

William Shoemaker

benchmarking boon tapping publicly available data to improve performance

Hospitals that are looking for opportunities to improve performance can be stymied by uncertainty about where to begin. CMS data provide an excellent starting point.

AT A GLANCE

- > Publicly available data can help hospitals benchmark their experience against that of their peers to identify unexpected variations and potential opportunities for improvement.
- > Medicare Provider Analysis and Review data and Medicare cost report data can be used to analyze a hospital's experience by medical service area and by Medicare-severity-adjusted DRG.
- > Such an analysis provides an excellent first step for more in-depth analysis that can hone in on potential problem areas, such as inaccurate documentation or coding.

Widespread demands for increased transparency and relentless pressures to contain costs in the face of declining government-backed reimbursement are compelling hospitals to focus on the effectiveness and efficiency of the services they provide. Publicly available data can help them in this effort. The Centers for Medicare and Medicaid Services (CMS) maintains data repositories that are powerful resources hospitals can use in benchmarking activities to identify unexpected variations and potential opportunities for improvement.

These data can be used to make detailed comparisons of one hospital's experiences with those of a selected peer group of hospitals. By such an analysis, a hospital can gain valuable insight into its utilization rates for key services as well as the relative costs of those services. Such an analysis can even help to expose deficiencies in the hospital's documentation and coding practices.

Claims data for the Medicare inpatient prospective payment system (PPS) are publicly available from CMS's Medicare Provider Analysis and Review (MedPAR) files and can also be obtained through a variety of commercial sources. These claims data, used in conjunction with concurrent Medicare cost report data, can also be used to allocate costs for specific medical services. Although the data reflect only Medicare patients, the volumes are sufficient for most services to allow for meaningful comparisons.

A Case Example

To illustrate how these data can be used, consider the following analysis comparing the experiences of a sample short-term, acute care hospital with

the combined experiences of all of the sample hospital's peers in its area.^a The sample hospital was arbitrarily chosen from a metropolitan area. The analysis is based on MedPAR data from federal fiscal year 2009 (FFY09) and corresponding hospital Medicare cost report data.

For the purposes of this analysis, Medicare severity-adjusted DRGs (MS-DRGs) are grouped into medical services (e.g. oncology, general surgery, etc.) rather than by major diagnostic category (MDC) to depict the information as lines of

a. This peer group was also chosen for illustrative purposes only; in actual practice, the individual hospital's experiences would be compared with those of a carefully selected set of peers (e.g., hospitals in a competitive market area, teaching hospitals of a certain size, and hospitals with strength in a particular specialty).

A hospital with a higher-than-average complication rate needs to understand the reasons. A higher-than-average complication rate may be a red flag for recovery audit contractors.

business rather than categories based on body systems. At a more detailed level, MS-DRGs have been collapsed into "base" MS-DRGs, which combine all levels of severity into a single category—that is, individual MS-DRGs within a base MS-DRG are differentiated only by the presence of a complication or comorbidity (CC) or a major CC (MCC).

CASE COMPLEXITY BY MEDICAL SERVICE AREA

Medical Service	Hospital Statistics				Comparative Statistics			
	Cases	CMI	CC/MCC Rate	MCC Rate	Cases	CMI	CC/MCC Rate	MCC Rate
Cardiology	643	1.0413	79.90%	46.70%	8,212	1.0837	69.10%	40.70%
Cardiovascular Surgery	17	2.742	58.80%	35.30%	4,294	3.6657	43.10%	32.80%
Gynecology	94	0.9504	34.30%	0.00%	158	0.9899	29.70%	0.00%
Medicine	1,169	1.0958	58.70%	34.30%	13,200	1.16	61.10%	41.10%
Neurology	320	1.1374	63.80%	35.80%	3,602	1.1084	54.80%	25.80%
Neurosurgery					468	3.2399	71.40%	34.20%
Obstetrics					11	0.9688	72.70%	0.00%
Oncology	37	1.4092	75.70%	51.40%	959	1.8441	88.10%	45.70%
Orthopedic Surgery	373	2.1836	39.40%	18.20%	5,614	2.2257	33.40%	14.60%
Orthopedics	184	0.9184	29.90%	23.40%	1,592	0.9309	30.80%	22.20%
Psychiatry	53	0.8354	19.00%	19.00%	1,596	0.8084	17.70%	17.70%
Pulmonology	561	1.2534	81.70%	46.40%	6,038	1.295	76.30%	39.80%
Surgery	182	3.2716	90.10%	51.10%	3,700	3.5284	80.90%	40.80%
Surgery for Malignancy	77	1.4718	57.10%	17.50%	263	1.7012	48.30%	26.00%
Urology	365	1.1322	63.30%	38.20%	3,387	1.21	67.30%	41.30%
Vascular Surgery	48	1.8872	58.30%	18.80%	960	2.0738	61.50%	30.60%
Totals	4,123	1.3209	62.90%	36.50%	54,054	1.6664	59.70%	35.20%

