

Table 96. Cost of hospital discharges with common hospital operating room procedures in nonfederal community hospitals, by age and selected principal procedure: United States, selected years 2000–2014

Excel version (with more data years and standard errors when available): <https://www.cdc.gov/nchs/hus/contents2017.htm#096>.

[Data are compiled by the Agency for Healthcare Research and Quality using discharge data from participating states]

Age and principal operating room procedure ¹	Mean inflation-adjusted cost per hospitalization: 2014 dollars ²			Number of discharges with operating room principal procedure			Total inflation-adjusted national costs: 2014 dollars (in millions) ²		
	2000	2010	2014	2000	2010	2014	2000	2010	2014
All ages									
Hospital discharges with an operating room principal procedure ³	13,782	19,186	19,266	8,743,631	9,637,687	8,308,949	119,757	184,725	159,951
Laminectomy (back surgery)	8,493	11,920	14,883	285,636	204,786	151,705	2,436	2,440	2,268
Heart valve procedures	44,609	56,426	51,896	79,719	98,101	110,915	3,550	5,541	5,756
Coronary artery bypass graft (CABG)	32,520	41,897	41,932	337,972	164,801	160,240	11,028	6,907	6,717
Percutaneous coronary angioplasty (PTCA) (balloon angioplasty of heart)	15,587	20,957	21,448	581,183	488,521	377,475	9,057	10,240	8,104
Insertion, revision, replacement, removal of cardiac pacemaker, or cardioverter/defibrillator	28,757	38,023	34,974	66,286	122,847	78,970	1,921	4,667	2,762
Colorectal resection (removal of part of the bowel)	20,241	25,560	23,616	253,780	261,401	234,290	5,244	6,678	5,529
Appendectomy	7,616	9,934	10,657	269,089	273,753	177,550	2,027	2,719	1,897
Cholecystectomy (gall bladder removal)	10,811	13,767	13,327	389,079	379,753	300,245	4,170	5,232	4,006
Hysterectomy	6,790	9,617	10,394	580,019	354,313	184,950	3,910	3,411	1,923
Cesarean section	5,646	6,313	6,150	898,859	1,226,435	1,142,680	4,956	7,750	7,032
Treatment, fracture, or dislocation of hip and femur	13,072	18,814	17,286	237,615	248,777	246,135	3,159	4,678	4,255
Arthroplasty knee (knee replacement)	14,357	17,592	16,292	318,854	693,086	723,086	4,551	12,198	11,783
Hip replacement	15,568	18,820	17,079	295,940	437,380	487,625	4,664	8,229	8,328
Spinal fusion	18,119	30,933	28,949	204,320	444,508	413,206	3,614	13,755	11,970
Under 18 years									
Hospital discharges with an operating room principal procedure ³	13,831	21,126	28,582	382,455	413,852	297,290	5,112	8,759	8,457
Incision and excision of CNS (a type of brain surgery)	30,026	44,269	47,633	6,352	8,925	7,870	184	396	372
Tonsillectomy and/or adenoidectomy	4,597	6,465	7,897	12,045	13,000	8,635	57	85	69
Small bowel resection (removal of part of the small bowel)	37,710	44,954	60,727	1,712	2,694	1,855	64	120	112
Appendectomy	6,833	9,206	10,336	75,481	79,575	46,745	502	733	483
Cesarean section	6,269	6,718	6,594	23,690	22,582	12,090	134	152	80
Spinal fusion	30,463	56,100	60,000	7,463	10,628	10,995	224	596	658

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[Data are compiled by the Agency for Healthcare Research and Quality using discharge data from participating states]

