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The Value of DRG Analysis: A Report on ACCC's Annual DRG Survey

by Lee E. Mortenson, D.P.A.

DRGs are simultaneously a unique mechanism for comparison and an anachronism. DRGs are a notoriously porous vehicle for accurately capturing clinical and financial data along a specific product line or disease state. On average, 40 to 60 percent of a typical community hospital inpatient volume and gross revenue can be attributed to Medicare. Since cancer is disproportionately a disease of the elderly, it may incur an even higher percentage of DRG-based patient volume than the hospital as a whole. However, as long as government-driven health care reimbursement programs continue to be based on prospective payment mechanisms such as DRGs (and eventually APCs), it is in a hospital's best interest to evaluate the cost effectiveness of its delivery system within this conceptual framework.

DRG analysis continues to be of value from a benchmarking perspective and provides the analyst with a simple way to target areas for further study. The desired endpoint, of course, is the demonstra-

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tion of measurable improvements in the quality, volume, and bottom line of a product line and, thus, the hospital as a whole.

As Medicare and Medicaid shift into managed care, DRGs may not persist in their level of value in the long term. For now, however, they still give valuable insight into the financial health of a hospital cancer program. The reader should recognize that although these insights are useful, they carry specific limitations.

SURVEY BACKGROUND AND OVERVIEW

Data used for ACCC's cancer DRG analysis were collected in the fall of 1997 from Association members, based on their financial experience with cancer-related DRGs. All ACCC member institutions were surveyed and requested to submit data on costs, charges, and reimbursements for sixty-nine cancer-

The data presented in this article represent just a sample of the entire DRG survey analysis provided in *Cancer DRGs: A Comparative Report on Key Cancer DRGs*, published by the Association of Community Cancer Centers. Copies of this publication are available by calling the ACCC Executive Office at 301-984-9496.

related DRGs for *all* patients—Medicare and non-Medicare—discharged from their institutions over a 12-month period. One hundred twenty-one hospitals reported charge data. Reimbursement data were provided by 107 hospitals; cost data were provided by 95 hospitals. Although each of these data items was reported for most hospitals, not all hospitals reported these figures for each of the sixty-nine DRGs.

The sixty-nine DRGs included in this survey represent DRGs that consist primarily of ICD-9-CM codes pertaining to adult oncology patients, as well as DRGs that pertain to the neoplastic process or to the diagnosis of cancer.

Fifty of sixty-nine DRGs show mean profits per discharge. The most profitable DRG per discharge is DRG 481 (Bone Marrow Transplant), which showed a mean profit of \$9,361 per discharge. Of the nineteen DRGs that showed mean losses per discharge, the highest mean loss per discharge is \$557 (DRG 363, Conization and Radio-Implant for Malignancy).

LENGTH OF STAY AND PROFITABILITY

Five of the sixty-nine DRGs were selected for more detailed analysis because they represent high-volume cancers typically found in hospitals with active oncology programs. Ninety-four hospitals provided charge and cost data for diagnostic radiology and nuclear medicine, clinical and pathology labs, pharmacy, and operating rooms for the

Table 1. Cost Structure of Selected DRGs

	DX*	Pharm	Clin Path	OR	Inpatient/ Other	Total	LOS
DRG 82	9.03%	13.78%	7.63%	1.80%	67.76%	100%	7.1 days
DRG 172	6.83	14.68	9.12	3.13	66.24	100	7.3
DRG 257	2.85	5.23	7.10	38.76	46.06	100	2.6
DRG 410	3.35	48.50	4.59	1.51	42.05	100	6.8
DRG 481	1.31	37.22	16.98	.82	43.67	100	22.7

five "breakout" DRGs, which include DRG 82 (Respiratory Neoplasms); DRG 172 (Digestive Malignancy); DRG 257 (Total Mastectomy); DRG 410 (Chemotherapy); and DRG 481 (Bone Marrow Transplant).

Analysis of cost and charge data for these five DRGs reveals that inpatient/other expenses (including lodging and nursing services) account for the most significant portion of overall costs, except for DRG 410 (Table 1). Length of stay appears to be the single-most important cost driver for a typical community hospital. Under a DRG reimbursement paradigm, the faster a patient can be safely transitioned from an inpatient setting to an ambulatory or self-care setting, the more net revenue can be realized. Hospitals often focus their attention on those DRG losers with high length of stay. Second priority is often improving profitability of

those DRG winners with high length of stay.

Length of stay per DRG and its correlation with profit are shown in Table 2. "Most profitable winners" (A) reflect those profitable DRGs that can be relatively easily captured. DRGs that are categorized as "less profitable winners" (B) have net revenue that could be further improved by even moderate incremental reduction in length of stay. "Most unprofitable loser" (C) DRGs identify those tenacious cases that would probably require long-term attention and resources to move to profitability.

