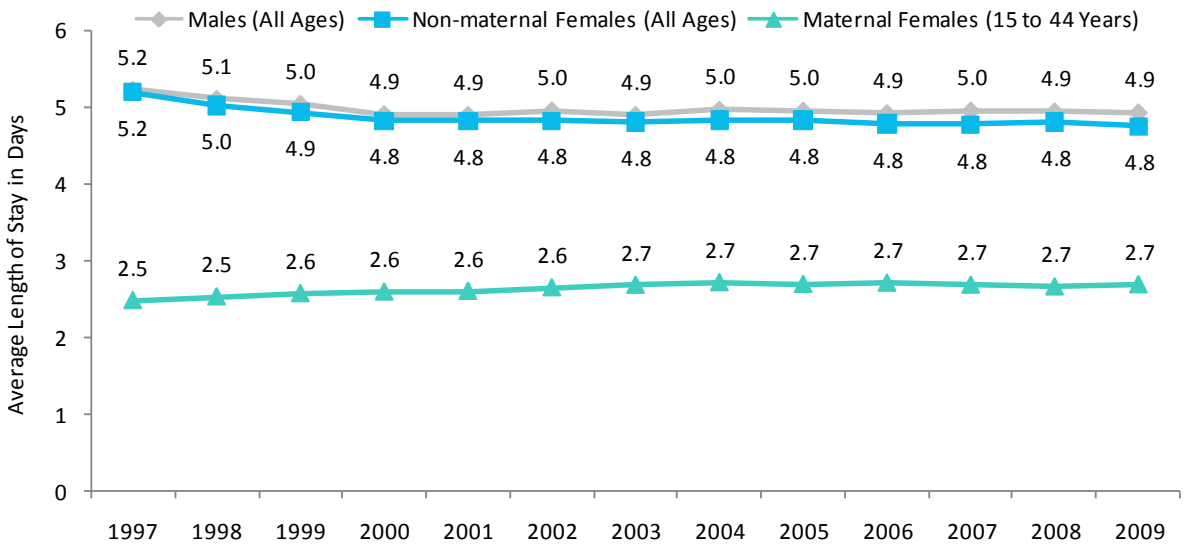
Distribution of Hospital Stays by Payer and Sex, 2009



* Includes other payers such as Workers' Compensation, TRICARE, CHAMPUS, CHAMPVA, Title V, and other government programs.
** Includes stays classified as self-pay or no charge.
Note: Excludes a small number of stays (104,000 or 0.3 percent) with missing sex.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009.

- In 2009, Medicare was the primary payer for the largest percentage of male stays (39 percent) and non-maternal female stays (45 percent).
- Because Medicare covers disabled individuals of all ages, a small share of maternal stays (1 percent) had a primary payer of Medicare.
- Forty-five percent of maternal stays had Medicaid as the primary payer. Private insurance was the primary payer for 47 percent of maternal stays.
- Private insurance was the primary payer for about 30 percent of both male and non-maternal female stays.

Average Length of Stay by Sex, 1997-2009

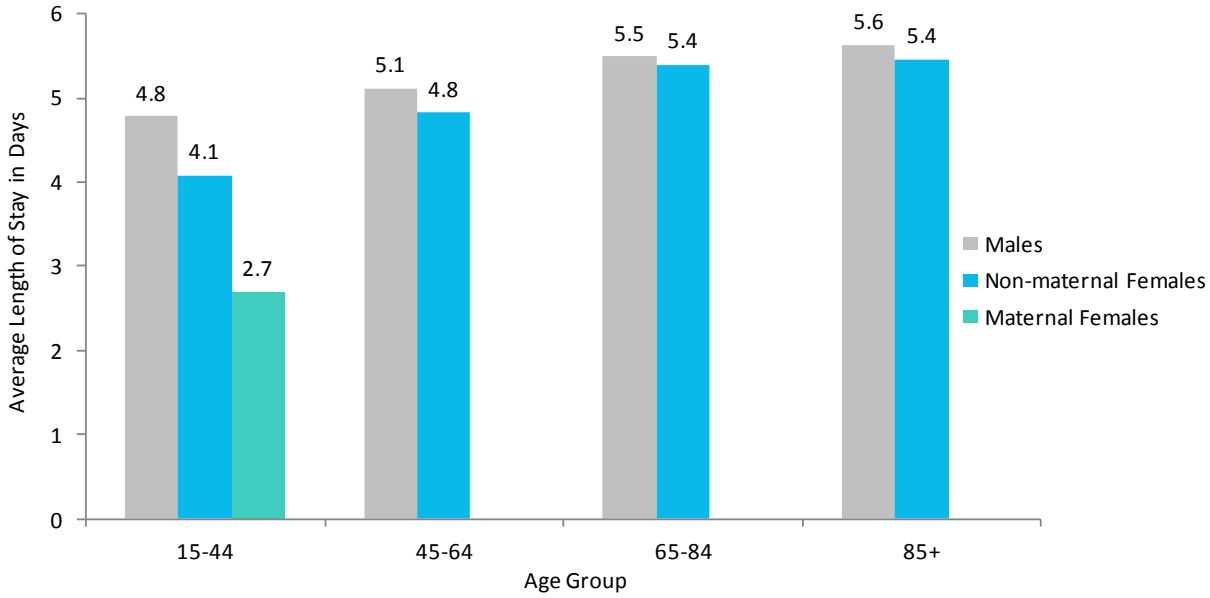


Note: Excludes a small number of stays (104,000 or 0.3 percent) with missing sex.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997-2009.

Although the average length of hospital stay declined for males and non-maternal females, the average length of hospital stay increased slightly for maternal females from 1997 to 2009.

- The average length of hospital stay for male stays decreased from 5.2 days in 1997 to 4.9 days in 2009.
- For non-maternal female stays, the average length of hospital stay decreased from 5.2 days in 1997 to 4.8 days in 2009.
- Maternal females had a slight increase in the average length of hospital stay over this time period (from 2.5 to 2.7 days), but since 2003 length of stay has been stable.

Average Length of Stay by Age and Sex, 2009

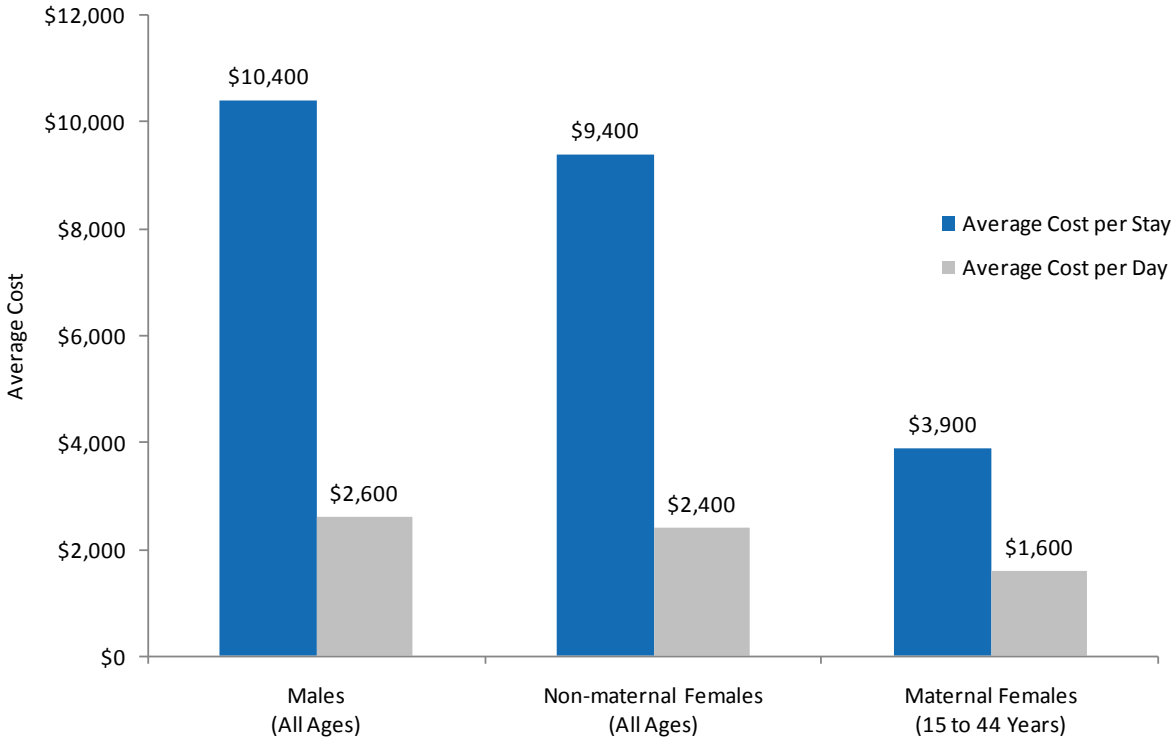


Note: Excludes a small number of stays (104,000 or 0.3 percent) with missing sex.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009.

The average length of hospital stay generally increased with age for both sexes.

- Maternal females 15 to 44 years old had an average length of hospital stay of 2.7 days, compared to 4.1 days for non-maternal females and 4.8 days for males.
- For all age groups, except 65 to 84 years old, males had a significantly longer average length of hospital stay than non-maternal females.

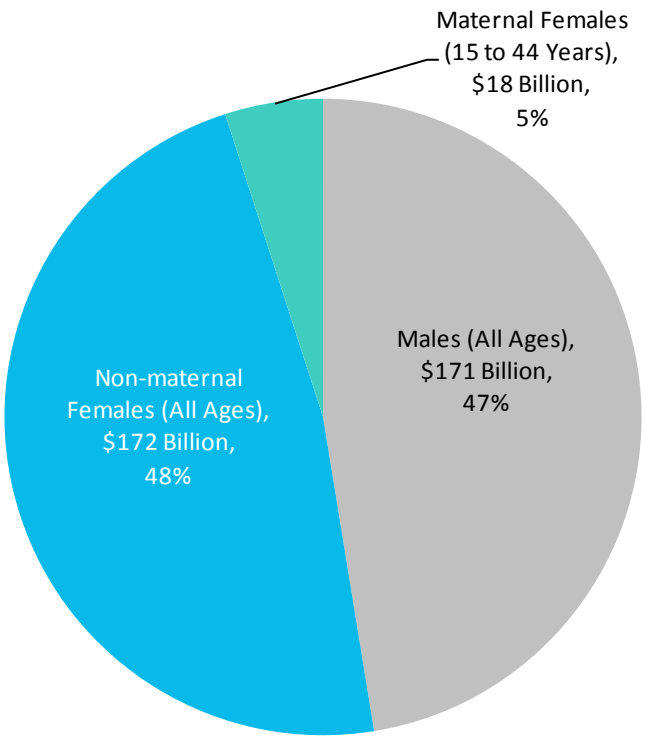
Average Cost per Stay and per Day by Sex, 2009



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

- On average, hospital stays for non-maternal females cost less than stays for males ($9,400 versus $10,400).
- The average cost per day of a hospital stay was about $200 less for non-maternal females than for males ($2,400 versus $2,600).
- Stays for maternal females cost an average of $3,900, less than half of the cost of a non-maternal stay.
- The average cost per day of a maternal stay was about $800 less than the average cost per day of a non-maternal stay.

