

Overview of Major Ambulatory Surgeries Performed in Hospital-Owned Facilities, 2019

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Introduction

The volume of ambulatory surgeries performed at U.S. community hospitals has grown consistently over the past quarter century, increasing from 13.4 million surgeries in 1995 to 19.2 million surgeries in 2018.¹ Reflective of this growth, outpatient services accounted for 49 percent of community hospital revenue in 2018.¹ Identifying the volume and characteristics of encounters for major ambulatory surgeries, as well as the most common ambulatory surgeries performed, can help provide baseline data for assessing the potential impacts over time of elective procedure deferrals,² changes in reimbursement policy, and advances in medical technology.

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents statistics on major ambulatory surgeries performed in hospital-owned facilities using weighted estimates from the 2019 Nationwide Ambulatory Surgery Sample (NASS). Major ambulatory surgeries are defined as select invasive, therapeutic surgical procedures that typically require the use of an operating room and regional anesthesia, general anesthesia, or sedation (i.e., surgeries flagged as “narrow” in the HCUP Surgery Flags Software³). Procedures intended primarily for diagnostic purposes are excluded.

The rate of major ambulatory surgeries is provided by patient characteristics and hospital characteristics. Additionally, the most common all-listed major ambulatory surgeries are presented overall and by age-sex group, race and ethnicity, and primary expected payer. Because of the large sample size of the NASS data, small differences can be statistically significant. Thus, only differences greater than or equal to 10 percent are discussed in the text. Note that the NASS only includes community hospital-owned ambulatory surgery facilities.

Highlights

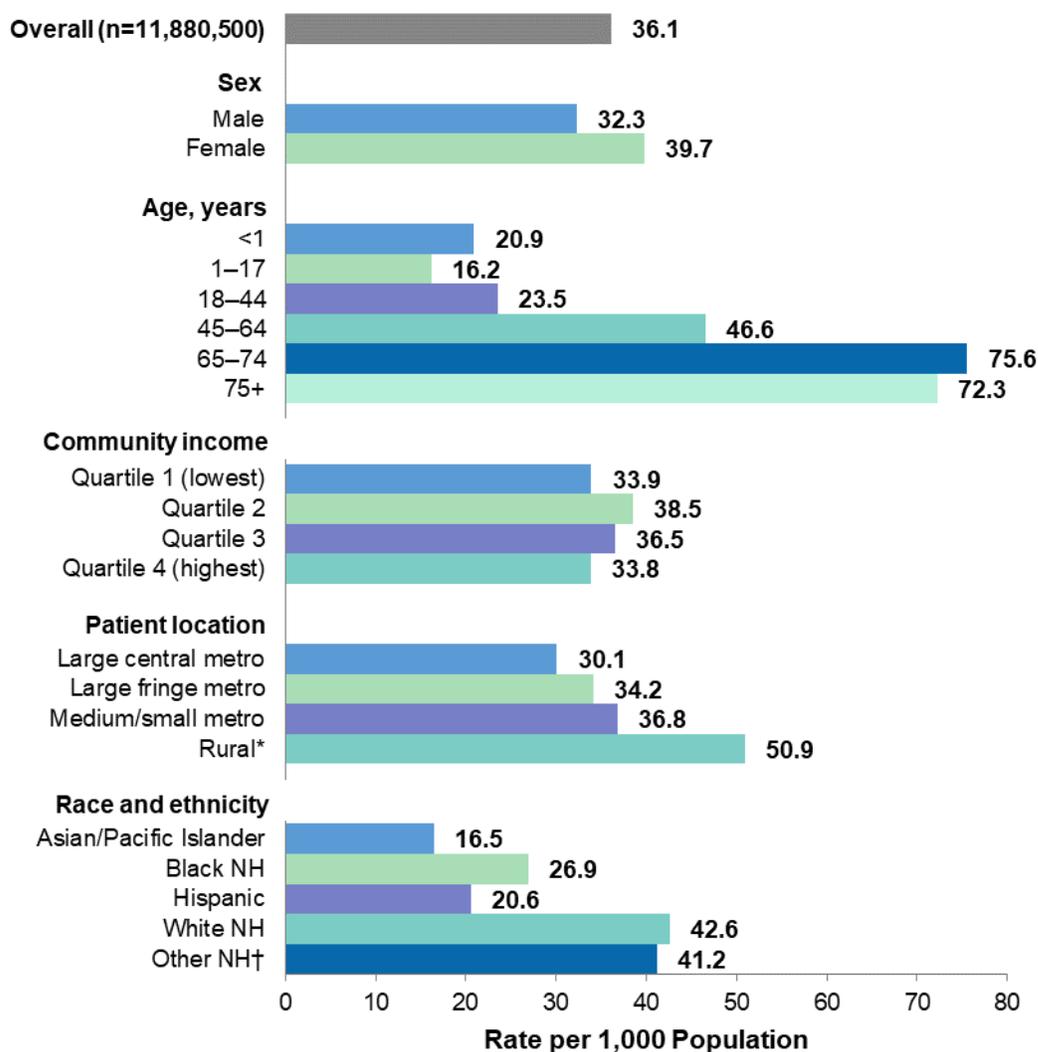
- In 2019, 11.9 million encounters for major ambulatory surgeries took place in hospital-owned facilities.
- Females, adults aged 65 years and older, White individuals, and people living in rural communities had the highest rates of encounters for major ambulatory surgeries.
- Most encounters involving major ambulatory surgeries took place at facilities owned by private, not-for-profit hospitals; teaching hospitals; and hospitals located in urban areas.
- Lens and cataract procedures accounted for 8 percent of all major ambulatory surgeries and represented the most common surgery overall, for those aged 65+ years, for all races and ethnicities except Hispanic, and for patients with Medicare as the expected payer.
- Seven of the top 20 ambulatory surgery categories were related to the musculoskeletal system and accounted for 22 percent of all major ambulatory surgeries.
- Tonsillectomy and/or adenoidectomy, as well as myringotomy were the most common major ambulatory surgeries among children.
- Hernia repair was among the top major ambulatory surgeries for all adult male age groups, whereas obstetric/gynecological surgeries were among the most common major ambulatory surgeries for younger adult females.