FEATURE STORY

In this analysis, any differences due to wages and other regional factors should be minimal because all hospitals are from a single metropolitan area. Wage adjustments might be necessary, however, in an analysis that involves hospitals in various geographic areas. For some analyses, it might also be necessary to adjust statistics according to case mix index (CMI). This adjustment may not be helpful, however, when working at a detailed

level. For example, when examining costs and charges at a specific departmental detail by MS-DRG, a CMI adjustment may distort the dollar figures inappropriately. CMI is based on weights that measure resource consumption for an entire case and may not be meaningful for individual department utilization. If needed, figures can be CMI adjusted later at summary levels to address variations as deemed appropriate.

CASE COMPLEXITY BY CARDIOLOGY MEDICARE SEVERITY-ADJUSTED DRG (MS-DRG)

Base MS-DRGs	Definition	Hospital Statistics				Comparative Statistics			
		Cases	CMI	CC/MCC Rate	MCC Rate	Cases	CMI	CC/MCC Rate	MCC Rate
282-281-280	Acute myocardial infarction (AMI), discharged alive	76	1.6765	86.80%	69.70%	664	1.5593	84.60%	54.50%
285-284-283	AMI, expired					21	1.6553	100.00%	95.20%
303-000-302	Atherosclerosis	19	0.5911	5.30%	5.30%	84	0.6879	26.20%	26.20%
310-309-308	Cardiac arrhythmia and conduction disorders	97	0.9399	75.30%	36.10%	1,452	0.8466	59.20%	24.70%
307-000-306	Cardiac congenital and valvular disorders					29	1.0612	37.90%	37.90%
313-000-000	Chest pain	62	0.5314	0.00%	0.00%	563	0.5314	0.00%	0.00%
287-000-286	Circulatory disorders except AMI, with cardiac catheterization					966	1.2646	25.20%	25.20%
293-292-291	Heart failure and shock	196	1.2218	91.80%	52.60%	2,668	1.17	83.10%	46.60%
305-000-304	Hypertension	12	0.5918	0.00%	0.00%	83	0.6335	8.40%	8.40%
316-315-314	Other circulatory system diagnoses	25	1.3824	80.00%	60.00%	615	1.538	95.10%	73.70%
301-300-299	Peripheral vascular disorders	48	1.0211	79.20%	29.20%	370	1.0166	75.40%	30.30%
312-000-000	Syncope and collapse	108	0.7097	0.00%	0.00%	697	0.7097	0.00%	0.00%
Totals		643	1.0413	79.90%	46.70%	8,212	1.0837	69.10%	40.70%

Analysis of Coding Indicators by Medical Service Area

The exhibit on page 89 depicts coding indicators specific to the primary hospital compared with those of all other acute care facilities in the metropolitan area for each medical service. The CC/MCC rate shows the ratio of cases coded into MS-DRGs that include comorbidities and/or complications.

The MCC rate refers to the percentage of cases that fall into the category of cases with the highest level of complexity for the diagnosis group.

Although several areas warrant further investigation, this analysis focuses on the cardiology service area given its applicability to most hospitals and potential for external scrutiny due to high

PAYMENT AND COST BY CARDIOLOGY MS-DRG											
Base MS-DRGs	Definition	Hospital Statistics					Comparative Statistics				
		Cases	CMI	Average Payment	Average Cost	CMI-Adjusted Average Cost	Cases	CMI	Average Payment	Average Cost	CMI-Adjusted Average Cost
282-281-280	Acute myocardial infarction (AMI), discharged alive	76	1.6765	\$8,528	\$10,316	\$17,295	664	1.5593	\$10,001	\$10,646	\$16,600
285-284-283	AMI, expired					\$0	21	1.6553	\$24,081	\$19,290	\$31,931
303-000-302	Atherosclerosis	19	0.5911	\$3,855	\$4,316	\$2,551	84	0.6879	\$4,364	\$4,970	\$3,419
310-309-308	Cardiac arrhythmia and conduction disorders	97	0.9399	\$5,336	\$7,790	\$7,322	1,452	0.8466	\$5,492	\$5,654	\$4,787
307-000-306	Cardiac congenital and valvular disorders						29	1.0612	\$7,662	\$6,114	\$6,488
313-000-000	Chest pain	62	0.5314	\$3,924	\$5,073	\$2,696	563	0.5314	\$3,338	\$4,353	\$2,313
287-000-286	Circulatory disorders except AMI, with cardiac catheterization						966	1.2646	\$9,520	\$10,208	\$12,909
293-292-291	Heart failure and shock	196	1.2218	\$7,079	\$9,661	\$11,804	2,668	1.17	\$7,509	\$7,944	\$9,294
305-000-304	Hypertension	12	0.5918	\$4,583	\$4,275	\$2,530	83	0.6335	\$4,668	\$6,328	\$4,009
316-315-314	Other circulatory system diagnoses	25	1.3824	\$7,528	\$9,001	\$12,443	615	1.538	\$11,204	\$11,503	\$17,692
301-300-299	Peripheral vascular disorders	48	1.0211	\$5,763	\$5,701	\$5,821	370	1.0166	\$6,947	\$7,019	\$7,136
312-000-000	Syncope and collapse	108	0.7097	\$4,112	\$5,327	\$3,781	697	0.7097	\$4,655	\$5,245	\$3,722
Totals		643	1.0413	\$5,962	\$7,706	\$8,024	8212	1.0837	\$7,296	\$7,749	\$8,398

