

STATISTICAL BRIEF #86

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Hospital-Based Ambulatory Surgery, 2007

Allison Russo, M.P.H., Anne Elixhauser, Ph.D., Claudia Steiner, M.P.H., M.D., and Lauren Wier, M.P.H.

Introduction

Ambulatory surgery (AS), or outpatient surgery, is a planned surgical episode where the patient requires hospital care for less than 24 hours. Outpatient procedures account for a growing proportion of surgeries performed in U.S. hospitals because AS increasingly substitutes for inpatient surgery for many procedures.¹ Nationally, 63 percent of all surgeries in 2005 did not require an overnight hospital stay and were considered outpatient, compared with 51 percent in 1990 and only 16 percent in 1980.^{2,3}

Two major factors explain this overall growth in ambulatory surgeries. First, advances in surgical technology and anesthesia have made surgery easier on patients and increased the demand for outpatient procedures. Second, in an effort to reduce rising health care costs, health care payment policies have encouraged AS. For example, the Medicare program adopted an outpatient prospective payment system authorizing payment for surgical services in a variety of settings, such as a physician's office, a hospital outpatient department, or an ambulatory surgical center. A comparison of AS data to inpatient surgery data is essential for understanding utilization patterns and costs for specific surgical procedures.

This Statistical Brief presents data from the Healthcare Cost and Utilization Project (HCUP) State Ambulatory Surgery Databases (SASD) and State Inpatient Databases (SID). These databases provide information on hospital-based ambulatory and inpatient surgeries performed in short-term, acute-care hospitals in the 28

Highlights

- In the 28 states evaluated, nearly 58 percent of surgical encounters in hospitals were performed on outpatients.
- There were nearly 5,600 ambulatory surgery (AS) visits per 100,000 population compared with almost 4,100 inpatient surgical visits per 100,000.
- The mean charge for AS was lower than for inpatient surgery—\$6,100 versus \$39,900. The aggregate charge across the 28 states for AS was about one-fifth of total inpatient charges—\$55.6 billion versus \$259 billion.
- Procedures related to the digestive system accounted for 40 percent of all AS.
- Procedures done on the eye, ear, and nose/mouth/pharynx were predominantly outpatient. Roughly two-thirds of surgical procedures on the skin, digestive system, and urinary system were outpatient.
- Colonoscopy and biopsy was the most commonly performed AS procedure in 2007, followed by upper GI endoscopy, lens and cataract procedures, diagnostic cardiac catheterization, and debridement of wound.
- Major procedures that were performed less frequently on an outpatient basis, but with significant numbers include PTCA, appendectomy, open prostatectomy, oophorectomy, hysterectomy, hip fracture/dislocation repair, lower extremity amputation, and spinal fusion.

¹ LJ, McCarthy E, Pokras R. Changing patterns of surgical care in the United States, 1980-1995. *Health Care Finance Rev.* 1999 Fall; 21(1):31-49.

² National Center for Health Statistics. *Health, United States, 2007 with Chartbook on Trends in the Health of Americans.* Hyattsville, MD: 2008.

³ These statistics include major and minor surgical procedures performed in inpatient operating suites, outpatient surgery suites, or procedure rooms within an outpatient care facility.

states that provided AS data to HCUP in 2007. These 28 states encompass about two-thirds of the U.S. population. These statistics exclude procedures performed in freestanding AS centers because these centers are not included in many State AS data sources.

This report compares the utilization of ambulatory surgery procedures in hospitals to inpatient procedures in 28 states that provide data sources for both hospital-based ambulatory and inpatient surgery. The analysis is limited to major invasive procedures requiring anesthesia services or sedation, but excludes procedures that are performed infrequently in ambulatory surgery settings, procedures that are adjunct to the principal procedure, dental procedures, obstetrical procedures, and procedures that are done predominantly in outpatient settings outside of hospitals.⁴ This report provides information about the distribution of inpatient versus outpatient surgical procedures by body system, as well as the most common surgical procedures performed in an outpatient setting. In addition, ambulatory and inpatient volume, procedure rates, and hospital charge information are compared for each procedure. Unless otherwise noted, estimates are based on all-listed procedures. All differences between estimates provided in the text are statistically significant at the 0.05 level or better.

Findings

Characteristics of ambulatory surgery procedures performed in community hospitals

Based on data from the 28 states examined for this report, nearly 10.8 million ambulatory surgery (AS) visits took place in 2007, totaling \$55.6 billion in aggregate charges (table 1). These visits resulted in over 12.4 million procedures (1.2 procedures per AS visit). This compares to 7.9 million inpatient stays that involved 11.0 million surgical procedures (1.4 procedures per hospital stay). Overall, 57.7 percent of procedures performed in hospitals were ambulatory in nature. In 2007, this translated to approximately 5,600 hospital-based AS visits per 100,000 population, compared with 4,100 inpatient procedure stays per 100,000 population.