Findings

Encounters for major ambulatory surgeries performed in hospital-owned facilities, by patient and hospital characteristics, 2019

Figure 1 presents the rate of encounters for major ambulatory surgeries by select patient characteristics.

Figure 1. Population rate of encounters for major ambulatory surgeries performed in hospital-owned facilities by patient characteristic, 2019



Abbreviation: NH, non-Hispanic; metro, metropolitan

* Rural location includes micropolitan and noncore communities.

† Other NH includes American Indian/Alaska Native and other non-Hispanic individuals.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Ambulatory Surgery Sample (NASS), 2019

- **In 2019, 11.9 million encounters for major ambulatory surgeries occurred in hospital-owned facilities.**

There were 11,880,500 major ambulatory surgeries in 2019—a rate of 36.1 per 1,000 population.

- **Females, adults aged 65 years and older, non-Hispanic White individuals, and people living in rural communities had the highest rates of major ambulatory surgery encounters in 2019.**

In 2019, the rate of major ambulatory surgery encounters was higher for females than for males (39.7 vs. 32.3 per 1,000 population) and generally increased with age: 16.2–23.5 per 1,000 population for those younger than 45 years, 46.6 per 1,000 for those aged 45–64 years, and 72.3–75.6 per 1,000 for those aged 65 years and older.

Among racial and ethnic groups, non-Hispanic White and non-Hispanic Other individuals had the highest rates of encounters for major ambulatory surgeries (42.6 and 41.2 per 1,000 population, respectively). In contrast, the rate was lowest among Asian/Pacific Islander and Hispanic individuals (16.5 and 20.6 per 1,000 population, respectively).

Those living in rural communities had a higher rate of major ambulatory surgery encounters than those living in metropolitan communities: 50.9 versus 30.1–36.8 per 1,000 population.

Table 1 presents the number and distribution of encounters for major ambulatory surgeries by select hospital characteristics in 2019.

Table 1. Encounters for major ambulatory surgeries performed in hospital-owned facilities by hospital characteristic, 2019

Characteristic	Encounters for major ambulatory surgeries	
	Number	Percent
Overall	11,880,500	100.0
Bed size		
Small (0–99 beds)	2,023,900	17.0
Medium (100–299 beds)	3,915,300	33.0
Large (300+ beds)	5,941,200	50.0
Ownership		
Public	1,419,800	12.0
Private, not-for-profit	8,997,500	75.7
Private, investor-owned	1,463,200	12.3
Location		
Urban	10,431,300	87.8
Rural	1,449,200	12.2
Teaching status		
Teaching	8,541,400	71.9
Nonteaching	3,339,100	28.1
Region		
Northeast	2,051,900	17.3
Midwest	3,064,300	25.8
South	4,332,300	36.5
West	2,431,900	20.5

Notes: Number of encounters is rounded to the nearest hundred. Percentages are calculated from unrounded values.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Ambulatory Surgery Sample (NASS), 2019

- **In 2019, most encounters involving major ambulatory surgeries took place at facilities owned by private, not-for-profit hospitals; teaching hospitals; and hospitals in urban areas.**

Facilities owned by private, not-for-profit hospitals accounted for more than three-fourths of major ambulatory surgery encounters, whereas private, investor-owned and public facilities each accounted for 12 percent.

Nearly 90 percent of major ambulatory surgery encounters took place in facilities owned by urban hospitals, and more than 70 percent occurred in those owned by teaching hospitals.

Most common major ambulatory surgeries performed in hospital-owned facilities, 2019

Table 2 presents the most frequent major ambulatory surgeries in 2019 by Clinical Classifications Software for Services and Procedures (CCS-Services and Procedures) category. Statistics are provided for total major ambulatory surgeries (counting each surgery performed, including those occurring for the same encounter) and encounters involving one or more major ambulatory surgery. The totals and percentages for surgeries and encounters are distinct because an encounter can involve multiple surgeries in the same surgery category. Also, because an encounter can involve multiple surgeries across different CCS-Services and Procedures categories, the encounter totals for each of the top 20 surgeries are not necessarily mutually exclusive.

Table 2. Top 20 major ambulatory surgeries performed in hospital-owned facilities, 2019

Rank	CCS-Services and Procedures category	Total major ambulatory surgeries		Encounters involving one or more major ambulatory surgery	
		Number	Percent	Number	Percent
1	Lens and cataract procedures	1,235,400	7.9	1,172,800	9.9
2	Other (select) therapeutic procedures on muscles and tendons*	1,158,600	7.4	911,700	7.7
3	Cholecystectomy and common duct exploration	643,200	4.1	606,900	5.1
4	Other (select) operating room therapeutic procedures on joints*	594,500	3.8	518,600	4.4
5	Other (select) operating room therapeutic procedures on nose, mouth and pharynx*	537,800	3.4	292,700	2.5
6	Other (select) operating room therapeutic procedures on skin and breast*	537,700	3.4	376,100	3.2
7	Inguinal and femoral hernia repair	494,900	3.2	456,600	3.8
8	Hernia repair other than inguinal and femoral	470,500	3.0	434,200	3.7
9	Tonsillectomy and/or adenoidectomy	460,400	2.9	422,100	3.6
10	Decompression of the peripheral nerve	449,200	2.9	387,600	3.3
11	Excision of semilunar cartilage (meniscus) of knee	433,500	2.8	404,800	3.4
12	Hysterectomy, abdominal and vaginal	419,000	2.7	399,800	3.4
13	Myringotomy	371,900	2.4	335,400	2.8
14	Lumpectomy, quadrantectomy of breast	347,500	2.2	331,700	2.8
15	Other (select) operating room therapeutic procedures on bone*	334,500	2.1	288,200	2.4
16	Arthroplasty knee	317,800	2.0	301,900	2.5
17	Insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator	310,200	2.0	265,900	2.2
18	Appendectomy	308,500	2.0	278,400	2.3
19	Partial excision bone	307,100	2.0	277,300	2.3
20	Laminectomy, excision intervertebral disc	296,200	1.9	276,700	2.3
Top 20 major ambulatory surgeries		10,028,500	64.0	8,057,700	67.8
All major ambulatory surgeries		15,669,400	100.0	11,880,500	100.0

Abbreviation: CCS-Services and Procedures, Clinical Classifications Software for Services and Procedures

Notes: Numbers of procedures and encounters are rounded to the nearest hundred. Percentages are calculated from unrounded values. Procedures are grouped using the Healthcare Cost and Utilization Project (HCUP) CCS-Services and Procedures. Note that a single encounter could involve more than one surgery, and the same encounter may be included in the encounter totals for more than one surgery grouping.