Age and principal operating room procedure ¹	Mean inflation-adjusted cost per hospitalization: 2014 dollars ²			Number of discharges with operating room principal procedure			Total inflation-adjusted national costs: 2014 dollars (in millions) ²		
	2000	2010	2014	2000	2010	2014	2000	2010	2014
18–44 years									
Hospital discharges with an operating room principal procedure ³	9,107	12,588	12,289	2,806,078	2,842,807	2,339,211	25,005	35,784	28,735
Incision and excision of CNS (a type of brain surgery)	26,477	39,120	37,330	19,510	22,908	18,660	497	902	699
Laminectomy (back surgery)	7,643	11,222	14,038	95,687	44,303	27,800	736	498	392
Appendectomy	7,014	9,112	9,519	133,662	116,699	71,470	924	1,064	683
Cholecystectomy (gall bladder removal)	8,855	10,939	10,747	132,538	139,244	102,825	1,127	1,526	1,108
Oophorectomy (removal of one or both ovaries)	6,602	9,584	10,800	38,252	32,130	17,915	255	308	193
Ligation of fallopian tubes ("tying" of fallopian tubes)	4,882	5,546	7,516	75,221	44,524	31,045	346	247	230
Hysterectomy	6,296	8,729	9,481	291,704	149,442	72,870	1,811	1,306	691
Cesarean section	5,628	6,300	6,141	873,231	1,198,961	1,126,890	4,809	7,561	6,925
Treatment, fracture, or dislocation of lower extremity (other than hip or femur)	9,702	15,136	17,248	68,015	59,800	45,040	648	904	776
Spinal fusion	17,033	29,044	27,341	73,228	89,655	64,600	1,206	2,605	1,768
45–64 years									
Hospital discharges with an operating room principal procedure ³	15,076	21,513	21,420	2,435,212	3,085,028	2,636,652	36,552	66,262	56,404
Laminectomy (back surgery)	8,567	12,311	15,482	107,720	80,487	59,585	924	990	927
Heart valve procedures	41,898	54,544	50,655	22,849	28,546	28,045	951	1,558	1,421
Coronary artery bypass graft (CABG)	30,385	40,362	39,934	139,897	73,265	67,165	4,271	2,958	2,682
Percutaneous coronary angioplasty (PTCA) (balloon angioplasty of heart)	15,086	20,557	20,751	252,151	224,713	170,935	3,796	4,620	3,550
Insertion, revision, replacement, removal of cardiac pacemaker, or cardioverter/defibrillator	35,219	40,063	37,584	15,957	36,456	23,770	558	1,460	893
Colorectal resection (removal of part of the bowel)	18,207	23,500	22,622	76,604	99,837	90,725	1,422	2,349	2,050
Cholecystectomy (gall bladder removal)	10,197	13,874	13,322	117,432	120,321	97,220	1,198	1,670	1,297
Oophorectomy (removal of one or both ovaries)	7,903	10,736	13,172	21,232	37,253	22,565	168	400	297
Hysterectomy	6,926	9,742	10,369	231,498	164,344	88,465	1,601	1,603	918
Arthroplasty knee (knee replacement)	14,687	17,632	16,404	95,902	291,502	303,150	1,402	5,141	4,973
Hip replacement	16,180	18,471	16,915	65,118	150,253	176,055	1,061	2,774	2,976
Spinal fusion	17,391	29,546	27,210	87,388	218,349	193,710	1,480	6,454	5,272

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Age and principal operating room procedure ¹	Mean inflation-adjusted cost per hospitalization: 2014 dollars ²			Number of discharges with operating room principal procedure			Total inflation-adjusted national costs: 2014 dollars (in millions) ²		
	2000	2010	2014	2000	2010	2014	2000	2010	2014
65–74 years									
Hospital discharges with an operating room principal procedure ³									
Laminectomy (back surgery)	16,890	22,719	22,079	1,511,467	1,648,763	1,623,736	25,661	37,391	35,822
Heart valve procedures	8,975	11,479	14,571	45,976	43,879	36,780	413	503	538
Coronary artery bypass graft (CABG)	45,656	56,733	50,565	23,236	26,078	29,145	1,052	1,481	1,473
Percutaneous coronary angioplasty (PTCA) (balloon angioplasty of heart)	33,093	41,966	42,230	112,652	53,818	56,070	3,726	2,258	2,367
Insertion, revision, replacement, removal of cardiac pacemaker, or cardioverter/defibrillator	15,519	21,035	21,929	166,497	125,005	99,675	2,579	2,629	2,189
Endarterectomy (plaque removal from artery lining of brain, head, neck)	31,418	39,604	36,477	19,096	32,601	20,425	603	1,290	746
Colorectal resection (removal of part of the bowel)	9,044	10,830	10,809	51,292	34,638	30,055	476	375	325
Cholecystectomy (gall bladder removal)	20,355	26,106	23,350	63,693	59,112	58,000	1,336	1,539	1,354
Arthroplasty knee (knee replacement)	11,945	15,967	15,122	65,953	52,412	48,435	801	836	733
Hip replacement	14,623	17,438	16,075	110,961	232,195	264,425	1,607	4,053	4,253
Spinal fusion	15,508	18,526	16,729	71,986	106,955	135,840	1,133	1,981	2,273
	19,151	32,385	29,609	23,419	84,861	100,785	446	2,748	2,986
75–84 years									
Hospital discharges with an operating room principal procedure ³									
Laminectomy (back surgery)	17,144	22,844	22,152	1,224,573	1,189,769	1,010,816	21,299	27,126	22,392
Heart valve procedures	9,684	11,627	14,173	31,059	28,311	21,510	304	329	307
Coronary artery bypass graft (CABG)	47,093	58,243	52,058	21,004	26,690	30,675	1,001	1,555	1,597
Percutaneous coronary angioplasty (PTCA) (balloon angioplasty of heart)	35,880	44,789	45,596	68,750	29,874	29,395	2,486	1,339	1,340
Insertion, revision, replacement, removal of cardiac pacemaker, or cardioverter/defibrillator	16,431	21,714	22,467	111,169	87,441	63,865	1,838	1,899	1,437
Endarterectomy (plaque removal from artery lining of brain, head, neck)	25,771	36,946	33,177	19,975	33,287	19,725	524	1,228	654
Colorectal resection (removal of part of the bowel)	9,395	11,012	11,049	45,337	28,078	23,495	439	309	260
Cholecystectomy (gall bladder removal)	22,198	28,167	24,861	62,096	48,800	39,230	1,416	1,372	975
Treatment, fracture, or dislocation of hip and femur	13,689	18,110	16,705	52,448	42,922	33,660	733	777	563
Arthroplasty knee (knee replacement)	12,310	17,392	16,203	73,332	66,038	63,765	930	1,150	1,034
Hip replacement	14,615	17,530	16,188	79,138	133,319	123,855	1,158	2,338	2,006
Spinal fusion	15,321	19,155	17,336	92,715	102,563	100,695	1,443	1,964	1,746
	19,927	32,830	29,844	11,770	36,462	39,065	233	1,197	1,166