The mean charge for hospital-based AS procedures was considerably lower than the charge for inpatient hospital stays that included procedures—\$6,100 versus \$39,900. Aggregate charges across the 28 states were about one-fifth of the national bill for inpatient—\$55.6 billion versus \$259 billion. Most hospital-based AS procedures were performed in large, metropolitan, private not-for-profit hospitals. However, compared with inpatient procedures, AS was more likely to be performed in smaller hospitals, outside metropolitan areas, and in non-teaching settings.

Ambulatory versus inpatient surgeries, by body system

Figure 1 shows that nearly all hospital-based procedures related to the eye (99.3 percent), ear (96.3 percent), and nose/mouth/pharynx (93.8 percent) were outpatient. About two-thirds of all hospital-based procedures on the skin (70.4 percent), digestive system (66.8 percent), and urinary system (61.7 percent) were also outpatient. Roughly half of all hospital-based procedures involving the musculoskeletal (54.0 percent), nervous (47.9 percent), female genital (47.5 percent), and endocrine systems (46.0 percent), were outpatient.

In contrast, respiratory, cardiovascular, male genital, and hemic/lymphatic procedures were primarily inpatient. About one in three surgical procedures on the respiratory (31.2 percent) and cardiovascular (29.4 percent) systems were performed in an outpatient setting, while less than 10 percent of all procedures on male genital organs and the hemic/lymphatic system were outpatient.

The most common ambulatory surgeries performed in community hospitals

Table 2 lists the 25 most common AS procedures performed in community hospitals. Colonoscopy and biopsy was the most common AS procedure and comprised nearly 18.1 percent of all procedures performed in an outpatient setting. Upper GI endoscopy and biopsy accounted for 10.8 percent of all outpatient procedures. Other digestive system procedures commonly performed in the outpatient setting included: cholecystectomy, or gall bladder surgery (2.5

⁴ Full details about the types of procedures reported in this report are provided under "Definitions" on page 4.

percent of all AS); hernia repair (inguinal and femoral—2.1 percent; other hernias—1.4 percent); and esophageal dilatation (1.3 percent). In fact, more ambulatory surgeries involved the digestive system (40.0 percent) than any other body system (data not shown).

Though procedures on the cardiovascular system accounted for a small number of AS overall, diagnostic cardiac catheterization alone comprised 3.8 percent of all outpatient procedures in the hospitals in these 28 states. Four of the 25 most common ambulatory procedures were related to the musculoskeletal system: excision of semilunar cartilage of knee (2.5 percent of all AS), partial bone excision (1.5 percent), arthroplasty other than hip or knee (1.4 percent), and other fracture and dislocation procedure (1.2 percent). Two commonly performed outpatient procedures on the skin were wound debridement (2.6 percent) and incision and drainage of the skin and subcutaneous tissue (1.4 percent).

Lens and cataract procedures, most often performed on elderly patients, accounted for 5.5 percent of all AS in the hospitals in these 28 states.⁵ Four of the 25 most common outpatient procedures were primarily or exclusively performed on women: other excision of cervix and uterus (2.1 percent of all AS), breast biopsy (1.9 percent), lumpectomy/quadrantectomy of the breast (1.9 percent), and diagnostic dilatation and curettage (D&C) (1.5 percent). Tonsillectomy and/or adenoidectomy and myringotomy (ear tube surgery)—two procedures primarily performed on children—were two of the most common surgical procedures performed in the ambulatory setting (2.5 percent and 1.9 percent of all procedures, respectively).

Three procedures involving the urinary tract were also among the top 25 AS procedures performed in hospitals—endoscopy/biopsy (1.6 percent of all AS), transurethral procedures for urinary obstruction (1.5 percent), and ureteral catheterization (1.3 percent). Finally, decompression of peripheral nerves (e.g., carpal tunnel release) comprised 1.5 percent of all AS, while bronchoscopy made up 1.1 percent of all AS.

Table 2 also provides information on the total number of procedures, rates, and the percentage of each procedure performed on an outpatient basis. For many procedures, it is clear that very few are done in an inpatient setting. For example, lens and cataract procedures, excision of semilunar cartilage of the knee, tonsillectomy, breast biopsy, lumpectomy, myringotomy, D&C, and decompression of peripheral nerve have rates lower than 10 inpatient procedures per 100,000 population, while rates for their outpatient counterparts are 12–50 times higher (over 300 times higher for lens procedures).

An inventory of ambulatory surgical procedures performed in community hospitals

The appendix provides a comprehensive listing of all major procedures, by body system, performed in an outpatient setting in community hospitals.⁶ Overall, the highest numbers of ambulatory surgical procedures were performed on the digestive and musculoskeletal systems. The endocrine system accounted for the fewest outpatient procedures.

The appendix also provides details on procedures less commonly performed in AS settings that were not covered in table 2. For example, although laminectomy (Clinical Classifications Software (CCS) 3) is not a predominantly outpatient procedure, 22.1 percent were performed in an ambulatory setting (42.7 AS procedures per 100,000 population versus 150.8 inpatient (IP) procedures per 100,000 population). Other major procedures that are not predominantly AS but with significant numbers of ambulatory cases include:

- PTCA (CCS 45): 17.7 AS procedures vs. 242.4 IP procedures per 100,000 population
- Appendectomy (CCS 80): 26.8 AS procedures vs. 118.9 IP procedures per 100,000 population

⁵ The total number of lens and cataract procedures is much higher; many are performed in freestanding AS centers, which are not included in these data.