* See Appendix for example surgeries included in this CCS-Services and Procedures category.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Ambulatory Surgery Sample (NASS), 2019

- **The top 20 major ambulatory surgery categories accounted for 64 percent of all major ambulatory surgeries and 68 percent of all encounters involving major ambulatory surgeries.**

In 2019, 11.9 million encounters represented a total of 15.7 million major ambulatory surgeries. The top 20 major ambulatory surgery categories constituted 10.0 million surgeries (64 percent of all major ambulatory surgeries) and accounted for 8.1 million major ambulatory surgery encounters (68 percent of all major ambulatory surgery encounters).

- **Lens and cataract procedures represented 8 percent of all major ambulatory surgeries in 2019.**

Out of all CCS-Services and Procedures categories, the lens and cataract procedures category was the most common, constituting 8 percent of all major ambulatory surgeries.

Other (select) therapeutic procedures on muscles and tendons (e.g., arthroscopic rotator cuff repair and tendon sheath incision for trigger finger) was the second most common major ambulatory surgery category. This category along with six other categories related to the musculoskeletal system accounted for 22 percent of all major ambulatory surgeries. The other six categories are other (select) operating room therapeutic procedures on joints (e.g., arthroscopy procedures to treat joint disorders); excision (i.e., partial removal) of semilunar cartilage, or meniscus, of the knee; other (select) operating room therapeutic procedures on bone (e.g., removal of a deep implant, such as a buried screw, wire, or plate); knee arthroplasty (i.e., reconstruction or replacement); partial excision bone; and laminectomy, excision of intervertebral disc.

The top 20 categories also included 4 major ambulatory surgeries related to diseases of the gastrointestinal system: cholecystectomy (i.e., removal of gallbladder) and common duct exploration, inguinal and femoral (i.e., thigh and groin) hernia repair, hernia repair other than inguinal and femoral, and appendectomy. Combined, these surgeries constituted 12 percent of major ambulatory surgeries.

Tables 3–5 present the most common major ambulatory surgeries by select patient characteristics: age-sex group (Table 3), patient race and ethnicity (Table 4), and primary expected payer (Table 5). Major ambulatory surgery totals count each surgery performed, including multiple surgeries within or across CCS-Services and Procedures categories that occurred during the same encounter.

Table 3 presents the most common major ambulatory surgeries by age-sex group in 2019.

Table 3. Most frequent major ambulatory surgeries performed in hospital-owned facilities by age-sex group, 2019

Males				Females			
Rank	CCS-Services and Procedures category	Number of major ambulatory surgeries	Rate per 1,000 population	Rank	CCS-Services and Procedures category	Number of major ambulatory surgeries	Rate per 1,000 population
Ages 0–17 years		959,500	25.4	Ages 0–17 years		675,700	18.7
1	Tonsillectomy and/or adenoidectomy	201,300	5.3	1	Tonsillectomy and/or adenoidectomy	175,700	4.9
2	Myringotomy	201,300	5.3	2	Myringotomy	138,500	3.8
3	Other (select) operating room therapeutic procs on male genital*	98,700	2.6	3	Appendectomy	30,700	0.8
4	Appendectomy	45,100	1.2	4	Other (select) operating room therapeutic procs on nose, mouth and pharynx*	28,400	0.8
5	Other (select) operating room therapeutic procs on nose, mouth and pharynx*	37,100	1.0	5	Other (select) operating room therapeutic procs on bone*	27,700	0.8
Ages 18–44 years		1,345,200	22.6	Ages 18–44 years		2,300,500	39.7
1	Other (select) therapeutic procs on muscles and tendons*	117,900	2.0	1	Cholecystectomy and common duct exploration	225,400	3.9
2	Other (select) operating room therapeutic procs on joints*	102,300	1.7	2	Hysterectomy, abdominal and vaginal	175,400	3.0
3	Other (select) operating room therapeutic procs on nose, mouth and pharynx*	92,900	1.6	3	Other (select) operating room therapeutic procs on skin and breast*	158,900	2.7
4	Appendectomy	75,000	1.3	4	Other (select) operating room therapeutic procs, female organs*	144,900	2.5
5	Inguinal and femoral hernia repair	73,500	1.2	5	Oophorectomy, unilateral and bilateral	131,400	2.3
Ages 45–64 years		2,194,500	53.4	Ages 45–64 years		3,140,000	72.7
1	Other (select) therapeutic procs on muscles and tendons*	268,800	6.5	1	Other (select) therapeutic procs on muscles and tendons*	281,700	6.5
2	Inguinal and femoral hernia repair	169,300	4.1	2	Other (select) operating room therapeutic procs on skin and breast*	232,900	5.4
3	Hernia repair other than inguinal and femoral	126,900	3.1	3	Hysterectomy, abdominal and vaginal	189,100	4.4
4	Other (select) operating room therapeutic procs on joints*	118,300	2.9	4	Cholecystectomy, common duct exploration	157,200	3.6
5	Lens and cataract procs	111,900	2.7	5	Lens and cataract procs	148,500	3.4
Ages 65+ years		2,312,300	97.3	Ages 65+ years		2,739,400	92.1
1	Lens and cataract procs	391,000	16.5	1	Lens and cataract procs	563,000	18.9
2	Inguinal and femoral hernia repair	169,700	7.1	2	Other (select) therapeutic procs on muscles and tendons*	173,300	5.8
3	Other (select) therapeutic procs on muscles and tendons*	160,800	6.8	3	Lumpectomy, quadrantectomy of breast	133,100	4.5
4	Cardiac pacemaker or cardioverter/defibrillator procs	145,700	6.1	4	Arthroplasty knee	114,100	3.8
5	Other (select) operating room procs on vessels other than head and neck*	98,800	4.2	5	Other (select) therapeutic procedures, hemic and lymphatic system*	97,100	3.3

Abbreviations: CCS-Services and Procedures, Clinical Classifications Software for Services and Procedures; procs, procedures

Notes: Number of procedures is rounded to the nearest hundred. Rates are calculated from unrounded values. Procedures are grouped using the Healthcare Cost and Utilization Project (HCUP) CCS-Services and Procedures.