Medicare volumes and costs. As shown in the exhibit, the primary hospital’s MCC rate—or percentage of most complex cases—in this service area is a noticeably higher percentage than the MCC rate for all of its peers. A hospital with a higher-than-average complication rate needs to understand the reasons.

There may be clinical explanations for this high rate (e.g., a high percentage of admissions from nursing homes), but it is also possible that it is due to inappropriate documentation and coding practices. This possibility should be investigated because a higher-than-average complication rate may be a red flag for recovery audit contractors. It is also interesting to note that despite having higher rates of complication, the primary hospital’s CMI for cardiology services is lower than the average CMI for the other hospitals in the region, which may indicate that the other hospitals perform cardiology services that are more intensive. Because the CMI is similarly lower for other medical services at the sample hospital as well, it is important to understand the cause.

Analysis of Coding Indicators by Cardiology MS-DRG

The exhibit on page 90 shows the same service line in detail by base MS-DRG group, this time with corresponding payment and cost data. The base MS-DRGs 310-309-308 and 293-292-291 (“Cardiac arrhythmia and conduction disorders” and “Heart failure and shock,” respectively) stand out as the likely cause of the higher CC/MCC rate for cardiology as a whole.

The analysis should investigate the reasons for these comparatively higher rates of complication.

It is important for hospitals to reduce unnecessarily high CCU utilization; doing so could yield significant savings.

Are there possible problems with the care being provided? Are proper documentation and coding practices being followed? Such questions need to be identified and explored internally to determine whether there is need for corrective actions. Failure to manage such issues internally increases the risk that they will be targeted by outside auditors.

In a different analysis, a facility might find that its CC/MCC rates are significantly lower than those of its peers. Such results also warrant deeper investigation to make sure the hospital is not losing revenue due to inaccurately documented and coded claims.

Analysis of Payment and Cost by Cardiology MS-DRG

The same group of MS-DRGs for the cardiology service line are examined in the exhibit on page 91 with a focus on the financial aspects of the services: charges, costs, and payment (excluding capital pass-through and organ acquisition amounts). This type of analysis can be useful to identify how efficiently peer hospitals provide similar services in relation to how they are paid.

ACCOMMODATION COSTS AND LENGTHS OF STAY FOR BASE MS-DRG 293-292-291

Category	Hospital Statistics					Comparative Statistics				
	Average Days	Charge per Day	Cost per Day	Charge per Case	Cost per Case	Average Days	Charge per Day	Cost per Day	Charge per Case	Cost per Case
Semi-Private Room	1.1	\$1,158	\$487	\$1,294	\$544	3.2	\$714	\$475	\$2,249	\$1,495
Intensive Care	0.2	\$1,483	\$719	\$227	\$110	1.4	\$905	\$544	\$1,241	\$745
Coronary Care	4.3	\$1,319	\$639	\$5,611	\$2,720	0.1	\$1,224	\$698	\$78	\$44

Interestingly, there appears to be a need for the hospital to focus on the “heart failure and shock” MS-DRG grouping once again. Although other base MS-DRGs show even greater variation from the peer group, the smaller change in the MS-DRG 293-292-291 group is greatly amplified by its volume and resulting effect on the bottom line, because the cases in this group both cost more and are paid less than are corresponding cases in the peer group. Despite the tendency toward a higher case mix for this base MS-DRG (i.e., a higher percentage of cases with CCs and MCCs), the likelihood of favorable reimbursement would be negated by this facility’s high cost structure. To determine the root cause of higher

cost, the hospital should conduct a departmental cost analysis for the MS-DRG group.