⁶ The appendix shows all procedures that were considered “surgical procedures” throughout this Brief. That is, these procedures comprise all the surgeries from which information was derived for tables 1-2 and figure 1.

- Open prostatectomy (CCS 114): 3.0 AS procedures vs. 28.1 IP procedures per 100,000 population
- Oophorectomy (CCS 119): 31.9 AS procedures vs. 121.4 IP procedures per 100,000 population
- Hysterectomy (CCS 124): 26.7 AS procedures vs. 166.6 IP procedures per 100,000 population
- Hip fracture/dislocation repair (CCS 146): 8.1 AS procedures vs. 98.0 IP procedures per 100,000 population
- Lower extremity amputation (CCS 157): 8.1 AS procedures vs. 38.2 IP procedures per 100,000 population
- Spinal fusion (CCS 158): 14.8 AS procedures vs. 124.0 IP procedures per 100,000 population

Mean charges for outpatient procedures were always lower than for inpatient. However, the difference in inpatient and outpatient charges for operations on the male genital organs was minimal when compared to other surgeries. The highest mean charges per visit were found among outpatient procedures performed on the cardiovascular system.

Data Source

The estimates in this Statistical Brief are based upon data from the HCUP 2007 State Inpatient Database (SID) and 2007 State Ambulatory Surgery Database (SASD). This report evaluates inpatient and outpatient surgery data from 28 selected states that contributed data to both the 2007 SASD and SID: California, Colorado, Connecticut, Florida, Georgia, Hawaii, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, Vermont, and Wisconsin. Supplemental source included data on state population estimates from Table 1: Annual Estimates of the Population for the United States, Regions, States, and Puerto Rico: April 1, 2000 to July 1, 2007 (NST-EST2007-01), Population Division, U.S. Census Bureau, Release date: December 27, 2007 (<http://www.census.gov/popest/states/tables/NST-EST2007-01.xls>).

Definitions

Surgical procedures and Clinical Classifications Software (CCS)

Multiple surgical procedures can be listed on a record in the SID and SASD. Frequencies and rankings of procedures are based on all-listed—that is, all procedures listed on the record. Procedures are de-duplicated: if a particular procedure occurs multiple times during the same surgical visit or hospital stay, it is counted only once.

CCS groupings of procedures were used throughout the report. CCS categorizes procedure codes into clinically meaningful categories.⁷ This "clinical grouper" makes it easier to quickly understand patterns of procedure use.

Procedures on ambulatory surgery records can be coded using ICD-9-CM or the Common Procedural Terminology (CPT). When CPT was used, the CCS for Services and Procedures⁸ was used to classify procedures into groupings comparable to the CCS.

Case definition

Records from the SASD meeting the following criteria were included:

⁷ HCUP CCS. Healthcare Cost and Utilization Project (HCUP). June 2009. U.S. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp

⁸ HCUP CCS-Services and Procedures. Healthcare Cost and Utilization Project (HCUP). June 2009. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/toolssoftware/ccs_svcsproc/ccssvcproc.jsp

- At least one surgical procedure as defined by an *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) procedure code in the range of 00.50–86.99 or 88.40–88.59.
- At least one major therapeutic or diagnostic operating room procedure as defined by the HCUP Procedure Classes.⁹ Diagnostic procedures are included only if invasive, requiring anesthesia services or sedation.
- Length of stay of 0 or 1 day.
- Originate from a hospital-based ambulatory surgery center having at least 200 ambulatory surgical visits per year.
- The ambulatory surgery facility is designated as a short-term, community, non-rehabilitation hospital. Freestanding ambulatory surgery centers were not included.
- The procedure comprised at least 2,000 ambulatory surgery cases across the 28 states in 2007, because the focus of this analysis was on the most frequent procedures done in the ambulatory setting.
- Excludes procedures with the following characteristics: a procedure that is adjunct to another procedure (e.g., “extracorporeal circulation auxiliary to open heart procedures”), a heterogeneous “other” procedure category (e.g., “other OR heart procedures” which includes a wide range of heterogeneous, infrequent procedures), dental procedures, and procedures predominantly done in freestanding centers, radiology centers, or physician offices (e.g., “dialysis,” “proctoscopy,” “extracorporeal lithotripsy,” and “indwelling catheter”).
- Obstetrical procedures were excluded.

Records from the SID meeting similar criteria were included:

- At least one surgical procedure as defined by an ICD-9-CM procedure code in the range of 00.50–86.99 or 88.40–88.59.
- At least one major therapeutic or diagnostic operating room procedure as defined by the HCUP Procedure Classes. Diagnostic procedures are included only if invasive, requiring anesthesia services or sedation.
- Originate from a hospital with at least 200 inpatient surgical stays.
- The inpatient facility is designated as a short-term, community, non-rehabilitation hospital.
- The procedure met the criteria for including procedures from the SASD.
- Obstetrical procedures were excluded.