* See Appendix for example surgeries included in this CCS-Services and Procedures category.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Ambulatory Surgery Sample (NASS), 2019

- **The rate of major ambulatory surgeries was higher for male than female children but higher for females aged 18–44 and 45–64 years than males in these age groups.**

Among children, the rate of major ambulatory surgeries was higher for males than females (25.4 vs. 18.7 per 1,000 population). In contrast, the rate for females was higher than males among those aged 18–44 years (39.7 vs. 22.6) and 45–64 years (72.7 vs. 53.4). The rates for males and females aged 65+ years were similar (97.3 and 92.1 per 1,000 population, respectively).

- **Tonsillectomy and/or adenoidectomy and myringotomy were the most common major ambulatory surgeries among children.**

Tonsillectomy and/or adenoidectomy (i.e., removal of the adenoid glands), myringotomy (i.e., incision into the ear drum to relieve pressure), appendectomy, and other (select) operating room therapeutic procedures on nose, mouth, and pharynx (e.g., maxillary antrostomy to clear the sinus opening) were among the top five major ambulatory surgery categories for both male and female children. In the case of tonsillectomy and/or adenoidectomy, the rate was similar for both sexes (5.3 and 4.9 per 1,000 males and females, respectively). For the other three surgery categories, the rate was higher for males than females (e.g., for myringotomy, 5.3 per 1,000 males vs. 3.8 per 1,000 females).

- **Hernia repair was among the top major ambulatory surgeries for all adult male age groups, whereas obstetric/gynecological surgeries were among the most common major ambulatory surgeries for younger adult females.**

Inguinal and femoral hernia repair was one of the five most common major ambulatory surgery categories among males aged 18+ years. Hernia repair other than inguinal and femoral also ranked among the top procedures for males aged 45–64 years.

Three obstetric/gynecological surgery categories ranked in the top five for females aged 18–44 years: hysterectomy (i.e., removal of the uterus), other (select) operating room therapeutic procedures on the female organs (e.g., laparoscopic surgery to remove endometrial implants and scar tissue), and oophorectomy (i.e., removal of one or both ovaries). Hysterectomy was also a common major ambulatory surgery for females aged 45–64 years.

- **Three of the top five major ambulatory surgeries for patients aged 65+ years were distinct for males and females.**

Among those aged 65+ years, three surgeries—inguinal and femoral hernia repair, cardiac pacemaker or cardioverter/defibrillator procedures, and other (select) procedures on vessels other than head and neck (e.g., endovascular procedures to treat peripheral vascular disease)—ranked among the top five surgery categories for men but not women. In contrast, lumpectomy, quadrantectomy of breast (i.e., removal of cancerous tissue without removing the entire breast); knee arthroplasty; and other (select) therapeutic procedures on the hemic and lymphatic system (e.g., excision of deep axillary lymph nodes) ranked in the top five surgery categories for women but not men.

Table 4 presents the most common major ambulatory surgeries by patient race and ethnicity in 2019.

Table 4. Most frequent major ambulatory surgeries performed in hospital-owned facilities by patient race and ethnicity, 2019

Race and ethnicity, rank	CCS-Services and Procedures category	Number of major ambulatory surgeries	Rate per 1,000 population
Asian/Pacific Islander		407,200	21.1
1	Lens and cataract procedures	47,100	2.4
2	Other (select) therapeutic procedures on muscles and tendons*	21,800	1.1
3	Other (select) operating room therapeutic procedures on nose, mouth and pharynx*	18,300	0.9
4	Lumpectomy, quadrantectomy of breast	16,400	0.8
5	Cholecystectomy and common duct exploration	16,100	0.8
Non-Hispanic Black		1,404,000	34.3
1	Lens and cataract procedures	105,500	2.6
2	Other (select) therapeutic procedures on muscles and tendons*	103,600	2.5
3	Other (select) operating room therapeutic procedures on skin and breast*	55,300	1.4
4	Other (select) operating room therapeutic procedures on joints*	50,600	1.2
5	Creation, revision and removal of arteriovenous fistula or vessel-to-vessel cannula for dialysis	49,000	1.2
Hispanic		1,599,400	26.4
1	Other (select) therapeutic procedures on muscles and tendons*	108,000	1.8
2	Cholecystectomy and common duct exploration	104,400	1.7
3	Lens and cataract procedures	92,100	1.5
4	Tonsillectomy and/or adenoidectomy	65,100	1.1
5	Other (select) operating room therapeutic procedures on skin and breast*	56,700	0.9
Non-Hispanic White		11,109,400	56.2
1	Lens and cataract procedures	910,000	4.6
2	Other (select) therapeutic procedures on muscles and tendons*	849,200	4.3
3	Other (select) operating room therapeutic procedures on joints*	444,700	2.3
4	Cholecystectomy and common duct exploration	440,300	2.2
5	Other (select) operating room therapeutic procedures on nose, mouth and pharynx*	382,500	1.9
Non-Hispanic Other†		584,700	54.3
1	Lens and cataract procedures	50,800	4.7
2	Other (select) therapeutic procedures on muscles and tendons*	38,600	3.6
3	Other (select) operating room therapeutic procedures on nose, mouth and pharynx*	26,000	2.4
4	Tonsillectomy and/or adenoidectomy	25,400	2.4
5	Cholecystectomy and common duct exploration	22,900	2.1

Abbreviation: CCS-Services and Procedures, Clinical Classifications Software for Services and Procedures

Notes: Number of procedures is rounded to the nearest hundred. Rates are calculated from unrounded values. Procedures are grouped using the Healthcare Cost and Utilization Project (HCUP) CCS-Services and Procedures.