Distribution of Aggregate Costs by Sex, 2009

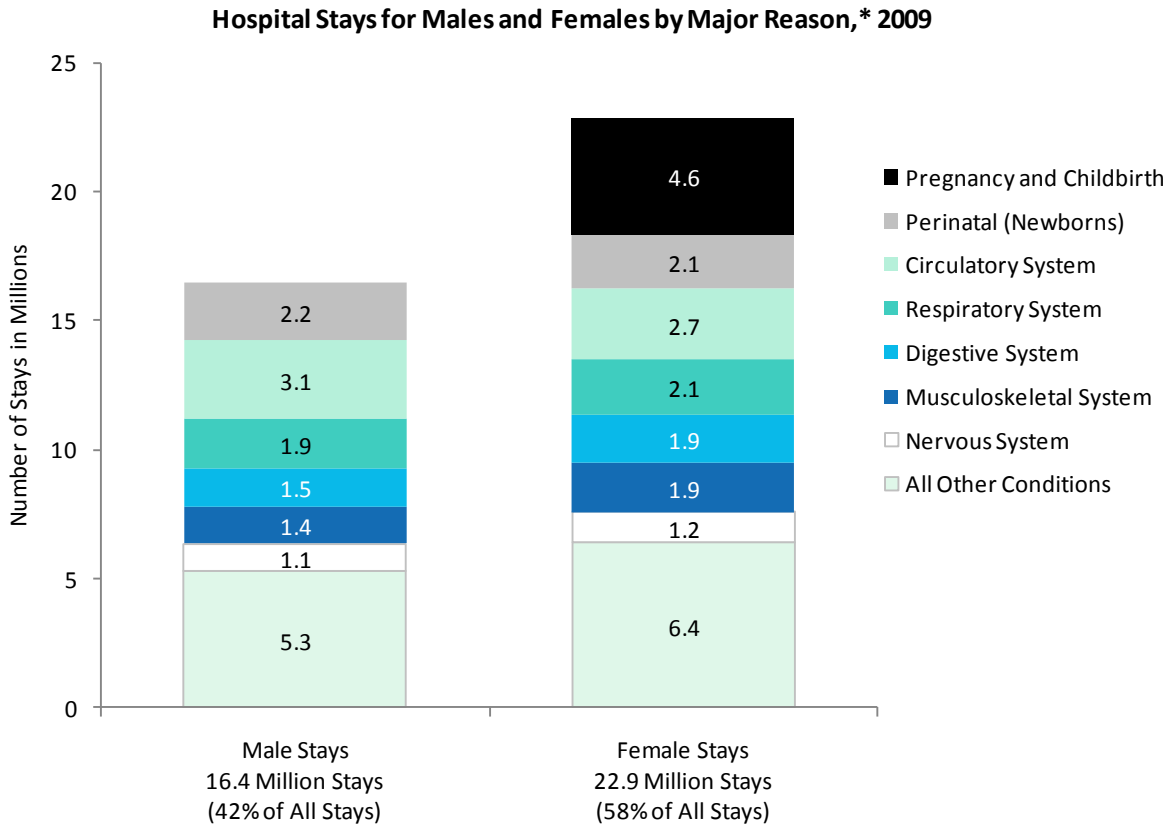


Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009.

In 2009, hospital stays in the U.S. cost a total of $361.5 billion.

- Of the 53 percent of costs attributable to stays for females, 48 percent was for non-maternal stays and 5 percent was for maternal stays.
- Overall, females accounted for a larger share of the total costs than males. However, when maternal females are excluded, females and males accounted for similar shares of total costs.

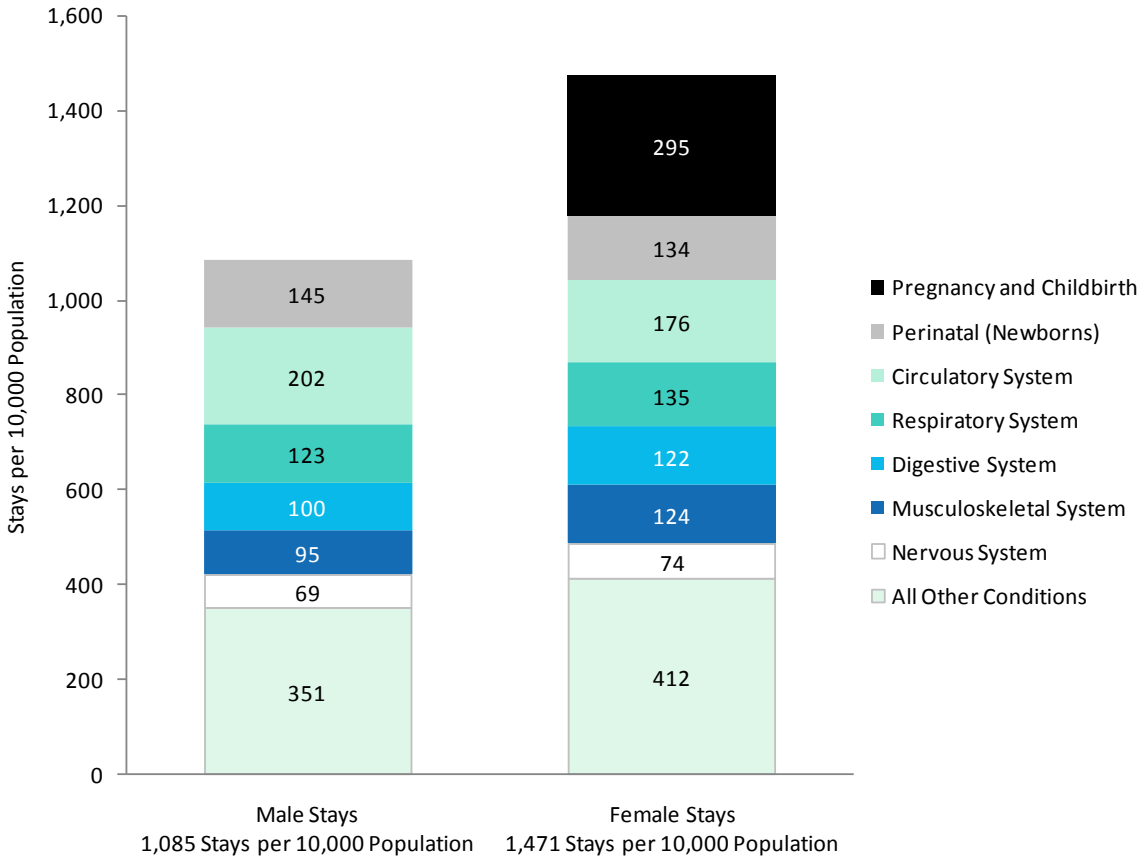
EXHIBIT 5.2 Common Conditions During Hospital Stays for Females



* Based on principal diagnosis defined by Major Diagnostic Category (MDC).
Note: Excludes a small number of stays (111,000 or 0.3 percent) with missing sex.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009.

- Giving birth (mothers) or being born (infants) accounted for 8.9 million hospitalizations in 2009, about 23 percent of all hospital stays.
- Males accounted for 16.4 million hospitalizations, while females experienced 22.9 million stays.
- When stays for pregnancy and childbirth are excluded, circulatory conditions were the most frequent cause of hospital stays for both males and females in 2009, accounting for 5.8 million stays. Circulatory conditions accounted for 19 percent of male stays and 12 percent of female stays.
- Excluding pregnancy and childbirth, the largest sex differences in reasons for hospitalization were for diseases of the musculoskeletal system (1.9 million female versus 1.4 million male stays).
- Even when pregnancy and childbirth stays are excluded, females accounted for more stays than males – 18.3 million stays for females compared to 16.4 million stays for males.

Hospital Stays per 10,000 Population for Males and Females by Major Reason,* 2009



* Based on principal diagnosis defined by Major Diagnostic Category (MDC).
Note: Excludes a small number of stays (111,000 or 0.3 percent) with missing sex.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009.

- Males experienced 1,085 stays per 10,000 population, while females experienced 1,471 stays per 10,000 population.
- Even when pregnancy and childbirth stays are excluded, the rate of hospitalizations for females was higher than that for males—1,176 stays per 10,000 population for females compared to 1,085 stays per population for males.
- Giving birth or being born accounted for 289 stays per 10,000 population in 2009 (rate is for the total population; data not shown).
- Excluding pregnancy and childbirth, the largest sex differences in reasons for hospitalization were for diseases of the musculoskeletal system (124 stays per 10,000 population for females versus 95 stays per 10,000 population for males) and digestive system (122 stays per 10,000 females versus 100 stays per 10,000 males).
- Among male non-newborn stays, circulatory conditions had the highest rate of stays (202 per 10,000 population), followed by respiratory conditions (123 per 10,000 population).
- For females, the rate of stays for pregnancy and childbirth (295 per 10,000 population) was higher than for any other condition. Circulatory conditions (176 per 10,000 population) and respiratory system conditions (135 per 10,000 population) were other major reasons for female hospitalizations.
- Respiratory system conditions were more common for females (135 per 10,000 population) than for males (123 per 10,000 population).