Those DRGs that fall into "losers with low length of stay" (D) are still, on average, unprofitable or at best marginally profitable. Hospital administrators might evaluate patterns—and providers—of care for those DRGs with average length of stay of four days or less. These efforts might focus on effecting optimal care albeit on a largely ambulatory or home care basis.

Table 3 examines nine DRGs in this year's survey with length of stay averaging four days or less. Considerable savings are projected from reduced inpatient length of stay alone. Projections are based on the assumption that, on average, the typical hospital spends about \$1,188 per day on inpatient/other expenses.¹ However, it is important to note that high-cost DRGs with short lengths of stay likely indicate significant costs in other areas such as radiology, pharmacy, and laboratory. In these cases, decreasing an already short length of stay without a complementary strategy to reduce these other predominate costs would not substantially impact a hospital's profit margin.

Table 2. Profit/Loss as Correlated with LOS for the Top 5 DRGs in Each Category

	Profitable		Less Profitable	
Low LOS	A	164	259	D
		188	260	
		275	344	
		357	363	
		398	465	
High LOS		199	82	
		303	172	
		406	239	
		473	400	
	B	481	413	C

*See page 26 for DRG titles.

REGION AND LENGTH OF STAY

To determine whether institutional profit/loss varies from region to region, analyses were performed for each of five geographic regions (Northeast, Southeast, Midwest, Southwest, West). The mean institutional profit across all regions is \$1,366. All regions, except for the Southwest, reported average institutional profits. The West shows the largest regional profit (\$7,189) across all regions.

ACCC analysis (see *Cancer DRGs: A Comparative Report on Key Cancer DRGs*) also reveals that institutions in the western region of the United States show higher profits than other regions for ten of the top fifteen most profitable DRGs. For these same profitable DRGs, the West also has average lengths of stay that meet or fall below average lengths of stay for all other regions. These findings may reflect the fact that the survey contains data from several university cancer centers in the East. Their extensive overhead costs may affect an East/West comparison.

Length of stay is not always the decisive factor in attaining profit. Also important are a program's cost containment strategies for other DRG-inclusive services, such as pharmacy, radiology, and pathology. Table 4 shows those DRGs for which reporting hospitals in other regions of the country attained a higher profit per discharge than those in the West. These higher profits were achieved even though length of stay was equal to or greater than the average length of stay for all regions, suggesting the savings come from cost containment strategies or significant differences in prevailing patterns of care. For example, many institutions are shortening the length of stay for women with mastectomy (DRG 257, Total Mastectomy for Malignancy, Age ≥ 70 &/or CC), and this finding, as shown in Table 4, may be an indicator of that trend.

BEDSIZE AND QUALITY CONTROL

The sixty-nine DRGs were also analyzed according to bed size distributions. Hospitals were grouped into three categories: less than 300 beds, 300 to 500 beds, and more than 500 beds. Among the fifteen most

profitable DRGs, data analysis reveals that hospitals with 300 or less beds consistently show the highest profits per discharge. These data suggest that the relationship between the physical size of an institution and its overhead costs can result in lower indirect costs overall, and therefore a higher profit margin. Possibly these smaller hospitals, which make up 22 percent of respondents, have undertaken ambulatory strategies as a result of reorganization.

The challenge to the physician, clinician, and administrator is, of course, to effectively manage the care of a substantial group of chronically ill patients under one health care delivery system while efficiently managing the conflicting reimbursement systems. A well-run integrated oncology program can potentially contribute 20 percent to an organization's bottom line—second only to cardiovascular services. This percentage may very well change with shifting demographics, new technologies and procedures, and reimbursement reform. ■

REFERENCES

¹HCFA. Selected community hospital statistics, 1996. Available at www.hcfa.gov. Accessed July 16, 1998.

THE VIEW FROM TWO ACCC MEMBERS

Penrose Cancer Center in Colorado Springs, Colo., was one of the 123 ACCC-member institutions that contributed data to the 1997 DRG survey. Kay Petras, M.B.A., the center's director, confirms that lowering length of stay produces a healthier bottom line. Within the past two years, Penrose has decreased the number of oncology patients on its inpatient unit from thirty per day to eight. Overall the average length of stay for inpatients has decreased from 7.3 to about 5. Petras and the cancer center staff work closely with patients and physicians to keep inpatient admissions down. However, Petras shies away from categorizing certain procedures as strictly belonging in an inpatient or outpatient setting. According to Petras, there are no hard and fast rules about inpatient vs. outpatient treatment. "We have patients who undergo stem cell transplant without being admitted to the hospital," Petras said. "However, we may admit some of our more fragile patients for their first round of chemotherapy."