* See Appendix for example surgeries included in this CCS-Services and Procedures category.

† Other NH includes American Indian/Alaska Native and other non-Hispanic individuals.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Ambulatory Surgery Sample (NASS), 2019

- **Lens and cataract procedures and other (select) therapeutic procedures on muscles and tendons ranked in the top five major ambulatory surgery categories across all races and ethnicities.**

Lens and cataract procedures ranked as the third most common major ambulatory surgery category among Hispanic individuals and the most common major ambulatory surgery category among individuals of all other races and ethnicities. The highest rates of lens and cataract procedures were observed among non-Hispanic White and non-Hispanic Other individuals (4.6–4.7 per 1,000 population), followed by non-Hispanic Black and Asian/Pacific Islander individuals (2.4–2.6) and Hispanic individuals (1.5).

Other (select) therapeutic procedures on muscles and tendons was one of the top two major ambulatory surgery categories across all races and ethnicities, with the highest rate observed among non-Hispanic White individuals (4.3 per 1,000 population) and the lowest rate observed among Asian/Pacific Islander individuals (1.1 per 1,000 population).

Cholecystectomy and common duct exploration was a top five major ambulatory surgery category among all races and ethnicities except for non-Hispanic Black. Non-Hispanic White, Hispanic, and non-Hispanic Other individuals had higher population rates compared with Asian/Pacific Islander individuals (1.7–2.2 vs. 0.8 per 1,000 population).

- **Other (select) operating room therapeutic procedures on the nose, mouth, and pharynx was one of the most common major ambulatory surgery categories among Asian/Pacific Islander, non-Hispanic White, and non-Hispanic Other individuals.**

Other (select) operating room therapeutic procedures on the nose, mouth, and pharynx (e.g., maxillary antrostomy to clear the sinus opening) ranked in the top five major ambulatory surgeries for all races and ethnicities except for non-Hispanic Black and Hispanic. In contrast, other (select) operating room therapeutic procedures on skin and breast (e.g., reduction mammoplasty or breast reduction) was among the top five surgery categories for non-Hispanic Black and Hispanic patients only.

Several other major ambulatory surgery categories ranked in the top five for only one or two races and ethnicities: other (select) operating room therapeutic procedures on joints (non-Hispanic White and non-Hispanic Black); tonsillectomy and/or adenoidectomy (Hispanic and non-Hispanic Other); creation, revision, and removal of arteriovenous fistula or vessel-to-vessel cannula for dialysis (non-Hispanic Black); and lumpectomy, quadrantectomy of breast (Asian/Pacific Islander).

Table 5 presents the most common major ambulatory surgeries by primary expected payer in 2019.

Table 5. Most frequent major ambulatory surgeries performed in hospital-owned facilities by primary expected payer, 2019

Primary expected payer, rank	CCS-Services and Procedures category	Number of major ambulatory surgeries	Percent of major ambulatory surgeries among primary expected payer
Medicare		4,973,000	100.0
1	Lens and cataract procedures	843,400	17.0
2	Other (select) therapeutic procedures on muscles and tendons*	342,000	6.9
3	Insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator	227,800	4.6
4	Other (select) operating room procedures on vessels other than head and neck*	186,400	3.7
5	Arthroplasty knee	181,600	3.7
Medicaid		2,113,100	100.0
1	Tonsillectomy and/or adenoidectomy	188,700	8.9
2	Myringotomy	148,400	7.0
3	Other (select) therapeutic procedures on muscles and tendons*	133,800	6.3
4	Cholecystectomy and common duct exploration	104,300	4.9
5	Other (select) operating room therapeutic procedures on nose, mouth and pharynx*	75,100	3.6
Private insurance		7,379,500	100.0
1	Other (select) therapeutic procedures on muscles and tendons*	555,400	7.5
2	Cholecystectomy and common duct exploration	358,100	4.9
3	Other (select) operating room therapeutic procedures on nose, mouth and pharynx*	332,800	4.5
4	Other (select) operating room therapeutic procedures on joints*	323,900	4.4
5	Hysterectomy, abdominal and vaginal	287,600	3.9
Self-pay/No Charge†		465,300	100.0
1	Other (select) operating room therapeutic procedures on skin and breast*	105,200	22.6
2	Cholecystectomy and common duct exploration	31,300	6.7
3	Appendectomy	28,200	6.1
4	Other (select) therapeutic procedures on muscles and tendons*	23,500	5.0
5	Lens and cataract procedures	16,300	3.5
Other		713,800	100.0
1	Other (select) therapeutic procedures on muscles and tendons*	101,900	14.3
2	Other (select) operating room therapeutic procedures on joints*	66,200	9.3
3	Excision of semilunar cartilage of knee	37,800	5.3
4	Decompression peripheral nerve	28,200	3.9
5	Partial excision bone	26,400	3.7

Abbreviation: CCS-Services and Procedures, Clinical Classifications Software for Services and Procedures

Notes: Number of procedures is rounded to the nearest hundred. Percentages are calculated from unrounded values. Procedures are grouped using the Healthcare Cost and Utilization Project (HCUP) CCS-Services and Procedures. Percentages are provided because there is currently no data source for national population insurance estimates that align with HCUP's definition of expected primary payer.

* See Appendix for example surgeries included in this CCS-Services and Procedures category.

† Self-pay/No charge: includes self-pay, no charge, charity, and no expected payment.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Ambulatory Surgery Sample (NASS), 2019

- **Other (select) therapeutic procedures on muscles and tendons ranked in the top five major ambulatory surgery categories across all primary expected payers.**

Other (select) therapeutic procedures on muscles and tendons accounted for 5–8 percent of major ambulatory surgeries with an expected payer of Medicare, Medicaid, private insurance, and self-pay/no charge, as well as for nearly 15 percent of major ambulatory surgeries with other primary expected payers.