Types of hospitals included in HCUP

HCUP is based on data from community hospitals, defined as short-term, non-Federal, general and other hospitals, excluding hospital units of other institutions (e.g., prisons). HCUP data include OB-GYN, ENT, orthopedic, cancer, pediatric, public, and academic medical hospitals. They exclude long-term care, rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals, but these types of encounters are included if they are from community hospitals.

Unit of analysis

For this report, any reference to “visit” or “hospital stay” indicates that the unit of analysis is the record rather than the surgical procedure. Any reference to “surgeries” indicates that the unit of analysis is a major operating room procedure. A visit or stay can involve multiple procedures.

Charges

Charges in HCUP data are the amount the hospital charged or billed for the entire surgical visit or hospital stay and do not reflect charges for individual surgical procedures. Charges do not necessarily reflect reimbursements or costs and do not include most professional (physician) fees. Cost-to-charge ratios are available to convert inpatient hospital charges to inpatient hospital costs, but an equivalent ratio for outpatient hospital data is currently not available.

⁹ HCUP Procedure Classes. Healthcare Cost and Utilization Project (HCUP). November 2009. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/toolsssoftware/procedure/procedure.jsp .

About HCUP

HCUP is a family of powerful health care databases, software tools, and products for advancing research. Sponsored by the Agency for Healthcare Research and Quality (AHRQ), HCUP includes the largest all-payer encounter-level collection of longitudinal health care data (inpatient, ambulatory surgery, and emergency department) in the United States, beginning in 1988. HCUP is a Federal-State-Industry Partnership that brings together the data collection efforts of many organizations—such as State data organizations, hospital associations, private data organizations, and the Federal government—to create a national information resource.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Louisiana Department of Health and Hospitals
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Division of Health Care Finance and Policy
Michigan Health & Hospital Association
Minnesota Hospital Association
Missouri Hospital Industry Data Institute
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health and Senior Services
New York State Department of Health
North Carolina Department of Health and Human Services
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina State Budget & Control Board
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information
Washington State Department of Health
West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About the SID

The HCUP State Inpatient Databases (SID) are hospital inpatient databases from data organizations participating in HCUP. The SID contain the universe of the inpatient discharge abstracts in the participating HCUP States, translated into a uniform format to facilitate multistate comparisons and analyses. Together, the SID encompass almost 90 percent of all U.S. community hospital discharges in 2007. The SID can be used to investigate questions unique to one state; to compare data from two or more states; to conduct market area variation analyses; and to identify state-specific trends in inpatient care utilization, access, charges, and outcomes.

About the SASD

The HCUP State Ambulatory Surgery Databases (SASD) capture surgeries performed on the same day in which patients are admitted and released. All of the SASD databases from organizations participating in HCUP include abstracts from hospital-affiliated ambulatory surgery sites. Some contain the universe of ambulatory surgery encounter abstracts for that state, including records from both hospital-affiliated and freestanding surgery centers. In order to provide information that is comparable across all states, analysis was restricted to hospital-affiliated ambulatory surgery.

For More Information

For more information about HCUP, visit www.hcup-us.ahrq.gov.

For additional HCUP statistics, visit HCUPnet, our interactive query system, at www.hcup.ahrq.gov.

For information on other hospitalizations in the U.S., download *HCUP Facts and Figures: Statistics on Hospital-Based Care in the United States in 2007*, located at <http://www.hcup-us.ahrq.gov/reports.jsp>.

For a detailed description of HCUP, more information on the design of the SID, SASD, and methods to calculate estimates, please refer to the following publications:

Steiner, C., Elixhauser, A., Schnaier, J. The Healthcare Cost and Utilization Project: An Overview. *Effective Clinical Practice* 5(3): 143–51, 2002.

Introduction to the HCUP State Inpatient Databases. Online. July 17, 2009. U.S. Agency for Healthcare Research and Quality. http://www.hcup-us.ahrq.gov/db/state/siddist/Introduction_to_SID.pdf.

Introduction to the HCUP State Ambulatory Surgery Databases. Online. July 17, 2009. U.S. Agency for Healthcare Research and Quality. http://www.hcup-us.ahrq.gov/db/state/sasddist/Introduction_to_SASD.pdf.

Russo, C.A., Owens, P., Steiner, C., Josephsen J. *Ambulatory Surgery in U.S. Hospitals, 2003*. HCUP Fact Book No. 9. Online. January 2007. U.S. Agency for Healthcare Research and Quality. <http://www.ahrq.gov/data/hcup/factbk9/factbk9.pdf>.

