

**Table 132. Cost of hospital discharges with common hospital operating room procedures in nonfederal community hospitals, by age and selected principal procedure: United States, selected years 2000-2009**

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

Age and principal operating room procedure <sup>1</sup>	2000	2005	2010	2000	2005	2010	2000	2005	2010
All ages	Mean inflation-adjusted cost per hospitalization: 2010 dollars <sup>2</sup>			Number of discharges with operating room principal procedure			Total inflation-adjusted national costs: 2010 dollars (in millions of dollars)		
Hospital discharges with an operating room principal procedure <sup>3</sup> .....	\$12,994	\$15,551	\$17,922	9,022,288	10,285,810	10,049,810	\$116,513	\$160,101	\$179,935
Laminectomy (back surgery).....	7,999	9,025	11,089	294,345	255,955	213,277	2,365	2,312	2,364
Heart valve procedures.....	42,003	51,340	52,442	82,826	96,715	102,543	3,473	4,985	5,383
Coronary artery bypass graft (CABG).....	30,615	37,191	38,895	349,967	227,774	173,074	10,754	8,485	6,734
Percutaneous coronary angioplasty (PTCA) (balloon angioplasty of heart).....	14,665	18,030	19,498	601,832	749,572	511,109	8,828	13,521	9,968
Insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator..	27,106	34,553	35,311	68,723	165,619	128,664	1,878	5,715	4,539
Colorectal resection (removal of part of the bowel).....	19,069	22,122	23,788	261,519	283,453	272,865	5,089	6,278	6,488
Appendectomy.....	7,175	8,298	9,242	277,029	308,634	284,039	1,965	2,561	2,625
Cholecystectomy (gall bladder removal).....	10,185	11,808	12,822	400,818	388,252	394,304	4,047	4,585	5,060
Hysterectomy.....	6,400	7,097	8,941	596,889	567,964	368,471	3,792	4,038	3,298
Cesarean section.....	5,323	5,349	5,874	927,397	1,301,770	1,275,164	4,820	6,966	7,498
Treatment, fracture or dislocation of hip and femur.....	12,322	14,913	17,549	244,706	259,071	258,181	3,066	3,861	4,528
Arthroplasty knee (knee replacement).....	13,517	15,240	16,348	328,118	549,867	721,443	4,409	8,384	11,799
Hip replacement.....	14,661	16,682	17,510	304,709	381,318	453,621	4,523	6,355	7,940
Spinal fusion.....	17,068	24,214	28,665	210,677	331,912	463,470	3,512	8,045	13,290
Under 18 years									
Hospital discharges with an operating room principal procedure <sup>3</sup> .....	13,029	18,858	19,655	394,504	551,952	431,421	4,969	10,366	8,496
Incision and excision of CNS (a type of brain surgery).....	28,254	34,200	41,131	6,581	11,786	9,308	179	404	383
Tonsillectomy and/or adenoidectomy.....	4,312	5,580	5,992	12,524	16,842	13,571	56	94	83
Small bowel resection (removal of part of the small bowel).....	35,453	49,331	41,795	1,769	3,075	2,811	61	150	117
Cesarean section.....	5,909	5,615	6,252	24,419	29,549	23,501	130	167	147
Spinal fusion.....	28,651	44,961	52,211	7,704	13,305	11,087	218	593	578
18-44 years									
Hospital discharges with an operating room principal procedure <sup>3</sup> .....	8,587	9,683	11,735	2,894,835	3,202,648	2,960,738	24,325	31,043	34,745
Incision and excision of CNS (a type of brain surgery).....	24,939	29,799	36,389	20,221	18,779	23,874	485	563	875
Laminectomy.....	7,197	8,405	10,427	98,649	69,320	46,309	714	584	484
Appendectomy.....	6,609	7,552	8,476	137,667	140,028	120,890	897	1,058	1,025
Cholecystectomy.....	8,343	9,187	10,191	136,587	133,060	144,351	1,095	1,223	1,473
Oophorectomy (removal of one or both ovaries).....	6,218	7,216	8,919	39,388	34,430	33,422	248	249	298
Ligation of fallopian tubes ("tying" of fallopian tubes).....	4,605	4,442	5,157	77,428	77,073	47,276	337	343	244