- **Other (select) operating room therapeutic procedures on skin and breast accounted for more than 20 percent of major ambulatory surgeries with an expected payer of self-pay/no charge.**

Several top major ambulatory surgery categories were unique to specific expected payer types:

- Medicare: cardiac pacemaker or cardioverter/defibrillator procedures, other (select) operating room procedures on vessels other than head and neck, and knee arthroplasty
- Medicaid: myringotomy, and tonsillectomy and/or adenoidectomy
- Private insurance: hysterectomy
- Self-pay/No charge: other (select) operating room therapeutic procedures on skin and breast and appendectomy

Appendix. Example surgeries by Clinical Classifications Software for Services and Procedures category

In some cases, Clinical Classifications Software for Services and Procedures (CCS-Services and Procedures) category labels reflect a broad range of surgeries (e.g., Other therapeutic procedures on muscles and tendons). This appendix provides a description of some of the most common surgeries within the nonspecific CCS-Services and Procedures categories included in this report (i.e., categories identified as “Other” in the CCS-Services and Procedures software).

CCS-Services and Procedures category	Example surgeries
Other (select) operating room therapeutic procedures on nose, mouth and pharynx (CCS-Services and Procedures 33)	<ul style="list-style-type: none"> • Turbinate reduction procedures to reduce nasal blockage or treat sleep apnea • Sinus procedures
Other (select) operating room procedures on vessels other than head and neck (CCS-Services and Procedures 61)	<ul style="list-style-type: none"> • Endovascular procedures (e.g., revascularization with angioplasty and/or stent placement) to treat peripheral vascular disease • Placement or retrieval of inferior vena cava filter
Other (select) therapeutic procedures, hemic and lymphatic system (CCS-Services and Procedures 67)	<ul style="list-style-type: none"> • Excision (i.e., partial removal) of deep axillary lymph nodes for treatment of breast cancer • Laparoscopic pelvic lymph node dissection (e.g., removal for treatment of gynecologic cancer)
Other (select) operating room therapeutic procedures, male genital (CCS-Services and Procedures 118)	<ul style="list-style-type: none"> • Repositioning of an undescended testicle into the scrotum (orchiopexy) or removal of a testicle (orchietomy) • Removal of an abnormal collection of fluid around the testes (excision of hydrocele)
Other (select) operating room therapeutic procedures, female organs (CCS-Services and Procedures 132)	<ul style="list-style-type: none"> • Laparoscopic surgery with fulguration (i.e., destruction using heat from an electric current) or excision of endometrial implants and scar tissue for treatment of pelvic pain • Laparoscopic colpopexy (i.e., suspension of vaginal apex) for treatment of pelvic organ prolapse
Other (select) therapeutic procedures on muscles and tendons (CCS-Services and Procedures 160)	<ul style="list-style-type: none"> • Arthroscopic rotator cuff repair • Tendon sheath incision for trigger finger
Other (select) operating room therapeutic procedures on bone (CCS-Services and Procedures 161)	<ul style="list-style-type: none"> • Removal of a deep implant, such as a buried screw, wire, or plate • Metatarsal osteotomy (i.e., cutting of bone) to treat foot deformity
Other (select) operating room therapeutic procedures on joints (CCS-Services and Procedures 162)	<ul style="list-style-type: none"> • Arthroscopy for diagnosis and treatment of joint disorders • Fusion (arthrodesis) of joints in the feet (e.g., toes, midfoot, and ankle)
Other (select) operating room therapeutic procedures on skin and breast (CCS-Services and Procedures 175)	<ul style="list-style-type: none"> • Breast reconstruction and reduction procedures • Tissue graft procedures (e.g., fat grafting)

Abbreviation: CCS-Services and Procedures, Clinical Classifications Software for Services and Procedures

References

- ¹ American Hospital Association. TrendWatch Chartbook 2020, Supplementary Data Tables. www.aha.org/system/files/media/file/2020/10/TrendwatchChartbook-2020-Appendix.pdf. Accessed October 1, 2021.
- ² Best MJ, McFarland EG, Anderson GF, Srikumaran U. The likely economic impact of fewer elective surgical procedures on US hospitals during the COVID-19 pandemic. *Surgery*. 2020;168(5):962–7.
- ³ Agency for Healthcare Research and Quality. Surgery Flags Software for Services and Procedures. Healthcare Cost and Utilization Project (HCUP). Last modified May 25, 2021. www.hcup-us.ahrq.gov/toolssoftware/surgeryflags_svcproc/surgeryflagssvc_proc.jsp. Accessed October 1, 2021.

About Statistical Briefs

Healthcare Cost and Utilization Project (HCUP) Statistical Briefs provide basic descriptive statistics on a variety of topics using HCUP administrative healthcare data. Topics include hospital inpatient, ambulatory surgery, and emergency department use and costs, quality of care, access to care, medical conditions, procedures, and patient populations, among other topics. The reports are intended to generate hypotheses that can be further explored in other research; the reports are not designed to answer in-depth research questions using multivariate methods.

Data Source

The estimates in this Statistical Brief are based upon data from the HCUP Nationwide Ambulatory Surgery Sample (NASS). Supplemental sources include population denominator data for use with HCUP databases, derived from information available from Claritas, a vendor that produces population estimates and projections based on data from the U.S. Census Bureau.^a

Definitions

Procedures, Current Procedural Terminology (CPT®), and Clinical Classifications Software for Services and Procedures (CCS-Services and Procedures)

All-listed procedures include all procedures performed during the hospital stay or outpatient visit, whether for definitive treatment or for diagnostic or exploratory purposes.

CPT assigns numeric codes to procedures. There are approximately 9,600 CPT procedure codes.

The CCS-Services and Procedures provides a method for classifying CPT and Healthcare Common Procedure Coding System (HCPCS) Level II codes into clinically meaningful procedure categories.^b More than 10,000 CPT codes and 6,000 HCPCS Level II codes are collapsed into over 240 categories that may be more useful for presenting descriptive statistics than are individual CPT or HCPCS Level II codes.

Encounters included in the HCUP Nationwide Ambulatory Surgery Sample

The 2019 Nationwide Ambulatory Surgery Sample (NASS) is limited to encounters with at least one in-scope ambulatory surgery on the record performed at a hospital-owned facility. *In-scope* procedures are defined as major surgeries (invasive, therapeutic procedures that typically require the use of an operating room and regional anesthesia, general anesthesia, or sedation, flagged as “narrow” surgeries in the HCUP Surgery Flags Software^c) that belong to a subset of CCS-Services and Procedures categories. To be considered in scope for the 2019 NASS, a CCS-Services and Procedures category must (1) have a

^a Claritas. Claritas Demographic Profile by ZIP Code. <https://claritas360.claritas.com/mybestsegments/>. Accessed January 22, 2021.