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AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please e-mail us at hcup@ahrq.gov or send a letter to the address below:

Irene Fraser, Ph.D., Director
Center for Delivery, Organization, and Markets
Agency for Healthcare Research and Quality
540 Gaither Road
Rockville, MD 20850

Table 1: The characteristics of ambulatory and inpatient surgeries performed in community hospitals in 28 states, 2007

Characteristics	Ambulatory surgeries	Inpatient surgeries
Total visits/stays for surgeries (percentage of all surgical encounters)	10,797,700 (57.7%)	7,918,400 (42.3%)
Visits/stays per 100,000 population [†]	5,600	4,100
Total number of surgeries (percentage of all surgical procedures)	12,426,800 (53.0%)	11,007,500 (47.0%)
Average number of surgeries per visit/stay	1.2	1.4
Total (aggregate) charge (percentage of total charges for surgical encounters)	\$55.6 billion (17.7%)	\$258.9 billion (82.3%)
Mean charge per visit/stay**	\$6,100	\$39,900
Percentage of visits/stays by type of community hospital [†] :		
Large hospitals	57.5%	64.4%
Metropolitan hospitals	83.8%	90.0%
Teaching hospitals	44.0%	52.8%
Non-federal government hospitals	12.7%	12.5%
Private not-for-profit hospitals	76.3%	76.5%
Private for-profit hospitals	11.0%	11.0%

*Based on state population estimates from the U.S. Census Bureau.

**Mean charges are for hospital-based ambulatory and inpatient surgical visits and stays. Inpatient surgical stays are typically more expensive because of longer lengths of stay and the use of multiple procedures.

[†]Hospital characteristics related to bed size, location, and teaching status are not mutually exclusive.

Source: Agency for Healthcare Research and Quality, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases and State Ambulatory Surgery Databases, 2007, from the following 28 states: CA, CO, CT, FL, GA, HI, IA, IN, KS, KY, MD, ME, MI, MN, MO, NC, NE, NH, NJ, NY, OH, OK, SC, SD, TN, UT, VT, and WI.

Table 2: The 25 most common ambulatory surgeries performed in community hospitals in 28 states, 2007

All-listed procedures	Percentage of all ambulatory surgeries	Total number		Total number of surgeries per 100,000 population*		Percentage performed in an ambulatory setting
		Ambulatory surgeries (in thousands)	Inpatient surgeries (in thousands)	Ambulatory surgeries	Inpatient surgeries	
Colonoscopy and biopsy	18.1%	2,247	363	1,160	187	86.1%
Upper gastrointestinal endoscopy, biopsy	10.8%	1,347	756	695	390	64.0%
Lens and cataract procedures	5.5%	689	1	356	1	99.8%
Diagnostic cardiac catheterization, coronary arteriography	3.8%	471	937	243	484	33.4%
Debridement of wound, infection or burn	2.6%	326	196	168	101	62.4%
Excision of semilunar cartilage of knee	2.5%	317	6	164	3	98.2%
Cholecystectomy and common duct exploration	2.5%	313	267	162	138	53.9%
Tonsillectomy and/or adenoidectomy	2.5%	306	17	158	9	94.8%
Inguinal and femoral hernia repair	2.1%	267	32	138	17	89.3%
Other excision of cervix and uterus	2.1%	266	34	137	18	88.6%
Breast biopsy and other diagnostic procedures on breast	1.9%	241	7	124	4	97.3%
Lumpectomy, quadrantectomy of breast	1.9%	235	11	121	6	95.5%
Myringotomy (ear tube surgery)	1.9%	232	7	120	4	97.0%
Endoscopy and endoscopic biopsy of the urinary tract	1.6%	199	124	103	64	61.5%
Partial excision bone	1.5%	191	130	99	67	59.6%
Diagnostic dilatation and curettage (D&C)	1.5%	190	15	98	8	92.6%
Transurethral excision, drainage, or removal urinary obstruction	1.5%	186	71	96	37	72.3%
Decompression peripheral nerve	1.5%	185	10	95	5	95.0%
Arthroplasty other than hip or knee	1.4%	180	43	93	22	80.8%
Other hernia repair	1.4%	175	134	90	69	56.5%
Incision and drainage, skin and subcutaneous tissue	1.4%	169	145	87	75	53.9%
Ureteral catheterization	1.3%	165	118	85	61	58.2%
Esophageal dilatation	1.3%	161	25	83	13	86.4%
Other fracture and dislocation procedure	1.2%	148	101	76	52	59.3%
Diagnostic bronchoscopy and biopsy of bronchus	1.1%	141	236	73	122	37.5%

*Based on state population estimates from the U.S. Census Bureau.

Source: Agency for Healthcare Research and Quality, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases and State Ambulatory Surgery Databases, 2007, from the following 28 States: CA, CO, CT, FL, GA, HI, IA, IN, KS, KY, MD, ME, MI, MN, MO, NC, NE, NH, NJ, NY, OH, OK, SC, SD, TN, UT, VT, and WI.

