

## Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1.** ICD-9-CM Codes Associated With Broad Diagnosis- and Procedure-Related Categories Generated by the AHRQ Clinical Classification Software

CCS <sup>a</sup> Category Name	CCS <sup>a</sup> Category Number	ICD-9-CM Codes
<b>Diagnoses</b>		
Acute Myocardial Infarction	100	4100 , 41000, 41001, 41002, 4101, 41010, 41011, 41012, 4102, 41020, 41021, 41022, 4103, 41030, 41031, 41032, 4104, 41040, 41041, 41042, 4105 , 41050, 41051, 41052, 4106, 41060, 41061, 41062, 4107, 41070, 41071, 41072, 4108, 41080, 41081, 41082, 4109, 41090, 41091, 41092
Appendicitis	142	5400, 5401, 5409, 541, 542, 5430, 5439
Liveborn	218	76520, 76529, V300, V3000, V3001, V301, V302, V310, V3100, V3101, V311, V312, V320, V3200, V3201, V321, V322, V330, V3300, V3301, V331, V332, V340, V3400, V3401, V341, V342, V350, V3500, V3501, V351, V352, V360, V3600, V3601, V361, V362, V370, V3700, V3701, V371, V372, V390, V3900, V3901, V391, V392
Pneumonia	122	00322, 0203, 0204, 0205, 0212, 0221, 0310, 0391, 0521, 0551, 0730, 0830, 1124, 1140, 1144, 1145, 11505, 11515, 11595, 1304, 1363, 4800, 4801, 4802, 4803, 4808, 4809, 481, 4820, 4821, 4822, 4823, 48230, 48231, 48232, 48239, 4824, 48240, 48241, 48242, 48249, 4828, 48281, 48282, 48283, 48284, 48289, 4829, 483, 4830, 4831, 4838, 4841, 4843, 4845, 4846, 4847, 4848, 485, 486, 5130, 5171
<b>Procedures</b>		
Arthroplasty Knee	152	0080, 0081, 0082, 0083, 0084, 8141, 8142, 8143, 8144, 8146, 8147, 8154, 8155
Coronary Artery Bypass Graft	44	3610, 3611, 3612, 3613, 3614, 3615, 3616, 3617, 3619, 362, 363, 3631, 3632, 3633, 3634, 3639
Spinal Fusion	158	8100, 8101, 8102, 8103, 8104, 8105, 8106, 8107, 8108, 8109, 8130, 8131, 8132, 8133, 8134, 8135, 8136, 8137, 8138, 8139, 8161, 8162, 8163, 8164, 8451

<sup>a</sup> CCS = Clinical Classification Software.

Agency for Healthcare Research and Quality. Healthcare Cost and Utilization Project Clinical Classification Software (CCS) for ICD-9-CM. Available at: <https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>

**eTable 2.** Adjusted Mean Cost Sharing per Inpatient Hospitalization Using First Hospitalization Only, 2009-2013

	<b>I. All years, 2009-2013</b>		<b>II. 2009</b>		<b>III. 2013</b>		<b>IV. 2009- 2013</b>
	<i>n</i>	<i>Adjusted Mean<sup>a</sup></i>	<i>n</i>	<i>Adjusted Mean<sup>a</sup></i>	<i>n</i>	<i>Adjusted Mean<sup>a</sup></i>	<i>% change</i>
<b>Overall</b>	5,908,997	\$999	1,237,064	\$855	1,142,824	\$1,177	+37.7%
<b>Male</b>	1,847,596	\$1,080	383,540	\$935	358,291	\$1,257	+34.4%
<b>Female</b>	4,061,401	\$962	853,524	\$819	784,533	\$1,140	+39.2%
<b>Age 18-34</b>	2,214,384	\$980	444,687	\$831	451,389	\$1,155	+39.0%
<b>Age 35-64</b>	3,694,613	\$1,010	792,377	\$868	691,435	\$1,191	+37.2%
<b>Individual Market Plan</b>	98,386	\$2,066	19,613	\$1,918	20,047	\$2,239	+16.7%
<b>Group Plan</b>	5,810,611	\$981	1,217,451	\$838	1,122,777	\$1,158	+38.2%
<b>CDHP<sup>b</sup></b>	926,312	\$1,285	127,843	\$1,132	256,973	\$1,416	+25.1%
<b>Non-CDHP</b>	4,982,685	\$946	1,109,221	\$823	885,851	\$1,107	+34.5%
<b>HMO<sup>c</sup></b>	379,202	\$1,077	83,131	\$929	81,192	\$1,252	+34.8%
<b>Non-HMO</b>	5,529,795	\$993	1,153,933	\$849	1,061,632	\$1,171	+37.9%

<sup>a</sup> All costs are inflation-adjusted to 2013 dollars. Predicted cost sharing was calculated by estimating regression models that adjusted for the DRG weights of the hospitalizations and applying the post-estimation margins command in STATA v.14 to obtain predicted costs. All inpatient hospitalizations were included in the regression models, including those hospitalizations for which out-of-pocket spending was \$0.

<sup>b</sup> CDHP = Consumer-directed health plan. A CDHP is typically a health plan with a high deductible that is paired with a health savings account (HSA), a flexible spending account (FSA) or a health reimbursement arrangement (HRA). In the HCCI database, each insurer flagged the members they considered to be enrolled in a CDHP.