Hysterectomy.....	5,933	6,444	8,116	299,858	262,861	155,684	1,754	1,696	1,265
Cesarean section.....	5,306	5,338	5,862	900,964	1,267,786	1,246,610	4,678	6,772	7,315
Treatment, fracture or dislocation of lower extremity (other than hip or femur).....	9,143	11,556	14,101	70,112	61,369	62,138	629	708	875
Spinal fusion.....	16,042	22,414	26,903	75,502	89,893	93,911	1,171	2,016	2,527

45-64 years

Hospital discharges with an operating room principal procedure <sup>3</sup> .....	14,212	17,052	20,079	2,513,848	3,001,674	3,220,135	35,570	51,255	64,557
Laminectomy.....	8,068	8,909	11,447	111,022	98,847	83,913	897	881	959
Heart valve procedures.....	39,460	47,027	50,688	23,731	27,467	29,926	931	1,299	1,518
Coronary artery bypass graft (CABG).....	28,601	34,059	37,437	144,812	97,449	77,190	4,162	3,327	2,891
Percutaneous coronary angioplasty (PTCA).....	14,193	17,408	19,125	261,110	328,248	234,877	3,699	5,719	4,493
Insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator..	33,171	37,492	37,210	16,558	45,357	38,159	545	1,699	1,419
Colorectal resection.....	17,156	19,705	21,872	78,937	98,142	104,318	1,381	1,937	2,284
Cholecystectomy.....	9,604	11,366	12,904	120,985	121,446	125,138	1,162	1,383	1,615
Oophorectomy.....	7,449	8,484	9,994	21,888	23,172	38,646	163	196	386
Hysterectomy.....	6,529	7,237	9,060	238,417	249,676	170,718	1,554	1,810	1,548
Arthroplasty knee (knee replacement).....	13,828	15,294	16,382	98,691	205,869	303,860	1,357	3,149	4,979
Hip replacement.....	15,233	16,920	17,182	67,121	108,449	155,998	1,030	1,832	2,679
Spinal fusion.....	16,382	22,501	27,364	90,101	154,618	227,953	1,437	3,482	6,240

65-74 years

Hospital discharges with an operating room principal procedure <sup>3</sup> .....	15,924	18,985	21,245	1,559,874	1,653,945	1,720,707	24,970	31,451	36,493
Laminectomy.....	8,456	8,997	10,675	47,332	47,031	45,588	400	423	486
Heart valve procedures.....	42,981	52,231	52,757	24,127	25,535	27,262	1,028	1,338	1,440
Coronary artery bypass graft (CABG).....	31,155	37,932	38,996	116,648	72,447	56,415	3,633	2,751	2,200
Percutaneous coronary angioplasty (PTCA).....	14,602	17,861	19,577	172,403	202,718	130,974	2,513	3,623	2,564
Insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator..	29,608	35,659	36,741	19,805	46,292	34,225	589	1,648	1,256
Endarterectomy (plaque removal from artery lining of brain, head, neck).....	8,517	9,106	10,070	52,875	41,903	36,037	462	383	363
Colorectal resection.....	19,168	22,404	24,319	65,640	64,326	61,732	1,296	1,444	1,497
Cholecystectomy.....	11,260	13,479	14,878	67,897	57,382	54,433	777	774	809
Arthroplasty knee.....	13,769	15,195	16,208	114,150	182,838	241,232	1,556	2,781	3,913
Hip replacement.....	14,605	16,409	17,235	74,103	89,657	110,806	1,098	1,471	1,909
Spinal fusion.....	18,050	26,008	30,017	24,143	48,299	88,132	434	1,257	2,646