Appendix: Major ambulatory surgeries performed in community hospitals in 28 states, 2007* (pages 11 through 15)

All-Listed procedures (CCS number and category)	Total number		Total number of surgeries per 100,000 population**		Percentage performed in an ambulatory setting	Mean charge per visit/stay	
	Ambulatory surgeries (in thousands)	Inpatient surgeries (in thousands)	Ambulatory surgeries	Inpatient surgeries		Ambulatory surgeries	Inpatient surgeries
<i>Operations on the nervous system</i>							
1 Incision and excision of CNS	73.7	68.8	38.1	35.5	51.7	\$10,829	\$79,485
3 Laminectomy, excision intervertebral disc	82.7	292.1	42.7	150.8	22.1	\$12,038	\$24,987
6 Decompression peripheral nerve	184.7	9.7	95.4	5.0	95.0	\$4,672	\$25,956
<i>Operations on the endocrine system</i>							
10 Thyroidectomy, partial or complete	33.3	39.0	17.2	20.2	46.0	\$13,493	\$20,628
<i>Operations on the eye</i>							
13 Corneal transplant	11.7	0.3	6.0	0.1	97.6	\$13,119	\$27,705
14 Glaucoma procedures	41.3	0.4	21.3	0.2	99.1	\$4,938	\$19,231
15 Lens and cataract procedures	689.4	1.3	355.9	0.7	99.8	\$4,870	\$23,183
16 Repair of retinal tear, detachment	57.0	1.7	29.4	0.9	97.1	\$10,516	\$31,161
17 Destruction of lesion of retina and choroid	31.1	2.2	16.1	1.1	93.4	\$2,337	\$101,386
<i>Operations on the ear</i>							
22 Tympanoplasty	36.7	1.0	19.0	0.5	97.4	\$7,739	\$18,555
23 Myringotomy	231.9	7.2	119.7	3.7	97.0	\$3,547	\$22,930
24 Mastoidectomy	10.9	1.9	5.6	1.0	85.4	\$13,900	\$33,980
25 Diagnostic procedures on ear	4.4	0.9	2.3	0.5	83.2	\$2,990	\$28,530
<i>Operations on the nose, mouth, and pharynx</i>							
28 Plastic procedures on nose	127.0	12.0	65.6	6.2	91.4	\$7,809	\$23,343
30 Tonsillectomy and/or adenoidectomy	306.4	16.7	158.1	8.6	94.8	\$5,286	\$13,618
<i>Operations on the respiratory system</i>							

Appendix: Major ambulatory surgeries performed in community hospitals in 28 states, 2007* (pages 11 through 15)

All-Listed procedures (CCS number and category)	Total number		Total number of surgeries per 100,000 population**		Percentage performed in an ambulatory setting	Mean charge per visit/stay	
	Ambulatory surgeries (in thousands)	Inpatient surgeries (in thousands)	Ambulatory surgeries	Inpatient surgeries		Ambulatory surgeries	Inpatient surgeries
35 Tracheoscopy and laryngoscopy with biopsy	69.2	41.8	35.7	21.6	62.4	\$3,267	\$24,223
37 Diagnostic bronchoscopy and biopsy of bronchus	141.5	235.6	73.0	121.6	37.5	\$4,608	\$43,630
39 Incision of pleura, thoracentesis, chest drainage	38.4	270.7	19.8	139.8	12.4	\$3,076	\$33,347
Operations on the cardiovascular system							
45 Percutaneous coronary angioplasty (PTCA)	34.2	469.5	17.7	242.4	6.8	\$34,920	\$46,769
47 Diagnostic cardiac catheterization, coronary arteriography	470.9	937.2	243.1	483.8	33.4	\$11,878	\$28,260
48 Insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator	82.4	237.1	42.5	122.4	25.8	\$28,441	\$73,658
53 Varicose vein stripping, lower limb	25.4	0.8	13.1	0.4	97.0	\$8,459	\$23,228
57 Creation, revision and removal of arteriovenous fistula or vessel-to-vessel cannula for dialysis	78.9	35.2	40.7	18.2	69.1	\$10,277	\$55,828
60 Embolectomy and endarterectomy of lower limbs	18.8	28.1	9.7	14.5	40.2	\$20,550	\$49,739
Operations on the hemic and lymphatic system							
65 Bone marrow biopsy	40.0	63.0	20.7	32.5	38.8	\$5,069	\$56,469
222 Blood transfusion	134.5	1631.5	69.4	842.1	7.6	\$3,435	\$24,926
Operations on the digestive system							
68 Injection or ligation of esophageal varices	7.0	0.1	3.6	0.1	98.3	\$2,464	\$43,076
69 Esophageal dilatation	160.7	25.2	83.0	13.0	86.4	\$3,116	\$22,833
70 Upper gastrointestinal endoscopy, biopsy	1346.8	756.3	695.2	390.4	64.0	\$3,131	\$25,226
71 Gastrostomy, temporary and permanent	32.1	144.7	16.6	74.7	18.1	\$3,846	\$51,514

Appendix: Major ambulatory surgeries performed in community hospitals in 28 states, 2007* (pages 11 through 15)