Number of Stays and Stays per 10,000 Population for the Most Frequent Principal Diagnoses for Hospital Stays, Adults 18 Years and Older by Sex, 2009

PRINCIPAL CCS DIAGNOSIS	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION	
	MALES	FEMALES	MALES	FEMALES
All stays*	13,240	19,814	1,168	1,663 ‡
Female rates higher than male rates				
Pneumonia	473	532	42	45 ‡
Osteoarthritis	363	555	32	47 ‡
Mood disorders	346	439	31	37 ‡
Chronic obstructive pulmonary disease and bronchiectasis	322	407	28	34 ‡
Non-specific chest pain	318	380	28	32 ‡
Urinary tract infections	152	392	13	33 ‡
Complication of surgical procedures or medical care	228	265	20	22 ‡
Biliary tract disease	168	298	15	25 ‡
Male rates higher than female rates				
Coronary atherosclerosis	520	311	46	26 ‡
Complication of device, implant or graft	331	315	29	26 ‡
Acute myocardial infarction	383	250	34	21 ‡
Skin and subcutaneous tissue infections	296	266	26	22 ‡
Diabetes mellitus with complications	265	237	23	20 ‡
Female rates not statistically different from male rates				
Septicemia	389	426	34	36
Cardiac dysrhythmias	397	405	35	34
Congestive heart failure	508	514	45	43
Spondylosis, intervertebral disc disorders, and other back problems	311	337	27	28
Acute cerebrovascular disease	262	287	23	24
Female-specific diagnoses				
Trauma to vulva and perineum due to childbirth	-	721	-	60
Maternal stay with previous C-section	-	539	-	45

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

‡ Female stays per 10,000 population are statistically different from male 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, 2009.

This table focuses on the top 20 most common conditions treated in U.S. hospitals. Diagnoses related to childbirth, including trauma to vulva and perineum due to childbirth and maternal stay with previous C-section, occurred more frequently than other diagnoses. If childbirth is excluded, most diagnoses were common to both males and females, although there were some differences by sex.

Females had a higher rate of stays than males for several conditions:

- Urinary tract infections were about 2.5 times greater for females than males.
- Biliary tract disease occurred at a 67-percent higher rate in females than males.
- Osteoarthritis occurred at a 47-percent higher rate in females than males.
- Chronic obstructive pulmonary disease occurred at a 21-percent higher rate in females than males.
- Mood disorders occurred at a 19-percent higher rate in females than males.
- Non-specific chest pain occurred at a 14-percent higher rate in females than males.

- Complication of surgical procedures or medical care occurred at a 10-percent higher rate in females than males.

Males had a higher rate of stays than females for the following conditions:

- Coronary atherosclerosis occurred at a 77-percent higher rate among males than females.
- Acute myocardial infarction occurred at a 62-percent higher rate among males than females.
- Skin and subcutaneous tissue infections occurred at an 18-percent higher rate among males than females.
- Diabetes mellitus with complications occurred at a 15-percent higher rate among males than females.
- Complication of device, implant, or graft occurred at a 12-percent higher rate among males than females.

Females and males had a similar rate of stays for several conditions:

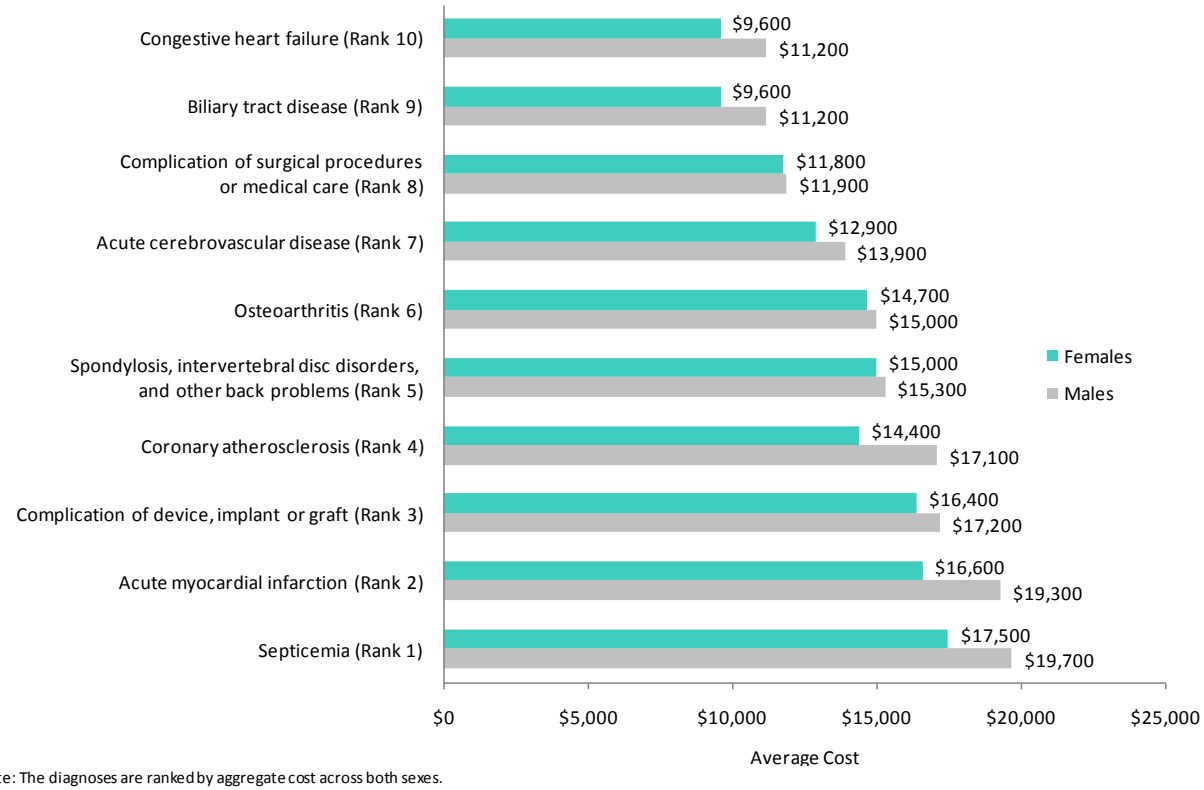
- Septicemia (36 and 34 stays per 10,000 female and male population, respectively).
- Congestive heart failure (43 and 45 stays per 10,000 female and male population, respectively).
- Cardiac dysrhythmias (34 and 35 stays per 10,000 female and male population, respectively).

Five heart-related diagnoses were among the twenty most common principal inpatient diagnoses for both males and females:

- Congestive heart failure, coronary atherosclerosis, cardiac dysrhythmias, non-specific chest pain, and acute myocardial infarction.

Infections such as septicemia, skin and subcutaneous tissue infections, and urinary tract infections were common reasons for hospital stays among both males and females in 2009.

Average Cost per Stay for the Most Frequent Principal Diagnoses for Adults 18 Years and Older by Sex, 2009

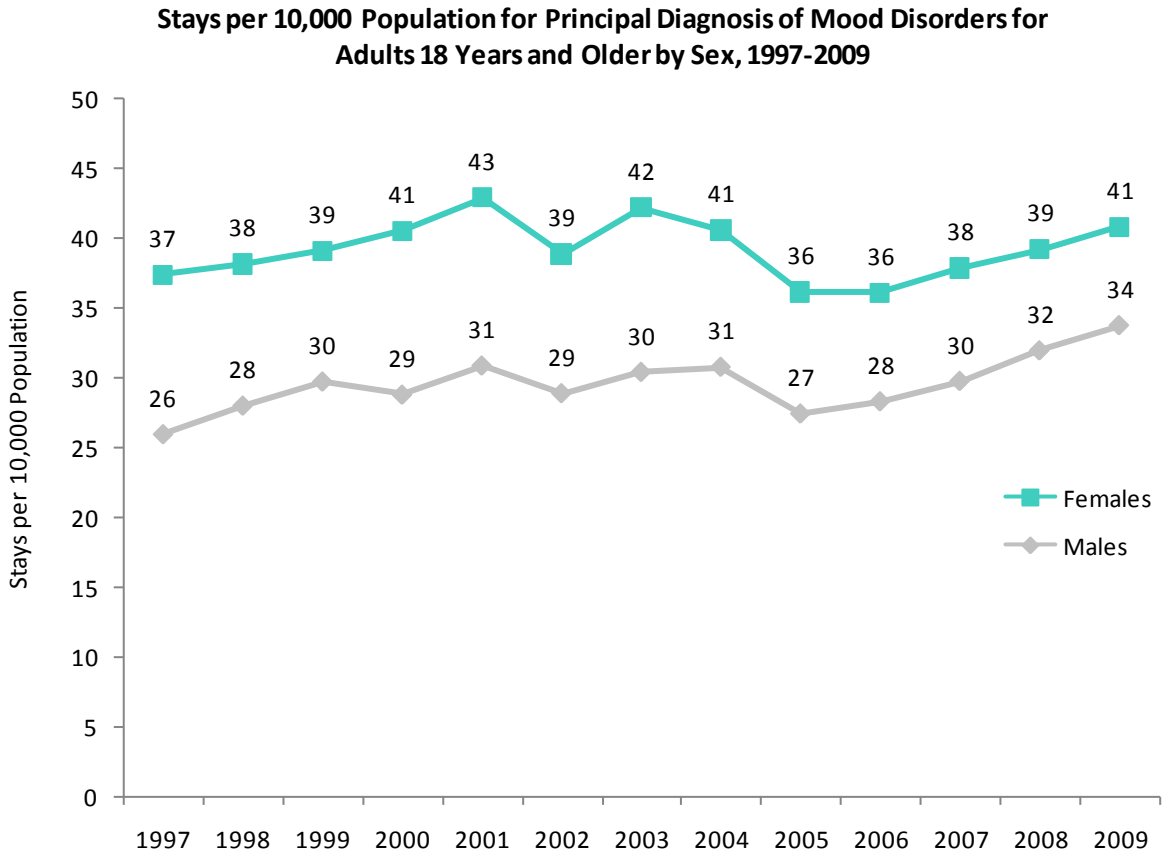


Note: The diagnoses are ranked by aggregate cost across both sexes.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009.

Average costs per stay for the most frequent principal diagnoses were either lower for females or were similar for males and females.