Analysis of Accommodation Costs and Length of Stay (LOS)

Accommodation costs and LOS for base MS-DRG 293-292-291 are shown in the exhibit on page 92. These cost figures offer a glimpse at how efficiently the hospital is offering one of its most common services. In this instance, the hospital should take note of the higher utilization of the more costly accommodations (i.e., intensive care unit [ICU] and coronary care unit [CCU] utilization).

CASE COMPLEXITY BY MEDICAL SERVICE AREA, MS-DRG 293-292-291

Category	Hospital Statistics				Comparative Statistics			
	Total Charges	Total Cost	Cost per Case	% of Total Cost	Total Charges	Total Cost	Cost per Case	% of Total Cost
Anesthesia	\$5,787	\$512	\$3	0.00%	\$52,672	\$8,197	\$3	0.10%
Blood administration	\$16,397	\$7,950	\$41	0.60%	\$297,711	\$147,632	\$55	0.40%
Cardiology	\$398,208	\$61,455	\$314	5.00%	\$5,271,313	\$1,280,456	\$480	5.40%
Clinic visit	\$714	\$219	\$1	0.00%	\$68,074	\$38,878	\$15	0.00%
Emergency department	\$246,770	\$38,837	\$198	3.20%	\$3,101,575	\$785,713	\$294	4.10%
End-stage renal disease revenue setting	\$12,932	\$4,788	\$24	0.40%	\$607,509	\$276,789	\$104	1.30%
Inhalation therapy	\$263,275	\$45,379	\$232	3.70%	\$1,994,151	\$719,306	\$270	1.80%
Laboratory	\$716,741	\$207,341	\$1,058	16.90%	\$9,255,313	\$2,455,724	\$920	14.10%
Medical and surgical supplies	\$328,725	\$290,727	\$1,483	23.70%	\$1,482,477	\$1,176,708	\$441	9.00%
Occupational therapy	\$123,601	\$35,221	\$180	2.90%	\$901,228	\$379,816	\$142	1.50%
Operating Room	\$41,948	\$11,541	\$59	0.90%	\$615,587	\$227,889	\$85	0.90%
Pharmacy	\$561,321	\$123,978	\$633	10.10%	\$7,833,844	\$2,163,337	\$811	12.60%
Physical therapy	\$154,219	\$43,947	\$224	3.60%	\$1,025,751	\$443,441	\$166	1.80%
Radiology	\$220,829	\$49,198	\$251	4.00%	\$3,837,262	\$863,434	\$324	4.20%
Speech pathology	\$29,651	\$8,450	\$43	0.70%	\$206,840	\$85,757	\$32	0.10%
Other	\$728,232	\$298,878	\$1,525	24.30%	\$8,249,375	\$4,018,716	\$1,506	42.80%

The sample hospital has costs per day in each setting that are quite comparable with those of its peers. But the average LOS in the CCU for this base MS-DRG is significantly higher for this provider. The hospital should conduct an immediate review of utilization practices for this unit to examine the use of the higher cost setting. It is important for hospitals to reduce unnecessarily high CCU utilization; doing so could yield significant savings. It is also worth noting that the overall LOS for this MS-DRG is also high by comparison.

Analysis of Ancillary and Variable Costs

The exhibit on page 93 shows how ancillary and variable costs are allocated in the care for base MS-DRG 293-292-291. Again, most of the hospital's costs are comparable with those of peer hospitals, with one notable exception: medical and surgical supplies. As with the utilization of the CCU, the hospital should review these supply costs. In this instance, the utilization patterns of a single department could stand behind a \$1,000-per-case cost reduction in a high-volume service. (It is important to note, however, that such a comparison can sometimes be skewed by differences in cost reporting for surgical supplies among hospitals.)

A Critical First Step

Increasing scrutiny of hospital delivery systems seems inevitable. It will be difficult to know

which new issues will capture the attention of regulators next, but keeping an eye on how patterns of care are distributed among peers may help identify potential issues before they become subject to regulatory scrutiny. At a minimum, such analyses can help administrators identify, address, and explain variations.

The analytical steps described here represent only a beginning of an in-depth review of delivery systems, but they offer the advantage of using readily available data. Further analysis and process review will almost certainly be necessary to determine whether the potential exists for costs savings or whether coding and documentation processes must be adjusted. But hospitals can find it daunting just to identify a starting point and then gather the tools to get started. That's where a hospital can benefit from using these basic analytical templates. ●

About the author



William Shoemaker

is senior vice president, American Hospital Directory, Louisville, Ky., and a member of HFMA's Kentucky Chapter (wshoemaker@ahd.com).

Reprinted from the June 2011 issue of *hfm* magazine. Copyright 2011 by Healthcare Financial Management Association, Two Westbrook Corporate Center, Suite 700, Westchester, IL 60154. For more information, call 1-800-252-HFMA or visit www.hfma.org.