All-Listed procedures (CCS number and category)	Total number		Total number of surgeries per 100,000 population**		Percentage performed in an ambulatory setting	Mean charge per visit/stay	
	Ambulatory surgeries (in thousands)	Inpatient surgeries (in thousands)	Ambulatory surgeries	Inpatient surgeries		Ambulatory surgeries	Inpatient surgeries
76 Colonoscopy and biopsy	2247.4	363.1	1160.0	187.4	86.1	\$2,369	\$24,356
80 Appendectomy	51.9	230.3	26.8	118.9	18.4	\$14,156	\$21,746
81 Hemorrhoid procedures	64.2	7.9	33.1	4.1	89.0	\$5,978	\$20,173
82 Endoscopic cannulation of pancreas (ERCP)	42.1	26.9	21.7	13.9	61.0	\$6,115	\$32,782
83 Biopsy of liver	73.4	50.3	37.9	25.9	59.4	\$3,599	\$41,657
84 Cholecystectomy and common duct exploration	312.6	266.9	161.4	137.8	53.9	\$10,838	\$32,339
85 Inguinal and femoral hernia repair	266.9	31.8	137.8	16.4	89.3	\$8,187	\$35,598
86 Other hernia repair	174.6	134.4	90.1	69.4	56.5	\$8,711	\$30,397
87 Laparoscopy	83.3	56.6	43.0	29.2	59.5	\$8,215	\$31,572
88 Abdominal paracentesis	62.5	132.3	32.2	68.3	32.1	\$2,590	\$30,956
90 Excision, lysis peritoneal adhesions	41.3	242.1	21.3	125.0	14.6	\$10,311	\$48,373
Operations on the urinary system							
100 Endoscopy and endoscopic biopsy of the urinary tract	198.9	124.5	102.7	64.3	61.5	\$4,300	\$29,406
101 Transurethral excision, drainage, or removal urinary obstruction	185.6	71.1	95.8	36.7	72.3	\$8,044	\$24,309
102 Ureteral catheterization	165.0	118.3	85.2	61.1	58.2	\$7,944	\$23,466
103 Nephrotomy and nephrostomy	5.9	27.8	3.0	14.4	17.5	\$11,877	\$45,946
106 Genitourinary incontinence procedures	71.9	63.5	37.1	32.8	53.1	\$9,929	\$16,633
109 Procedures on the urethra	62.8	23.5	32.4	12.1	72.8	\$6,544	\$26,881
Operations on the male genital organs							
113 Transurethral prostatectomy (TURP)	30.2	47.6	15.6	24.6	38.8	\$10,900	\$18,612
114 Open prostatectomy	5.8	54.4	3.0	28.1	9.6	\$22,771	\$26,890
115 Circumcision	54.7	786.2	28.2	405.8	6.5	\$4,770	\$5,727
Operations on the female genital organs							

Appendix: Major ambulatory surgeries performed in community hospitals in 28 states, 2007* (pages 11 through 15)

All-Listed procedures (CCS number and category)	Total number		Total number of surgeries per 100,000 population**		Percentage performed in an ambulatory setting	Mean charge per visit/stay	
	Ambulatory surgeries (in thousands)	Inpatient surgeries (in thousands)	Ambulatory surgeries	Inpatient surgeries		Ambulatory surgeries	Inpatient surgeries
119 Oophorectomy, unilateral and bilateral	61.9	235.2	31.9	121.4	20.8	\$11,896	\$22,540
121 Ligation of fallopian tubes	96.8	189.5	49.9	97.8	33.8	\$7,646	\$11,455
122 Removal ectopic pregnancy	8.4	11.5	4.4	5.9	42.4	\$12,421	\$17,145
124 Hysterectomy, abdominal and vaginal	51.8	322.7	26.7	166.6	13.8	\$14,839	\$19,476
125 Other excision of cervix and uterus	266.3	34.1	137.4	17.6	88.6	\$7,362	\$19,339
127 Dilatation and curettage (D&C), aspiration after delivery or abortion	121.3	26.3	62.6	13.6	82.2	\$5,472	\$13,189
128 Diagnostic dilatation and curettage (D&C)	190.0	15.3	98.1	7.9	92.6	\$6,366	\$22,376
129 Repair of cystocele and rectocele, obliteration of vaginal vault	26.0	75.2	13.4	38.8	25.7	\$11,504	\$16,398
Operations on the musculoskeletal system							
142 Partial excision bone	191.2	129.8	98.7	67.0	59.6	\$7,590	\$43,531
143 Bunionectomy or repair of toe deformities	115.3	3.2	59.5	1.6	97.3	\$7,699	\$21,552
144 Treatment, facial fracture or dislocation	57.5	20.9	29.7	10.8	73.4	\$7,872	\$37,249
145 Treatment, fracture or dislocation of radius and ulna	114.5	51.0	59.1	26.3	69.2	\$7,807	\$27,774
146 Treatment, fracture or dislocation of hip and femur	15.7	189.8	8.1	98.0	7.6	\$7,435	\$39,431
147 Treatment, fracture or dislocation of lower extremity (other than hip or femur)	104.0	143.8	53.7	74.2	42.0	\$8,916	\$30,789
148 Other fracture and dislocation procedure	147.6	101.4	76.2	52.3	59.3	\$6,986	\$33,983
149 Arthroscopy	122.7	10.1	63.3	5.2	92.4	\$8,970	\$26,028
150 Division of joint capsule, ligament or cartilage	44.8	9.7	23.1	5.0	82.3	\$8,436	\$21,661

Appendix: Major ambulatory surgeries performed in community hospitals in 28 states, 2007* (pages 11 through 15)