- Hospital stays for four cardiovascular conditions—congestive heart failure, acute cerebrovascular disease, coronary atherosclerosis, and acute myocardial infarction—cost less for females than for males.
- Stays for septicemia and biliary tract disease were also less expensive for females than for males.
- Average costs were similar for females and males for stays involving complication of device, implant or graft; osteoarthritis; spondylosis; and complication of surgical procedures or medical care.

EXHIBIT 5.3 Mood Disorders

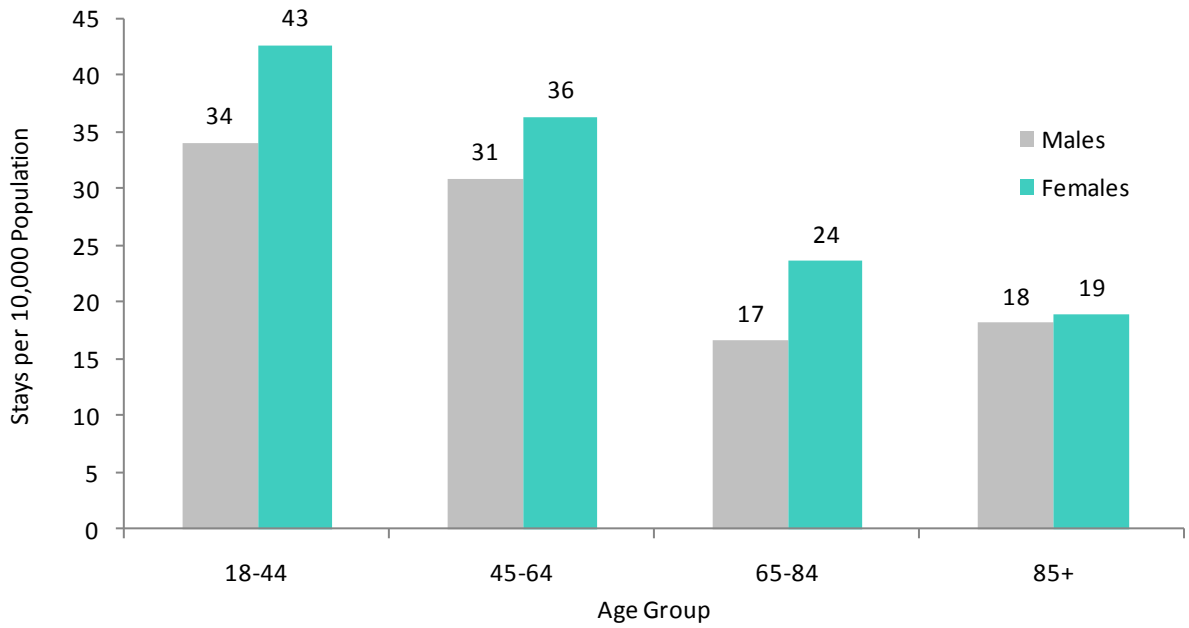


Note: Mood disorders does not include post-menopausal syndrome, premenstrual dysphoric disorder, or postpartum depression.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997-2009.

The rate of mood disorders has been greater for females compared with males over the 12-year period from 1997 to 2009.

- Females had a 42-percent higher rate of hospitalization for mood disorders than males in 1997, a difference that narrowed to 21 percent in 2009.
- In 1997 there were 37 stays per 10,000 female population and 26 stays per 10,000 male population.
- From 1997 to 2001 the rate of hospital stays for mood disorders increased for both males and females.
- The rate of stays for mood disorders significantly declined to 36 stays per 10,000 population for females in 2005 but remained stable for males from 2001 to 2005.
- From 2005 to 2009, the rate of hospital stays for mood disorders increased significantly to 34 stays per 10,000 population for males but remained stable for females.

Stays per 10,000 Population for Principal Diagnosis of Mood Disorders by Age and Sex, 2009

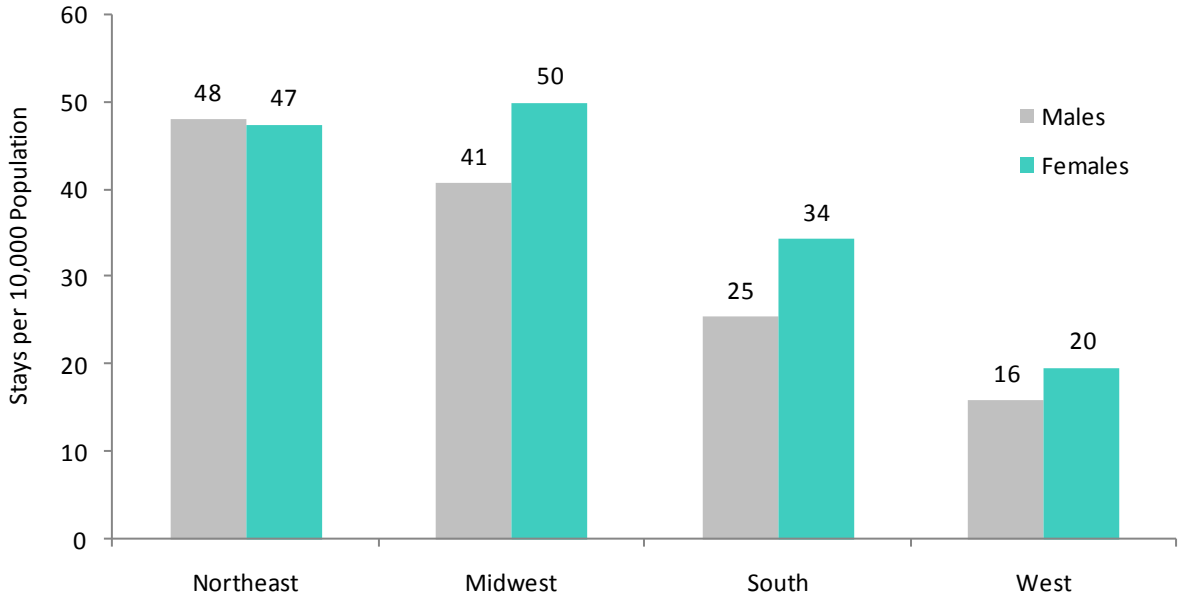


Note: Mood disorders does not include post-menopausal syndrome, premenstrual dysphoric disorder, or postpartum depression.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009.

The rate of stays for mood disorders generally decreased with age.

- Among females age 18 to 44 years, the rate of mood disorders was 43 stays per 10,000 population. This rate was 26 percent higher than the rate among males of the same age group (34 stays per 10,000 population).
- The rate of stays for mood disorders was consistently higher among females than males across all age groups in 2009, with the exception of adults age 85 and older. Among 65 to 84 year olds, the rate of mood disorders for females was 24 stays per 10,000 population, while males had only 17 stays per 10,000 population.

Stays per 10,000 Population for Principal Diagnosis of Mood Disorders for Adults 18 Years and Older by Region and Sex, 2009



Note: Mood disorders does not include post-menopausal syndrome, premenstrual dysphoric disorder, or postpartum depression.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2009.

The rate of mood disorders by sex varied by region.

- The highest rate of mood disorder hospitalizations among females was in the Midwest (50 stays per 10,000 population) – 2.5 times higher than the lowest rate in the West (20 stays per 10,000 population).
- The highest rate for males was in the Northeast with 48 stays per 10,000 population for mood disorders – three times higher than for males in the West (16 stays per 10,000 population).
- The largest male-to-female difference in hospitalizations for mood disorders was in the South, where the hospitalization rate for females (34 per 10,000 population) was 36 percent higher than for males (25 per 10,000 population).
- The West had the lowest rate of inpatient hospital stays with a principal diagnosis of mood disorders, regardless of sex.

EXHIBIT 5.4 Procedures

Number of Stays and Stays per 10,000 Population for the Most Frequent All-listed Procedures for Hospital Stays, Adults 18 Years and Older by Sex, 2009

	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION WITH THE PROCEDURE	
ALL-LISTED CCS PROCEDURES	MALES	FEMALES	MALES	FEMALES
All stays with a procedure*	18,529	27,598	1,635	2,316 §
Female rates higher than male rates				
Blood transfusion	1,185	1,555	105	130 §
Upper gastrointestinal endoscopy	558	665	49	56 §
Knee arthroplasty	257	425	23	36 §
Colonoscopy and biopsy	232	324	21	27 §
Cholecystectomy and common duct exploration	161	288	14	24 §
Hip replacement	178	259	16	22 §
Male rates higher than female rates				
Diagnostic cardiac catheterization, coronary arteriography	888	581	78	49 §
Respiratory intubation and mechanical ventilation	680	608	60	51 §
Hemodialysis	440	395	39	33 §
Percutaneous transluminal coronary angioplasty (PTCA)	457	236	40	20 §
Incision of pleura, thoracentesis, chest drainage	243	213	21	18 §
Female rates not statistically different from male rates				
Echocardiogram	424	368	37	31
Laminectomy, excision intervertebral disc	249	247	22	21
Spinal fusion	205	233	18	20
Enteral and parenteral nutrition	210	220	19	18
Female-specific procedures				
Cesarean section	-	1,352	-	113
Repair of obstetric laceration	-	1,290	-	108
Artificial rupture of membranes to assist delivery	-	900	-	76
Fetal monitoring	-	830	-	70
Hysterectomy	-	481	-	40

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

§ Female stays per 10,000 population are statistically different from male 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, 2009.

Blood transfusion was the most common procedure for both sexes when childbirth and liveborn infant procedures are excluded.