Inpatient admissions stay down, Petras said, when patients are carefully and individually evaluated for the most appropriate setting of care.

A recent trend finds hospitals initiating more aggressive efforts to ensure more accurate coding, and therefore improved reimbursement. This may be especially true among smaller hospitals, according to Helen Southerland, director of the cancer center at the 250-bed Deaconess Hospital in Oklahoma City, Okla. Deaconess Hospital underwent a process to reclassify particular DRG procedures.

"Administrators at smaller hospitals may have more of an opportunity to dedicate staff to this kind of quality control process," speculated Southerland, who has worked in both large and small organizations and is currently responsible for overseeing the accuracy of oncology coding at Deaconess. The physical size of the institution may facilitate this task. "I can literally walk over to the coding department to discuss a coding problem that has been recognized," Southerland said. "Our setup facilitates face-to-face communication." ■

Table 3. Estimated Cost Savings of "DRG Losers with Low Length of Stay" When LOS is Decreased by Half (Inpatient Costs Only)

DRG	Mean Profit/Loss Per Disch	No. Discharges (days)	Mean LOS	Est. Savings Per Discharge	Total Savings
11	\$246	630	3.8	\$2,257	\$1,421,910
187	-122	382	3.2	1,900	725,800
259	130	451	2.9	1,723	777,073
260	-196	952	1.5	891	848,232
344	-223	62	3.6	2,138	132,556
363	-557	72	3.3	1,960	141,120
407	215	62	3.9	2,316	143,592
412	69	6	2.0	1,188	7,128
465	194	20	4.0	2,376	47,520

*Based on the assumption that, on average, the typical hospital spends about \$1,188 per day on inpatient expenses. (Source: www.hcfa.gov.) Estimated savings per discharge equals $\$1,188 \times \text{LOS} \div 2$.

- 11 Nervous System Neoplasms, Age ≥ 70 w/out CC
- 82 Respiratory Neoplasms
- 164 Appendectomy with Comp Prin Diag, Age ≥ 70 &/or CC
- 172 Digestive Malignancy, Age ≥ 70 &/or CC
- 187 Dental Extractions and Restorations
- 188 Other Digestive System Diagnoses, Age ≥ 70 &/or CC
- 199 Hepatobiliary Diagnostic Procedure for Malignancy
- 239 Path Fractures & Musculo & Connective Tissue Malig
- 257 Total Mastectomy for Malignancy, Age ≥ 70 &/or CC
- 259 Subtotal Mastectomy for Malignancy, Age ≥ 70 &/or CC
- 260 Subtotal Mastectomy for Malignancy, Age < 70
- 275 Malignant Breast Disorders, Age < 70 w/out CC
- 303 Kidney, Ureter, & Major Bladder Procedure for Neoplasm
- 344 Other Male Reproductive System O.R. Procedure for Malignancy
- 357 Uterus & Adnexa Procedures for Malignancy
- 363 Conization and Radio-Implant for Malignancy
- 398 Reticuloendothelial & Immunity Disorders, Age ≥ 70 &/or CC
- 400 Lymphoma or Leukemia w/ Major O.R. Procedure
- 406 Myeloproliferative Dis w/ Major O.R. Proc & CC
- 407 Myeloproliferative Dis w/ Major O.R. Proc w/out CC
- 410 Chemotherapy
- 412 History of Malignancy with Endoscopy
- 413 Other Myeloproliferative Dis, Age ≥ 70 &/or CC
- 465 Aftercare with History of Malig and as Secondary Diag
- 473 Acute Leukemia
- 481 Bone Marrow Transplant

Table 4. Mean Profit/Loss and LOS by Region for Five Selected DRGs: West vs. Other Regions.

		Mean Profit/Loss	Mean LOS
DRG 188	Northeast	416	6
	West	335	5
	Southeast	157	6
	Midwest	75	5
	Southwest	-88	6
	All Regions	183	5
DRG 257	Southeast	627	3
	West	434	2
	Midwest	261	8
	Southwest	154	3
	Northeast	-86	3
	All Regions	316	3
DRG 303	Southeast	1,819	9
	Southwest	1,137	8
	West	1,051	8
	Northeast	805	9
	Midwest	345	8
	All Regions	949	8
DRG 357	Midwest	1,403	8
	West	1,152	7
	Southeast	411	8
	Northeast	370	7
	Southwest	52	7
	All Regions	859	8
DRG 395	Northeast	104	5
	Southeast	76	5
	West	21	4
	Midwest	-259	4
	Southwest	-531	5
	All Regions	-83	5