^b Agency for Healthcare Research and Quality. Clinical Classifications Software (CCS) for Services and Procedures. Healthcare Cost and Utilization Project (HCUP). Last modified April 26, 2021. www.hcup-us.ahrq.gov/toolssoftware/ccs_svcproc/ccssvcproc.jsp. Accessed September 1, 2021.

^c Agency for Healthcare Research and Quality. Surgery Flags Software for Services and Procedures. Healthcare Cost and Utilization Project (HCUP). Last modified May 25, 2021. www.hcup-us.ahrq.gov/toolssoftware/surgeryflags_svcproc/surgeryflagssvc_proc.jsp. Accessed October 1, 2021.

relatively high major ambulatory surgery volume or aggregate charge total in the State Ambulatory Surgery and Services Databases (SASD) and State Emergency Department Databases (SEDD) and (2) show evidence of reliable reporting from hospitals in the SASD and SEDD.^d

Types of hospitals included in the HCUP Nationwide Ambulatory Surgery Sample

The NASS is based on data from hospital-owned ambulatory surgery facilities. The designation of a facility as *hospital-owned* is specific to its financial relationship with a hospital that provides inpatient care and is not related to its physical location. Ambulatory surgery performed in hospital-owned facilities may be performed within the hospital, in a facility attached to the hospital, or in a facility physically separated from the hospital. The NASS is further limited to ambulatory surgeries performed at facilities owned by community hospitals. Community hospitals are defined as short-term, non-Federal, general, and other specialty hospitals, excluding hospital units of other institutions (e.g., prisons). Rehabilitation and long-term acute care hospitals are excluded.

Unit of analysis

The unit of analysis is the ambulatory surgery or ambulatory surgery encounter, not a person or patient. This means that a person who has multiple ambulatory surgery encounters in 1 year will be counted each time as a separate encounter. If a person has multiple ambulatory surgeries performed during the same encounter or during multiple encounters, the surgeries are counted as separate and unique surgeries.

Population rates

Rates of ambulatory surgeries (or ambulatory surgery encounters) per 1,000 population were calculated using 2019 surgery totals (or encounter totals) in the numerator and Claritas^e estimates of the 2019 U.S. population in the denominator. Individuals with multiple surgeries or encounters are counted more than once in the numerator.

$$\text{Population rate of surgeries/encounters} = \left(\frac{\text{number of surgeries/encounters among patients in group}}{\text{number of U.S. residents in group}} \right) \times 100,000$$

Hospital location

The classification of whether a hospital is in a metropolitan area (*urban*) or nonmetropolitan area (*rural*) is assigned from the American Hospital Association (AHA) Annual Survey and is based on the Core Based Statistical Area (CBSA) definition of rurality developed by the Office of Management and Budget (OMB). Hospitals located in counties with a CBSA type of “Division” or “Metropolitan” were considered urban, and hospitals with a CBSA type of “Rural” or “Micropolitan” were classified as rural. This Statistical Brief used the CBSA classification released in 2014, which was based on the 2010 Census.

Location of patients’ residence

Place of residence is based on the urban-rural classification scheme for U.S. counties developed by the National Center for Health Statistics (NCHS) and based on the OMB definition of a metropolitan service area as including a city and a population of at least 50,000 residents:

- Large Central Metropolitan: Counties in a metropolitan area with 1 million or more residents that satisfy at least one of the following criteria: (1) containing the entire population of the largest principal city of the metropolitan statistical area (MSA), (2) having their entire population contained within the largest principal city of the MSA, or (3) containing at least 250,000 residents of any principal city in the MSA
- Large Fringe Metropolitan: Counties in a metropolitan area with 1 million or more residents that do not qualify as large central metropolitan counties
- Medium Metropolitan: Counties in a metropolitan area of 250,000–999,999 residents
- Small Metropolitan: Counties in a metropolitan area of 50,000–249,999 residents
- Micropolitan: Counties in a nonmetropolitan area of 10,000–49,999 residents
- Noncore: Counties in a nonmetropolitan and nonmicropolitan area

^d Agency for Healthcare Research and Quality. Overview of the Nationwide Ambulatory Surgery Sample (NASS). Healthcare Cost and Utilization Project (HCUP). Last modified October 19, 2021. www.hcup-us.ahrq.gov/nassoverview.jsp. Accessed December 9, 2021.

^e Claritas. Claritas Demographic Profile by ZIP Code. <https://claritas360.claritas.com/mybestsegments/>. Accessed January 22, 2021.

For this Statistical Brief, we combined the medium and small metropolitan categories and the micropolitan and noncore categories.

Community-level income

Community-level income is based on the median household income of the patient's ZIP Code of residence. Quartiles are defined so that the total U.S. population is evenly distributed. The value ranges for the income quartiles vary by year. The income quartile is missing for patients who are homeless or foreign.

Expected payer

To make coding uniform across all HCUP data sources, the primary expected payer for the ambulatory surgery encounter combines detailed categories into general groups:

- Medicare: includes fee-for-service and managed care Medicare
- Medicaid: includes fee-for-service and managed care Medicaid
- Private insurance: includes commercial nongovernmental payers, regardless of the type of plan (e.g., private health maintenance organizations [HMOs], preferred provider organizations [PPOs])
- Self-pay/No charge: includes self-pay, no charge, charity, and no expected payment
- Other payers: includes other Federal and local government programs (e.g., TRICARE, CHAMPVA, Indian Health Service, Black Lung, Title V) and Workers' Compensation

Ambulatory surgery encounters that were expected to be billed to the State Children's Health Insurance Program (SCHIP) are included under Medicaid.

For this Statistical Brief, when more than one payer is listed for an ambulatory surgery encounter, the first-listed payer is used.