Females had a higher rate of stays with the following procedures than males:

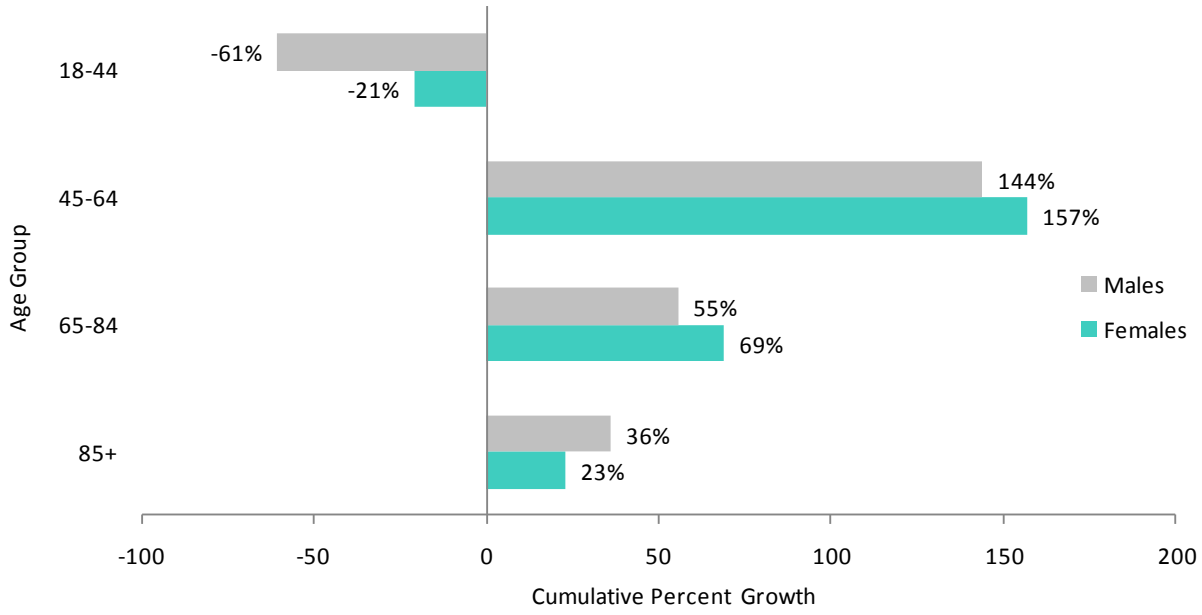
- The rate of stays with cholecystectomy and common duct exploration was 71 percent higher among females than males.
- The rate of stays with knee arthroplasty was 57 percent higher for females than males.
- Females had a 38-percent higher rate of stays for hip replacement than males.
- Colonoscopy and biopsy had a 29-percent higher rate of stays among females than males.
- The rate of stays with blood transfusion was 24 percent higher among females than males.
- The rate of stays with upper gastrointestinal endoscopy was 14 percent higher for females than males.

The rate of stays with the following procedures was higher for males than females:

- Two heart-related procedures—diagnostic cardiac catheterization and PTCAs —were performed more often for males than females.
  - PTCAs were performed at twice the rate for males as females.
  - Diagnostic cardiac catheterization was performed in 59 percent more stays for males than females.
- The male rates of stay with respiratory intubation and mechanical ventilation or hemodialysis were 18 percent higher than the female rates of stay.
- The rate of hospital stays that involved incision of the pleura was 17 percent higher for males than females.

For all other top ranking procedures (echocardiogram, laminectomy, spinal fusion, and enteral and parenteral nutrition), there was little difference between males and females in the rate of procedures performed.

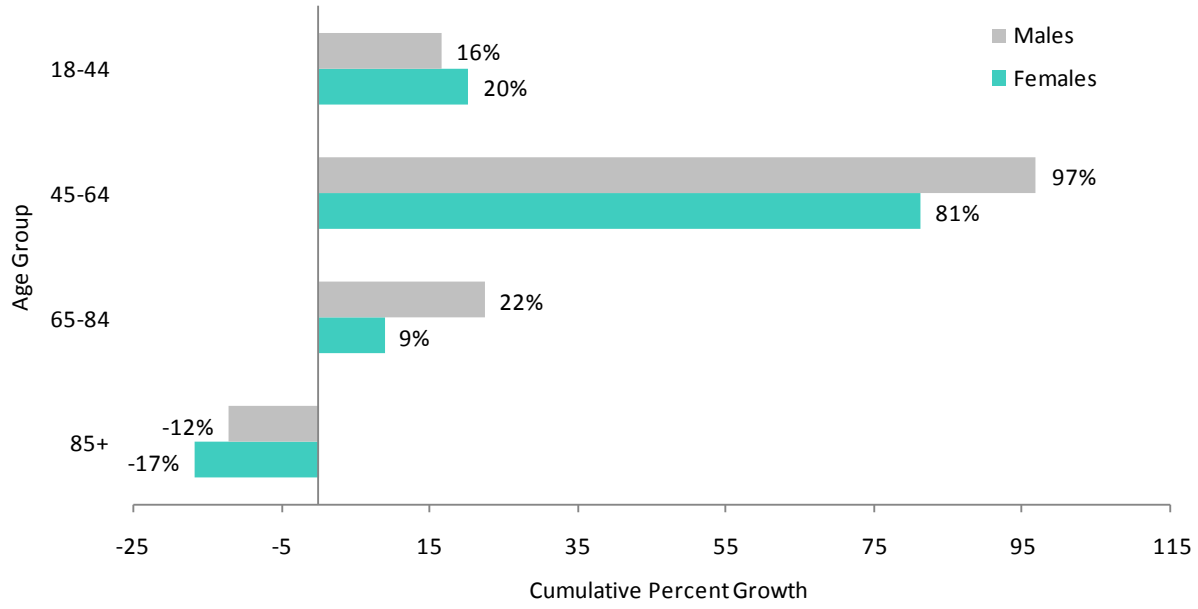
Growth in Stays per 10,000 Population for Knee Arthroplasty by Age and Sex, 1997-2009



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

- The rate of knee arthroplasty for males and females 45-64 years old was about 2.5 times higher in 2009 than in 1997. The male rate increased 144 percent from 11 stays per 10,000 persons in 1997 to 28 in 2009, while it increased 157 percent from 16 stays per 10,000 persons in 1997 to 42 in 2009 for females.
- The rate of knee arthroplasty increased by 69 percent for females 65 to 84 years old (from 72 stays per 10,000 population in 1997 to 122 stays per 10,000 population in 2009), while it increased by only 55 percent for males (from 58 stays per 10,000 population in 1997 to 90 stays per 10,000 population in 2009).

Growth in Stays per 10,000 Population for Hip Replacement by Age and Sex, 1997-2009



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

- The rate of hip replacements decreased by 17 percent for females 85 years and older from 1997 to 2009 (from 139 stays per 10,000 population in 1997 to 116 stays per 10,000 population in 2009). The rate of hip replacements for males 85 years and older decreased by 12 percent over the same period (from 100 stays per 10,000 population in 1997 to 88 stays per 10,000 population in 2009).
- Hip replacements for females age 45 to 64 years old increased by 81 percent from 10 per 10,000 population in 1997 to 17 per 10,000 population in 2009. The rate for males in this period nearly doubled, from 10 per 10,000 population in 1997 to 19 per 10,000 population in 2009.

EXHIBIT 5.5 Children

Number of Stays and Stays per 10,000 Population for the Most Frequent Principal Diagnoses for Hospital Stays, Children 0-17 Years by Sex, 2009

AGE GROUP AND PRINCIPAL CCS DIAGNOSIS	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION	
	MALES	FEMALES	MALES	FEMALES
All stays*	3,196	3,065	838	842
<1 year				
Liveborn (newborn infant)	2,123	2,029	9,744	9,739
Acute bronchitis	51	34	235	165 ‡
Hemolytic jaundice and perinatal jaundice	25	18	115	88 ‡
Short gestation, low birth weight, and fetal growth retardation	11	9	52	46
Urinary tract infections	8	11	37	52 ‡
1-2 years				
Pneumonia	28	23	64	54
Asthma	25	13	56	32 ‡
Fluid and electrolyte disorders	16	14	35	34
Acute bronchitis	17	13	38	30
Skin and subcutaneous tissue infections	10	11	22	27
3-5 years				
Pneumonia	16	14	26	22
Asthma	19	11	30	18 ‡
Fluid and electrolyte disorders	7	7	11	11
Epilepsy, convulsions	4	4	7	6
Skin and subcutaneous tissue infections	4	3	6	5
6-9 years				
Asthma	19	11	23	14 ‡
Pneumonia	12	11	15	13
Appendicitis and other appendiceal conditions	11	7	13	9 ‡
Fluid and electrolyte disorders	5	4	6	6
Epilepsy, convulsions	5	4	6	5
10-14 years				
Mood disorders	14	17	14	18
Appendicitis and other appendiceal conditions	19	12	19	12 ‡
Asthma	12	7	11	8
Pneumonia	7	6	7	6
Skin and subcutaneous tissue infections	6	4	5	4 ‡
15-17 years				
Mood disorders	18	28	27	46 ‡
Trauma to vulva and perineum due to childbirth	-	28	-	45
Appendicitis and other appendiceal conditions	12	8	19	14 ‡
Prolonged pregnancy	-	10	-	16
Normal pregnancy and/or delivery	-	10	-	15
Skin and subcutaneous tissue infections	5	4	8	6 ‡
Fracture of lower limb	5	2	8	3 ‡
Intracranial injury	5	2	8	3 ‡

* Excludes a small number of stays (35,000 or 0.6 percent) with missing age or sex.

‡ Female stays per 10,000 population are statistically different from male 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, 2009.

While some of the most common conditions varied by age group, some conditions were common across several age groups.

- Acute bronchitis was a top five condition among infants less than 1 year old and children 1 to 2 years old. Male infants less than 1 year old had a 42-percent higher rate of stays for acute bronchitis compared to female infants (235 male stays versus 165 female stays per 10,000 population, respectively). There was no male-to-female difference for acute bronchitis among 1-2 year olds.
- Fluid and electrolyte disorders were a common condition among children 1 to 2 years old, 3 to 5 years old, and 6 to 9 years old. Males and females had a similar rate of stays for this condition across all age groups.
- Pneumonia was a common condition in four age groups (1 to 2 years, 3 to 5 years, 6 to 9 years, and 10 to 14 years old). The rate of stays for pneumonia between sexes was similar across all age groups.
- Asthma was also a common condition in four age groups (1 to 2 years, 3 to 5 years, 6 to 9 years, and 10 to 14 years old). Among 1 to 9 year olds, males had 64- to 75-percent higher rates of stays for asthma compared to females.
- Epilepsy was common among children 3 to 5 years old and 6 to 9 years old. The rate of stays for epilepsy between sexes was similar.
- Mood disorders was common among 10 to 14 and 15 to 17 year olds. While there was no male-to-female difference for 10 to 14 year olds, females 15 to 17 years old had a 70-percent higher rate of hospitalization for mood disorders in 2009 than males (46 female stays per 10,000 population versus 27 male stays per 10,000 population).
- Appendicitis was also common among three age groups (6 to 9 years, 10 to 14 years, and 15 to 17 years old). In these age groups, males had 36- to 58-percent higher rates of stays for appendicitis compared to females.