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	2000	2010	2014	2000	2010	2014	2000	2010	2014
85 years and over									
Hospital discharges with an operating room principal procedure ³									
Heart valve procedures	15,718	20,752	20,304	382,341	445,658	399,570	6,104	9,247	8,120
Coronary artery bypass graft (CABG)	49,507	52,561	50,551	2,985	5,639	13,005	147	297	658
Percutaneous coronary angioplasty (PTCA) (balloon angioplasty of heart)	40,365	52,110	48,287	5,280	2,955	3,170	211	154	153
Insertion, revision, replacement, removal of cardiac pacemaker, or cardioverter/defibrillator	18,647	22,360	22,746	16,682	23,538	20,930	308	527	476
Colorectal resection (removal of part of the bowel)	15,294	28,712	25,877	7,071	11,702	8,845	111	335	229
Cholecystectomy (gall bladder removal)	23,987	30,829	25,933	20,729	18,420	15,005	508	568	389
Treatment, fracture, or dislocation of hip and femur	16,660	19,751	18,071	15,698	16,524	13,485	265	326	243
Arthroplasty knee	11,986	16,550	15,737	76,900	76,798	77,365	949	1,273	1,219
Hip replacement	14,819	18,543	17,068	10,122	18,713	17,250	151	347	294
Amputation of lower extremity (amputation of leg, foot, or toe)	14,899	19,487	17,855	50,005	57,878	56,850	757	1,128	1,015
	13,752	18,157	18,145	12,855	8,243	8,315	179	150	151

¹Data are based on valid operating room procedures. Analysis is limited to procedures identified as operating room procedures based on the Centers for Medicare & Medicaid Services' Diagnosis Related Groups (DRGs). For DRGs, physician panels identified *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) procedure codes that would be performed in operating rooms in most hospitals. Operating room procedures are classified by the Clinical Classifications Software (CCS) that groups ICD-9-CM procedure codes into 1 of 231 clinically meaningful categories. Mean costs per hospitalization are based on the principal procedure as determined by the CCS. The number of discharges is based on the first-listed (principal) operating room procedure. See Appendix II, Procedure.

²Charges (the amount billed by the hospital) were converted to costs using cost-to-charge ratios from the Centers for Medicare & Medicaid Services. Costs are for the entire hospitalization including the principal procedure. Costs were adjusted for inflation to 2014 dollars using the gross domestic product deflator Table 1.1.4. Price Indexes downloaded on November 21, 2016 from <https://www.bea.gov/itable/itable.cfm?reqid=19&step=2#reqid=19&step=2&isuri=1&1921=survey>. See Appendix II, Cost to charge ratio.

³Includes discharges for operating room principal procedures not shown separately.

NOTES: Excludes newborn infants. The number of states participating in the sample varied over time from 28 states in 2000 to 46 in 2011, 44 in 2012, 43 states and the District of Columbia (D.C.) in 2013, and 44 states and D.C. in 2014. See Appendix I, Healthcare Cost and Utilization Project (HCUP), National (Nationwide) Inpatient Sample (NIS), for a list of states available in each year. On October 1, 2015, the United States transitioned to the *International Classification of Diseases, 10th Revision, Clinical Modification* (ICD-10-CM) diagnosis coding system for most inpatient and outpatient medical encounters and the *International Classification of Diseases, 10th Revision, Procedure Coding System* (ICD-10-PCS) for inpatient hospital procedures. Because of the impact of this transition to ICD-10-CM/PCS and because full calendar year data for 2015 are not available using one ICD system, this table has not been updated with 2015 data. In 2012, the HCUP-NIS was redesigned and changed from a sample of hospitals to a sample of discharges from all participating community hospitals. For this report, the statistics for years prior to 2012 were regenerated using new trend weights taking into account the 2012 redesign. For more information on the 2012 redesign, see: Houchens R, Ross D, Elixhauser A, Jiang J. Nationwide Inpatient Sample (NIS) redesign final report. HCUP methods series report no 2014-04. April 4, 2014. U.S. Agency for Healthcare Research and Quality. Available from: <https://www.hcup-us.ahrq.gov/reports/methods/2014-04.pdf>. The estimates are weighted to provide national estimates. Standard errors and data for additional years are available. See the Excel spreadsheet on the *Health, United States* website at: <https://www.cdc.gov/nchs/hus.htm>.

SOURCE: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, National (Nationwide) Inpatient Sample. See Appendix I, Healthcare Cost and Utilization Project (HCUP), National (Nationwide) Inpatient Sample.