75-84 years

Hospital discharges with an operating room principal procedure <sup>3</sup> .....	16,165	19,633	21,373	1,263,420	1,405,406	1,240,660	20,720	27,626	26,466
Laminectomy.....	9,127	9,876	10,854	31,988	32,853	29,357	295	324	319
Heart valve procedures.....	44,332	55,018	54,089	21,844	25,893	27,829	980	1,431	1,506
Coronary artery bypass graft (CABG).....	33,778	42,167	41,615	71,235	46,557	31,244	2,426	1,965	1,301
Percutaneous coronary angioplasty (PTCA).....	15,458	19,091	20,196	115,128	149,285	91,574	1,792	2,850	1,850
Insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator..	24,296	33,516	34,303	20,711	50,092	34,900	513	1,676	1,196
Endarterectomy (plaque removal from artery lining of brain, head, neck).....	8,846	9,445	10,242	46,719	39,208	29,200	427	372	299
Colorectal resection.....	20,905	24,856	26,236	63,982	63,255	50,875	1,374	1,573	1,332
Cholecystectomy.....	12,890	15,883	16,880	54,014	51,443	44,590	711	816	753

Treatment, fracture or dislocation of hip and femur.....	11,601	13,897	16,204	75,452	75,221	68,395	901	1,047	1,109
Arthroplasty knee.....	13,762	15,290	16,285	81,404	125,729	138,682	1,122	1,923	2,260
Hip replacement.....	14,429	16,553	17,831	95,401	108,919	106,315	1,399	1,802	1,895
Spinal fusion.....	18,796	27,133	30,514	12,139	23,530	37,687	226	638	1,150

85 years and over

Hospital discharges with an operating room principal procedure <sup>3</sup> .....	\$14,823	\$18,085	\$19,456	394,256	450,122	464,057	\$5,935	\$8,149	\$9,028
Heart valve procedures.....	46,636	59,001	49,030	3,114	4,088	5,887	145	241	289
Coronary artery bypass graft (CABG).....	38,005	48,587	48,466	5,483	4,315	3,079	206	211	149
Percutaneous coronary angioplasty (PTCA).....	17,554	21,291	20,852	17,268	29,810	24,543	300	634	512
Insertion, revision, replacement of cardiac pacemaker or cardioverter/defibrillator..	14,425	24,432	26,701	7,301	14,121	12,167	108	344	324
Colorectal resection.....	22,602	26,607	28,673	21,347	21,140	19,145	493	563	549
Cholecystectomy.....	15,705	17,645	18,382	16,163	17,286	17,157	256	304	315
Treatment, fracture or dislocation of hip and femur.....	11,295	13,347	15,432	79,202	80,284	79,568	921	1,073	1,230
Arthroplasty knee.....	13,956	16,059	17,237	10,414	16,274	19,466	146	261	335
Hip replacement.....	14,038	16,620	18,142	51,469	55,699	59,894	734	925	1,087
Amputation of lower extremity (amputation of leg, foot or toe).....	12,961	16,793	17,366	13,260	10,403	8,768	175	175	153

<sup>4</sup>Data are based on valid operating room procedures.

Operating room procedures were identified using the Centers for Medicare & Medicaid Services' Diagnosis Related Groups (DRGs). For DRGs, physician panels identified *International Classification of Diseases (ICD-9-CM)* procedure codes which would be performed in operating rooms in most hospitals.

Operating room procedures, as defined by DRGs, are classified by the Clinical Classifications Software (CCS) 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) major procedure. See Appendix II, Procedure.

<sup>4</sup>Charges (the amount billed by the hospital) were converted to costs using cost-charge ratios from the Centers for Medicare & Medicaid Services. Costs are for the entire hospitalization including the principal procedure.

Costs were adjusted to 2010 dollars for inflation using the gross domestic product deflator (<http://www.bea.gov/national/nipaweb/SelectTable.asp>, Table 1.1.4. Price Indexes for Gross Domestic Product).

See Appendix II, Cost-charge ratio.

<sup>3</sup>Includes 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 45 states in 2010.

See Appendix I, Healthcare Cost and Utilization Project (HCUP), Nationwide Inpatient Sample, for a list of states available in each year. The estimates are weighted to provide national estimates.

Because of sampling frame and methodological differences between the Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, and the National Hospital Discharge Survey (NHDS), estimates from these data sources are not directly comparable.

Standard errors are available in the spreadsheet version of this table. Available from: <http://www.cdc.gov/nchs/hs.htm>.

Data for additional years are available. See Appendix III.

SOURCE: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample.

See Appendix I, Healthcare Cost and Utilization Project (HCUP), Nationwide Inpatient Sample.

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