For infants:

- The most common condition was liveborn (newborn infant), which was similar for males and females (9,744 male stays and 9,739 female stays per 10,000 population).
- Acute bronchitis, hemolytic jaundice, short gestation, and urinary tract infections were other top conditions among infants. Except for short gestation and urinary tract infections, these conditions occurred more frequently in males.

For children 1-2 years:

- Pneumonia was a top condition among 1 to 2 year olds, but the rate of stays were similar for males and females.
- Other common conditions that were similar between sexes were fluid and electrolyte disorders, acute bronchitis, and skin and subcutaneous tissue infections, for which there were no male-to-female differences.

For children 3-5 years:

- Pneumonia was the most common condition, but the hospitalization rate was similar between sexes.
- Skin infections were another common condition among children 3 to 5 years old. The rate of stays for skin infections between males and females were similar.

For children 6-9 years:

- Among children 6 to 9 years old, asthma was the most common condition and was 64 percent higher for males than females.
- Only appendicitis differed between males and females, while rates for pneumonia and fluid and electrolyte disorders were similar between sexes.

For children 10-14 years:

- Among 10 to 14 year olds, mood disorders was the most common condition and the rate of stays was similar for males and females.
- Skin infections were another common condition among children 10 to 14 year olds. Males had a 25-percent higher rate of stays for skin infections than females (5 male stays and 4 female stays per 10,000 population).

For children 15-17 years:

- Mood disorders was the most common condition in children 15 to 17 years old. Females had a 70-percent higher rate of stays for mood disorders compared to males (46 female stays and 27 male stays per 10,000 population).
- Conditions related to pregnancy and childbirth (trauma to vulva and perineum due to childbirth, prolonged pregnancy, and normal pregnancy) were common among females in this age group.
- Injury-related stays were more frequent among males than females in this age group. Hospitalization rates for fracture of lower limb and intracranial injury were more than twice as high for males as for females.
- Males had a 33-percent higher rate of stays for skin infections than females.

Number of Stays and Stays per 10,000 Population for the Most Frequent All-listed Hospital Procedures for Hospital Stays, Children 0-17 Years by Sex, 2009

AGE GROUP AND ALL-LISTED CCS PROCEDURES	NUMBER OF STAYS IN THOUSANDS		STAYS PER 10,000 POPULATION WITH THE PROCEDURE	
	MALES	FEMALES	MALES	FEMALES
All stays*	2,081	1,427	546	392 ‡
<1 year				
Prophylactic vaccinations and inoculations	400	653	1,836	3,136 ‡
Circumcision	1,012	-	4,644	-
Ophthalmologic and otologic diagnosis and treatment	62	119	283	572 ‡
Respiratory intubation and mechanical ventilation	59	50	273	240
Diagnostic spinal tap	34	29	157	138
1-2 years				
Incision and drainage, skin and subcutaneous tissue	5	6	11	15 ‡
Respiratory intubation and mechanical ventilation	3	3	7	6
Diagnostic spinal tap	3	3	7	6
Tonsillectomy and/or adenoidectomy	3	1	6	3 ‡
Cancer chemotherapy	2	2	5	4
3-5 years				
Appendectomy	3	2	4	3
Cancer chemotherapy	3	2	4	3
Respiratory intubation and mechanical ventilation	2	1	3	2
Tonsillectomy and/or adenoidectomy	2	1	3	2
Blood transfusion	1	1	2	2
6-9 years				
Appendectomy	11	7	13	9 ‡
Cancer chemotherapy	3	2	3	2
Diagnostic spinal tap	2	2	3	2 ‡
Respiratory intubation and mechanical ventilation	2	1	2	2
Blood transfusion	2	1	2	1 ‡
10-14 years				
Appendectomy	19	12	18	12 ‡
Cancer chemotherapy	4	4	4	4
Treatment, fracture or dislocation of hip and femur	3	2	3	2 ‡
Diagnostic spinal tap	2	2	2	2
Spinal fusion	1	3	1	3 ‡
15-17 years				
Cesarean section	-	27	-	44
Repair of obstetric laceration	-	24	-	39
Appendectomy	12	9	19	14 ‡
Episiotomy	-	10	-	17
Forceps, vacuum, and breech delivery	-	8	-	13
Treatment, fracture or dislocation of lower extremity (other than hip or femur)	3	1	5	2 ‡
Cancer chemotherapy	3	3	5	5
Respiratory intubation and mechanical ventilation	3	2	4	3 ‡

* Excludes a small number of stays (22,000 or 0.6 percent) with missing age or sex.

‡ Female stays per 10,000 population are statistically different from male 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, 2009.

Although some of the most frequent procedures varied by age group, some procedures were common across several age groups.

- Diagnostic spinal tap was a top five procedure in four age groups (less than 1 year, 1 to 2 years, 6 to 9 years, and 10 to 14 years old). Among 6 to 9 year olds, males had a higher rate of diagnostic spinal tap in the hospital than females (3 male stays versus 2 female stays per 10,000 population). For all other age groups, the rate of diagnostic spinal tap was similar between males and females.
- Cancer chemotherapy was a common procedure in children age 1 to 2, 3 to 5, 6 to 9, 10 to 14, and 15 to 17 years old. The rate of hospital stays for cancer chemotherapy was similar between the sexes for all of these age groups.
- Appendectomy was frequently performed in children 3 to 5, 6 to 9, 10 to 14, and 15 to 17 years old. With the exception of children 3 to 5 years, males had 36- to 50-percent higher rates of appendectomy than females.
- Blood transfusion was commonly performed among children 3 to 5 and 6 to 9 years old. Males 6 to 9 years old had higher rates of blood transfusion compared to females (2 male stays versus 1 female stay per 10,000 population).

For infants:

- The most common procedure performed on infants was vaccinations and inoculations. Females had almost twice the rate of these procedures compared to males (3,136 performed in female stays versus 1,836 performed in male stays per 10,000 population).
- Circumcision was also a common procedure performed among male infants.

For children 1-2 years:

- Incision and drainage of the skin was the most common procedure among children 1 to 2 years old. Females experienced a 36-percent higher rate of stays for incision and drainage of the skin compared to males (15 female stays versus 11 male stays per 10,000 population).
- Among children 1 to 2 years old, males had twice the rate of tonsillectomies as females (6 male stays versus 3 female stays per 10,000 population).
- Other common procedures among 1 to 2 year olds were respiratory intubation and diagnostic spinal tap.

For children 3-5 years:

- Appendectomy was one of the top procedures performed among 3 to 5 year olds and the rate of hospitalizations was similar between males and females.
- Children 3 to 5 years old also had cancer chemotherapy, respiratory intubation, and tonsillectomies frequently performed, at a similar rate among males and females.

For children 6-9 years:

- Appendectomy was the most frequently performed procedure in children 6 to 9 years old. Males underwent appendectomy at a 44-percent higher rate than females (13 male stays versus 9 female stays per 10,000 population).
- Other common procedures performed in children 6 to 9 years old included blood transfusion and respiratory intubation. The rate of male stays for blood transfusion was double the rate for females (2 male stays versus 1 female stay per 10,000 population).

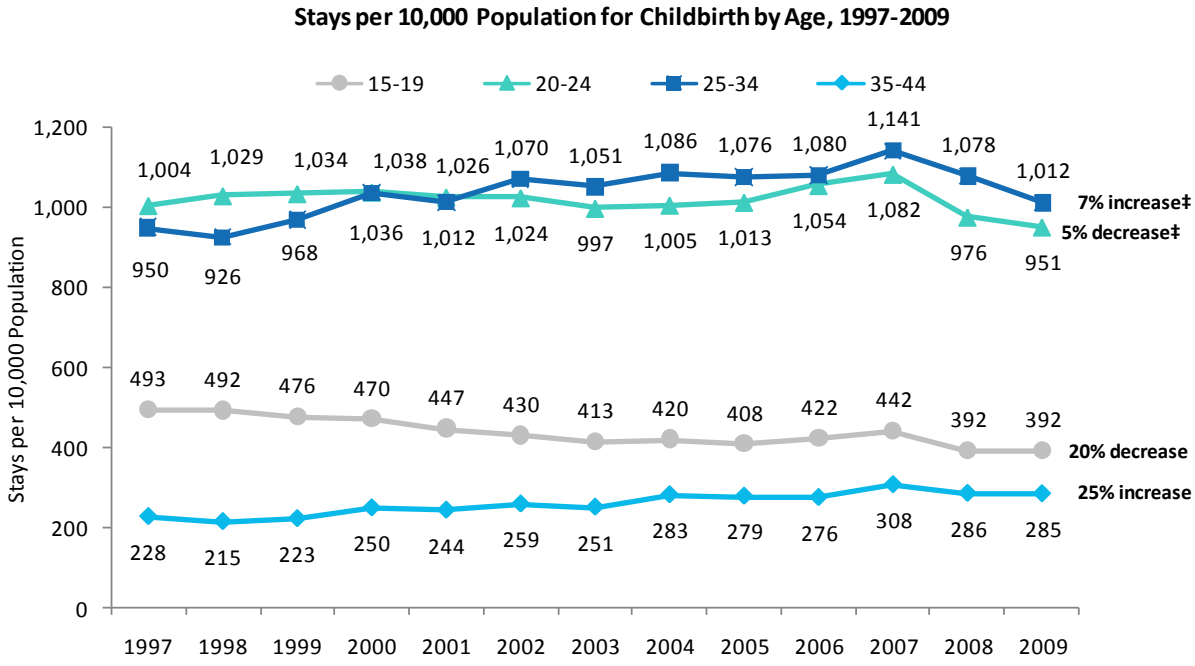
For children 10-14 years:

- Appendectomy was also the most common procedure performed among 10 to 14 year olds, accounting for a 50-percent higher rate among males than females (18 male stays and 12 female stays per 10,000 population).
- Among children 10 to 14 years old, females had three times the rate of spinal fusion as males (3 female stays versus 1 male stay per 10,000 population).
- Cancer chemotherapy; treatment, fracture or dislocation of hip or femur; and diagnostic spinal tap were other common procedures in this age group. Of these procedures, males had a 50-percent higher rate of stays for treatment, fracture or dislocation of hip or femur than females (3 male stays versus 2 female stays per 10,000 population).