All-Listed procedures (CCS number and category)	Total number		Total number of surgeries per 100,000 population**		Percentage performed in an ambulatory setting	Mean charge per visit/stay	
	Ambulatory surgeries (in thousands)	Inpatient surgeries (in thousands)	Ambulatory surgeries	Inpatient surgeries		Ambulatory surgeries	Inpatient surgeries
151 Excision of semilunar cartilage of knee	316.8	5.8	163.5	3.0	98.2	\$7,357	\$25,900
152 Arthroplasty knee	140.4	375.0	72.4	193.6	27.2	\$12,535	\$38,674
154 Arthroplasty other than hip or knee	180.2	42.7	93.0	22.1	80.8	\$11,387	\$35,824
155 Arthrocentesis	100.3	44.5	51.8	23.0	69.3	\$1,149	\$21,822
157 Amputation of lower extremity	15.7	74.1	8.1	38.2	17.5	\$5,843	\$58,073
158 Spinal fusion	28.6	240.2	14.8	124.0	10.6	\$23,175	\$67,079
<i>Operations on the integumentary system</i>							
165 Breast biopsy and other diagnostic procedures on breast	240.5	6.7	124.1	3.4	97.3	\$3,863	\$33,749
166 Lumpectomy, quadrantectomy of breast	235.0	11.1	121.3	5.7	95.5	\$7,458	\$21,836
167 Mastectomy	22.9	46.0	11.8	23.7	33.3	\$15,003	\$23,339
168 Incision and drainage, skin and subcutaneous tissue	169.4	145.0	87.4	74.9	53.9	\$1,674	\$18,201
169 Debridement of wound, infection or burn	326.0	196.0	168.3	101.2	62.4	\$1,790	\$45,742
172 Skin graft	111.5	59.8	57.5	30.9	65.1	\$6,080	\$66,369

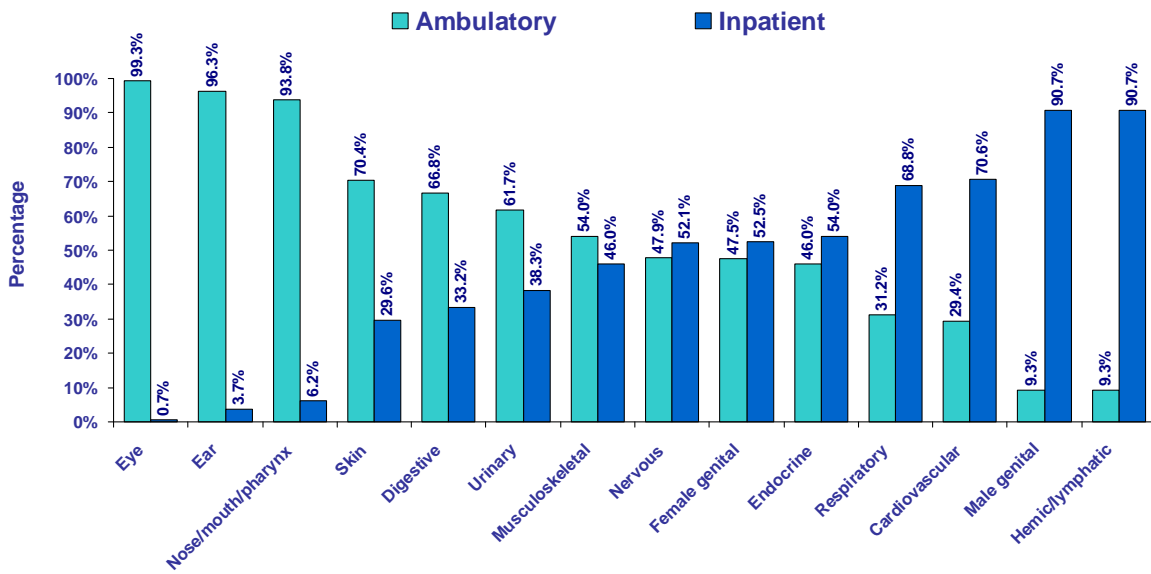
*Statistics are based on major surgery-related procedures only. Diagnostic procedures are included only if invasive, requiring anesthesia services or sedation. Additionally, CCS procedure categories with fewer than 2,000 ambulatory surgery cases are excluded. Other excluded procedures include: a procedure that is adjunct to another procedure, a heterogeneous "other" procedure category, dental procedures, and procedures predominantly done in freestanding centers, radiology centers, or physician offices.

**Based on State population estimates from the U.S. Census Bureau.

Source: Agency for Healthcare Research and Quality, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases and State Ambulatory Surgery Databases, 2007, from the following States: CA, CO, CT, FL, GA, HI, IA, IN, KS, KY, MD, ME, MI, MN, MO, NC, NE, NH, NJ, NY, OH, OK, SC, SD, TN, UT, VT, and WI.



Figure 1. Ambulatory versus inpatient surgeries by body system, 2007



Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases and State Ambulatory Surgery Databases, 2007, from the following 28 states: CA, CO, CT, FL, GA, HI, IA, IN, KS, KY, MD, ME, MI, MN, MO, NC, NE, NH, NJ, NY, OH, OK, SC, SD, TN, UT, VT, and WI