<sup>c</sup> HMO = health maintenance organization.

**eTable 3.** Proportion of Total Hospital Payments Paid Out-of-Pocket by Patients

	2009	2010	2011	2012	2013
Adjusted mean hospital payment <sup>1</sup>	\$13,654	\$14,290	\$14,707	\$15,241	\$16,091
Proportion of total hospital payment paid out-of-pocket by patient <sup>2</sup>	11.2%	11.6%	11.7%	11.8%	12.7%
Proportion of total hospital payment paid out-of-pocket by patient in the form of a copayment <sup>2</sup>	1.4%	1.2%	1.0%	0.9%	0.8%
Proportion of total hospital payment paid out-of-pocket by patient in the form of coinsurance <sup>2</sup>	6.9%	7.3%	7.3%	7.3%	7.5%
Proportion of total hospital payment paid out-of-pocket by patient in the form of payment towards a deductible <sup>2</sup>	2.8%	3.1%	3.3%	3.6%	4.4%

Note: All costs are inflation-adjusted to 2013 dollars.

<sup>1</sup> Total hospital payment includes the insurer's payment to the hospital plus patient cost sharing (copayment + coinsurance + amount applied to the deductible). Mean total hospital payments were calculated by estimating regression models that adjusted for the DRG weights of the hospitalizations and applying the post-estimation margins command in STATA v.14 to obtain predicted costs.

<sup>2</sup> Proportion of hospital payment paid out-of-pocket by patient was calculated by estimating regression models that adjusted for the DRG weights of the hospitalizations and applying the post-estimation margins command in STATA v.14 to obtain predicted percentage. All inpatient hospitalizations were included in the regression models, including those hospitalizations for which out-of-pocket spending was \$0.

**eTable 4.** Adjusted Mean Cost Sharing per Inpatient Hospitalization for Hospitalizations With Cost Sharing of Greater Than \$0, 2009-2013

	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Total number of inpatient hospitalizations	1,556,756	1,479,491	1,446,735	1,432,554	1,401,232
<i>Total cost sharing</i>					
Adjusted mean total cost sharing among hospitalizations with total cost sharing >\$0 (95% CI)	\$1,055 (1,053-1,158)	\$1,174 (1,171-1,177)	\$1,231 (1,228-1,234)	\$1,309 (1,306-1,312)	\$1,459 (1,456-1,462)
Percentage of annual inpatient hospitalizations with total cost sharing >\$0	69.9%	69.9%	69.2%	68.3%	69.4%
<i>Copayments</i>					
Adjusted mean copayment among hospitalizations with a copayment >\$0 (95% CI)	\$299 (298-299)	\$314 (313-315)	\$312 (311-313)	\$320 (319-321)	\$328 (327-329)
Percentage of annual inpatient hospitalizations with copayments >\$0	25.0%	22.1%	20.0%	17.8%	16.8%
<i>Coinsurance</i>					
Adjusted mean coinsurance among hospitalizations with coinsurance >\$0 (95% CI)	\$1,020 (1,017-1,023)	\$1,096 (1,093-1,099)	\$1,121 (1,118-1,124)	\$1,157 (1,154-1,160)	\$1,242 (1,239-1,245)
Percentage of annual inpatient hospitalizations with coinsurance >\$0	50.8%	53.1%	53.7%	54.1%	55.4%
<i>Deductibles</i>					
Adjusted mean amount applied to the deductible among hospitalizations with amount applied to deductible of >\$0 (95% CI)	\$981 (976-987)	\$1,048 (1,043-1,053)	\$1,140 (1,135-1,146)	\$1,197 (1,192-1,202)	\$1,264 (1,260-1,269)
Percentage annual inpatient hospitalizations with amount applied to deductible >\$0	14.8%	16.1%	16.4%	17.7%	21.4%

Note: All costs are inflation-adjusted to 2013 dollars. Adjusted mean cost sharing was calculated by estimating regression models that adjusted for the DRG weights of the hospitalizations and applying the post-estimation margins command in STATA v.14 to obtain predicted costs.

**eTable 5.** Adjusted Mean Cost Sharing per Inpatient Hospitalization, High Market Share States Only<sup>1,2</sup>

	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Adjusted mean total cost sharing	\$742	\$830	\$872	\$922	\$1,053
Adjusted mean copayments	\$76	\$71	\$63	\$55	\$54
Adjusted mean coinsurance	\$502	\$570	\$595	\$623	\$692
Adjusted mean payment towards the deductible	\$164	\$189	\$214	\$244	\$307

<sup>1</sup> Sample restricted to states where HCCI-contributing insurers have 30% or greater combined market share. States include: AK, AZ, CO, CT, DC, FL, GA, OH, KY, MO, ME, NJ, RI, TX, WI. Approximately 54% of hospitalized members in our dataset resided in these 15 states over the study period.

<sup>2</sup> All costs are inflation-adjusted to 2013 dollars. Predicted cost sharing was calculated by estimating regression models that adjusted for the DRG weights of the hospitalizations and applying the post-estimation margins command in STATA v.14 to obtain predicted costs. All inpatient hospitalizations were included in the regression models, including those hospitalizations for which out-of-pocket spending was \$0.