For children 15-17 years:

- Among females 15 to 17 years old, procedures related to pregnancy and childbirth were four of the most commonly performed (Cesarean section, repair of obstetric laceration, episiotomy, and forceps, vacuum, and breech delivery).
- Among stays not related to pregnancy and childbirth, males had higher rates of procedures than females:
  - Appendectomy was performed at a 36-percent higher rate for males than females (19 male stays versus 14 female stays per 10,000 population).
  - Males underwent treatment for fracture or dislocation of lower extremity (other than hip or femur) at over twice the rate as females (5 male stays versus 2 female stays per 10,000 population).
  - The rate of male stays with respiratory intubation and mechanical ventilation was 33 percent higher than for females (4 male stays versus 3 female stays per 10,000 population).

EXHIBIT 5.6 Childbirth



‡ 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, 1997-2009.

- The highest rate of hospital stays for childbirth was among 20 to 24 and 25 to 34 year olds. Between 1997 and 2009, the rate of births was similar for these age groups.
  - The birthrate among 20 to 24 year olds remained stable between 1997 and 2007 and then declined 14 percent to 951 births per 10,000 females in 2009.
  - The birthrate among 25 to 34 year olds increased 20 percent from 950 births per 10,000 females in 1997 to 1,141 births per 10,000 females in 2007, and then decreased 13 percent to 1,012 births per 10,000 females in 2009.
- Among 15 to 19 year olds, the rate of births decreased from 493 stays per 10,000 females in 1997 to 392 stays per 10,000 females in 2009, a 20-percent decrease over the time period.
- For those aged 35 to 44 years, the birthrate increased by 25 percent between 1997 and 2009. There were 228 births per 10,000 females in 1997 and 285 births per 10,000 females in 2009.

Number of Stays and Stays per 1,000 Maternal Stays for the Most Frequent Principal Diagnoses for Maternal Hospital Stays, 1997 and 2009

PRINCIPAL CCS DIAGNOSIS	NUMBER OF STAYS IN THOUSANDS		STAYS PER 1,000 MATERNAL STAYS	
	1997	2009	1997	2009
All maternal stays†	4,333	4,568	1,000	1,000
Trauma to vulva and perineum due to childbirth	710	748	164	164
Maternal stay with previous C-section	271	540	63	118 §
Prolonged pregnancy	104	275	24	60 §
Normal pregnancy and/or delivery	536	261	124	57 §
Hypertension complicating pregnancy, childbirth and the puerperium	184	235	42	51 §
Fetal distress and abnormal forces of labor	418	219	97	48 §
Early or threatened labor	260	197	60	43 §
Umbilical cord complication	258	194	60	42 §
Polyhydramnios and other problems of amniotic cavity	201	179	47	39 §
Malposition, malpresentation	161	160	37	35

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

§ 2009 stays per 1,000 maternal stays are statistically different from 1997 stays per 1,000 maternal stays at $p<0.05$.

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

- There were 4.6 million maternal stays in 2009.
  - Trauma to vulva and perineum due to childbirth was the most common condition in both 1997 and 2009 and the rate of this condition was similar between years.
- The following maternal conditions increased from 1997 to 2009:
  - Maternal stay with previous C-section
  - Prolonged pregnancy
  - Hypertension complication pregnancy, childbirth and the puerperium
- The following maternal conditions decreased from 1997 to 2009:
  - Normal pregnancy and/or delivery
  - Fetal distress and abnormal forces of labor
  - Early or threatened labor
  - Umbilical cord complication
  - Polyhydramnios and other problems of amniotic cavity
- Maternal stay with previous C-section rose in rank from fourth in 1997 to second in 2009.
- The number of stays for normal pregnancy decreased from 124 per 1,000 maternal stays in 1997 to 57 per 1,000 maternal stays in 2009. Normal pregnancies are defined as vaginal births with no complicating conditions.

Number of Stays and Stays per 1,000 Maternal Stays for the Most Frequent All-listed Procedures for Maternal Hospital Stays, 1997 and 2009

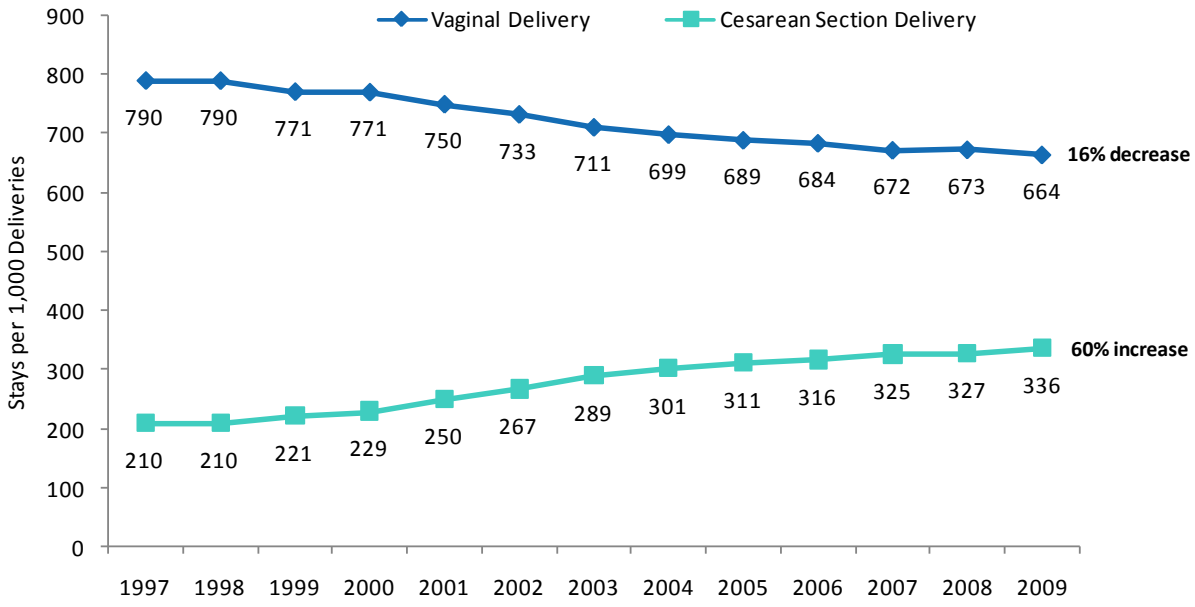
ALL-LISTED CCS PROCEDURES	NUMBER OF STAYS WITH THE PROCEDURE IN THOUSANDS		PROCEDURES PER 1,000 MATERNAL STAYS	
	1997	2009	1997	2009
All maternal stays (with procedures)	3,965	4,266	915	934
Cesarean section	797	1,375	184	301 §
Repair of obstetric laceration	1,133	1,339	261	293 §
Artificial rupture of membranes to assist delivery	850	929	196	203
Fetal monitoring	997	855	230	187
Episiotomy	863	315	199	69 §
Ligation or occlusion of fallopian tubes	304	287	70	63
Forceps, vacuum, and breech delivery	426	276	98	60 §
Insertion of catheter or spinal stimulator and injection into spinal canal	124	190	29	42
Prophylactic vaccinations and inoculations	14	77	3	17 §
Blood transfusion	18	58	4	13 §

§ 2009 stays per 1,000 maternal stays are statistically different from 1997 stays per 1,000 maternal stays at $p<0.05$.

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

- Repair of obstetric laceration and C-section were the most common maternal procedures in 1997 and 2009.
  - There were 261 procedures for repair of obstetric laceration per 1,000 maternal stays in 1997 and 293 procedures per 1,000 maternal stays in 2009.
  - C-section, which was the fifth ranked maternal procedure in 1997, rose to the first ranked in 2009, occurring at a rate of 301 procedures per 1,000 maternal stays in 2009.
- The rate of episiotomies decreased 65 percent from 199 procedures per 1,000 maternal stays in 1997 to 69 procedures per 1,000 maternal stays in 2009.

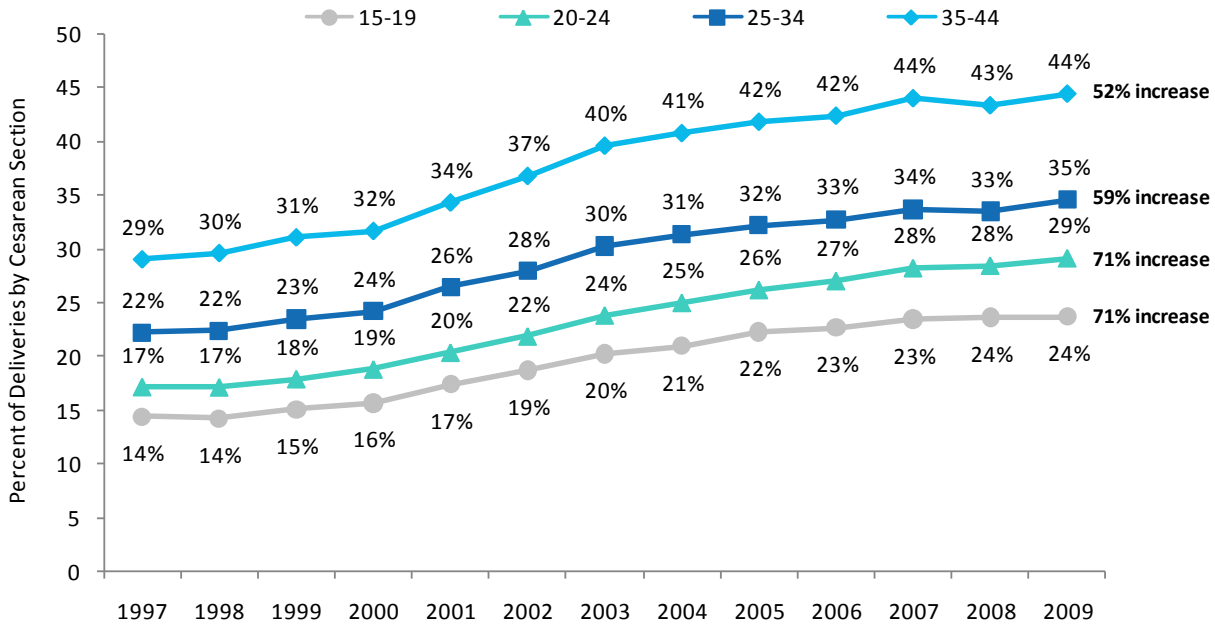
Stays for All-listed Vaginal Delivery and Cesarean Section per 1,000 Deliveries, 1997-2009



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

- The rate of vaginal deliveries decreased by 16 percent, from 790 stays per 1,000 deliveries in 1997 to 664 stays per 1,000 deliveries in 2009.
- The rate of C-sections increased by 60 percent between 1997 and 2009. There were 210 C-sections performed per 1,000 deliveries in 1997 and 336 per 1,000 deliveries in 2009.