Region

Region is one of the four regions defined by the U.S. Census Bureau:

- Northeast: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
- Midwest: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
- South: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
- West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii

Hospital characteristics

Data on hospital ownership and status as a teaching hospital were obtained from the AHA Annual Survey of Hospitals. Hospital ownership/control includes categories for government nonfederal (public), private not-for-profit (voluntary), and private investor-owned (proprietary). Teaching hospital is defined as having a residency program approved by the Accreditation Council for Graduate Medical Education, being a member of the Council of Teaching Hospitals, or having a ratio of full-time equivalent interns and residents to beds of 0.25 or higher.

Reporting of race and ethnicity

Data on Hispanic ethnicity are collected differently among the States and also can differ from the census methodology of collecting information on race (White, Black, Asian/Pacific Islander, American Indian/Alaska Native, Other [including mixed race]) separately from ethnicity (Hispanic, non-Hispanic). State data organizations often collect Hispanic ethnicity as one of several categories that include race. Therefore, for multistate analyses, HCUP creates the combined categorization of race and ethnicity for data from States that report ethnicity separately. When a State data organization collects Hispanic ethnicity separately from race, HCUP uses Hispanic ethnicity to override any other race category to

create a Hispanic category for the uniformly coded race and ethnicity data element, while also retaining the original race and ethnicity data. This Statistical Brief reports race and ethnicity for the following categories: Hispanic, non-Hispanic White, non-Hispanic Black, Asian/Pacific Islander, and non-Hispanic Other (American Indian/Alaska Native, Other).

About HCUP

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of healthcare databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, and private data organizations (HCUP Partners) and the Federal government to create a national information resource of encounter-level healthcare data. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. These databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to healthcare programs, and outcomes of treatments at the national, State, and local market levels.

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

Alaska Department of Health and Social Services	Nevada Department of Health and Human Services
Alaska State Hospital and Nursing Home Association	New Hampshire Department of Health & Human Services
Arizona Department of Health Services	New Jersey Department of Health
Arkansas Department of Health	New Mexico Department of Health
California Office of Statewide Health Planning and Development	New York State Department of Health
Colorado Hospital Association	North Carolina Department of Health and Human Services
Connecticut Hospital Association	North Dakota (data provided by the Minnesota Hospital Association)
Delaware Division of Public Health	Ohio Hospital Association
District of Columbia Hospital Association	Oklahoma State Department of Health
Florida Agency for Health Care Administration	Oregon Association of Hospitals and Health Systems
Georgia Hospital Association	Oregon Office of Health Analytics
Hawaii Lauima Data Alliance	Pennsylvania Health Care Cost Containment Council
Hawaii University of Hawai'i at Hilo	Rhode Island Department of Health
Illinois Department of Public Health	South Carolina Revenue and Fiscal Affairs Office
Indiana Hospital Association	South Dakota Association of Healthcare Organizations
Iowa Hospital Association	Tennessee Hospital Association
Kansas Hospital Association	Texas Department of State Health Services
Kentucky Cabinet for Health and Family Services	Utah Department of Health
Louisiana Department of Health	Vermont Association of Hospitals and Health Systems
Maine Health Data Organization	Virginia Health Information
Maryland Health Services Cost Review Commission	Washington State Department of Health
Massachusetts Center for Health Information and Analysis	West Virginia Department of Health and Human Resources, West Virginia Health Care Authority
Michigan Health & Hospital Association	Wisconsin Department of Health Services
Minnesota Hospital Association	Wyoming Hospital Association
Mississippi State Department of Health	
Missouri Hospital Industry Data Institute	
Montana Hospital Association	
Nebraska Hospital Association	

About the NASS

The HCUP Nationwide Ambulatory Surgery Sample (NASS) is a nationwide database of encounters for major ambulatory surgeries performed in hospital-owned facilities. The NASS is constructed using records from the HCUP State Ambulatory Surgery and Services Databases (SASD). The 2019 NASS also includes records from the HCUP State Emergency Department Databases (SEDD). Major ambulatory surgeries are defined as select invasive, therapeutic surgical procedures that typically require the use of an operating room and regional anesthesia, general anesthesia, or sedation. (These surgeries are flagged as “narrow” in the HCUP Surgery Flags Software.^f) Procedures intended primarily for diagnostic purposes are excluded. As the largest all-payer ambulatory surgery database in the United States, the NASS facilitates research on a variety of topics, including quality of and access to ambulatory surgery care, the impact of health policy changes, and utilization of ambulatory surgery services by specific populations. The NASS is produced annually beginning with data year 2016. The number of States contributing to the NASS varies from year to year. The NASS is intended for national estimates only; no State-level estimates can be produced. Unweighted, the 2019 NASS contains approximately 9.0 million major ambulatory surgery encounters (weighted, this represents 11.9 million major ambulatory surgery encounters).

For More Information

For other information on procedures, refer to the HCUP Statistical Briefs located at www.hcup-us.ahrq.gov/reports/statbriefs/sb_procedures.jsp.

For additional HCUP statistics, visit:

- HCUP Fast Stats at www.hcup-us.ahrq.gov/faststats/landing.jsp for easy access to the latest HCUP-based statistics for healthcare information topics
- HCUPnet, HCUP’s interactive query system, at www.hcupnet.ahrq.gov/
- HCUP Summary Trend Tables at www.hcup-us.ahrq.gov/reports/trendtables/summarytrendtables.jsp for monthly information on hospital utilization

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

For a detailed description of HCUP and more information on the design of the Nationwide Ambulatory Surgery Sample (NASS), please refer to the following database documentation:

Agency for Healthcare Research and Quality. Overview of the Nationwide Ambulatory Surgery Sample (NASS). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated October 2021. www.hcup-us.ahrq.gov/nassoverview.jsp. Accessed October 21, 2021.

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^f Agency for Healthcare Research and Quality. Surgery Flags Software for Services and Procedures. Healthcare Cost and Utilization Project (HCUP). Last modified May 25, 2021. www.hcup-us.ahrq.gov/toolsssoftware/surgeryflags_svcproc/surgeryflagssvc_proc.jsp. Accessed October 1, 2021.

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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 healthcare 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 email us at hcup@ahrq.gov or send a letter to the address below:

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