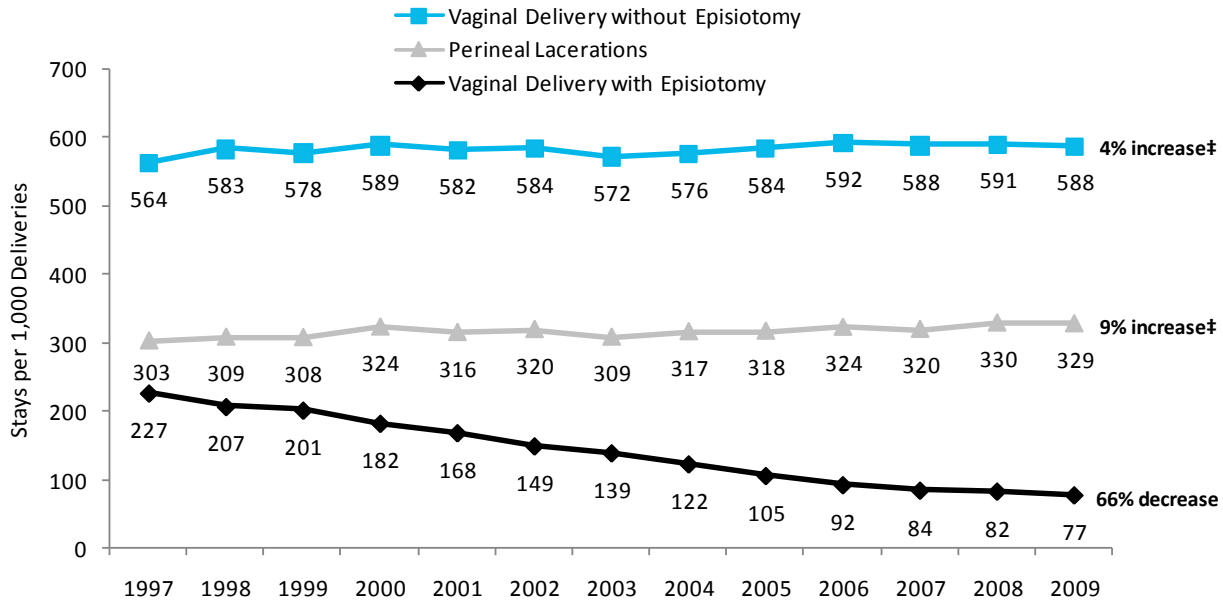
Percent of Maternal Stays with All-listed Cesarean Section Procedures by Age, 1997-2009



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

- In 2009, the percent of deliveries via C-section was highest among 35 to 44 year olds (44 percent). This represents a 52-percent increase from 1997.
- Among 25 to 34 year olds, the percent of maternal deliveries with a C-section grew to 35 percent in 2009 from 22 percent in 1997, a 59-percent increase since 1997.
- The largest increases were seen in the youngest age groups (15 to 19 and 20 to 24 year olds) for whom the C-section rate grew by 71 percent between 1997 and 2009.

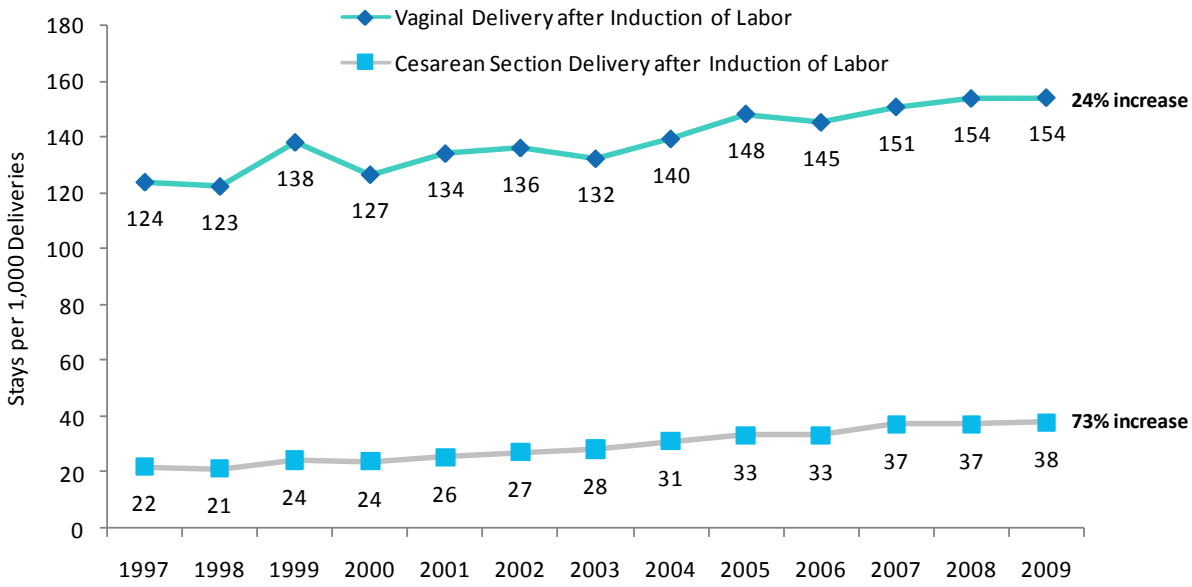
Stays for All-listed Vaginal Deliveries with and without Episiotomy and Perineal Lacerations per 1,000 Deliveries, 1997-2009



‡ 2009 stays per 1,000 deliveries are not statistically different from 1997 stays per 1,000 deliveries at p<0.05.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997-2009.

- The rate of vaginal delivery without episiotomy remained relatively stable from 1997 to 2009.
- From 1997 to 2009, the rate of perineal lacerations also remained stable.
- The rate of vaginal delivery with episiotomy decreased 66 percent – from 227 stays per 1,000 deliveries in 1997 to 77 stays per 1,000 deliveries in 2009.

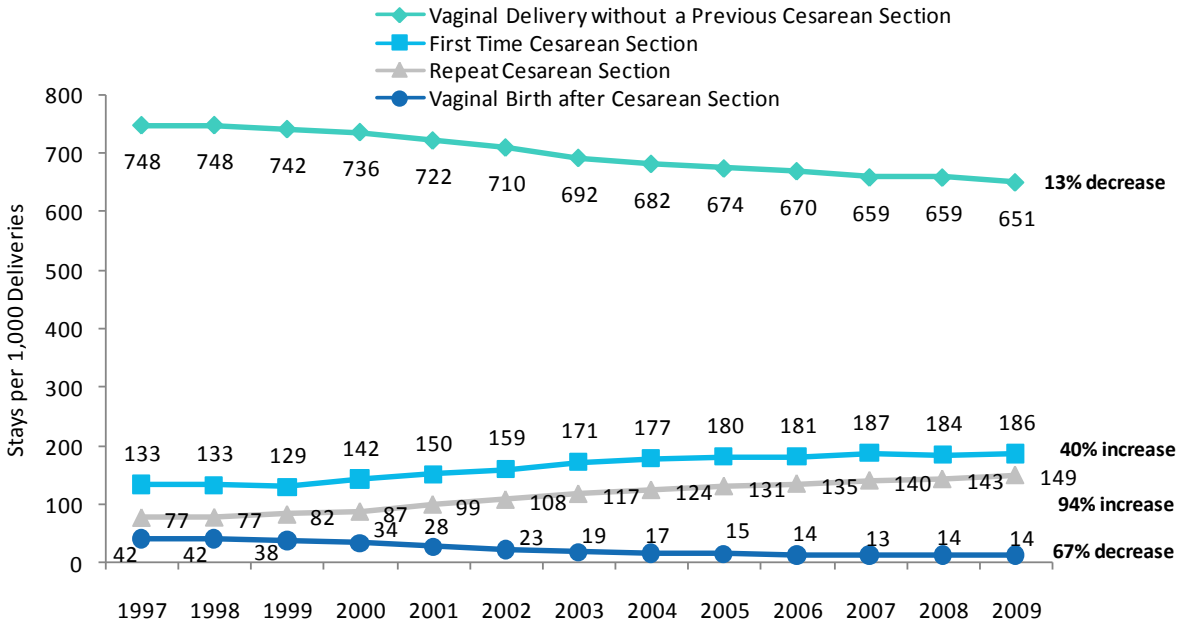
Stays for Vaginal and Cesarean Section Deliveries after Induction of Labor per 1,000 Deliveries, 1997-2009



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

- The rate of vaginal deliveries after induction of labor increased by 24 percent from 124 per 1,000 deliveries in 1997 to 154 in 2009.
- From 1997 to 2009, the rate of C-sections after induction of labor increased by 73 percent from 22 to 38 per 1,000 deliveries.

Stays for Vaginal Delivery without a Previous Cesarean Section, First Time Cesarean Section, Repeat Cesarean Section, and Vaginal Birth after Cesarean Section per 1,000 Deliveries, 1997-2009



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

- The rate of vaginal delivery without a previous C-section decreased by 13 percent from 748 per 1,000 deliveries in 1997 to 651 per 1,000 deliveries in 2009.
- Between 1997 and 2009, first time C-section rates increased by 40 percent from 133 procedures per 1,000 deliveries in 1997 to 186 procedures per 1,000 deliveries in 2009.
- Between 1997 and 2009, the rate of repeat C-sections grew by 94 percent from 77 previous C-sections per 1,000 deliveries in 1997 to 149 per 1,000 deliveries in 2009.
- Vaginal births after C-sections declined 67 percent between 1997 and 2009 from 42 stays per 1,000 deliveries to 14 stays per 1,000 deliveries.