

# Continuing Education

## DRGs and PPS—Their Effect on Hospitals

Mark R. Gavens

Northwestern Memorial Hospital, Chicago, Illinois

*This is the first in a series of four continuing education articles on management. This article is designed to present the technologist with a clear understanding of new government regulations, reimbursement changes, and the effect on hospitals. Upon completion of this article the technologist should understand 1) changes in regulations that affect hospital revenue in general; 2) how these changes will effect patient service departments, radiology, and nuclear medicine; and 3) future trends and how they will affect health care.*

For many years, public health officials, health insurance companies, hospital administrators, government payors, and other health care professionals have been searching for a way to quantitatively measure the product or "case mix" of the modern day hospital. These efforts have been hindered by the great diversity of this nation's hospitals (1). Some are small, others quite large; some treat only simple cases, others handle complex referrals; some offer only limited technology, others have state-of-the-art medical equipment. Until recently, measures of a hospital's output usually were expressed in terms of structural characteristics such as number of beds, occupancy rates, number of physicians, number of tests or exams performed, square footage, number of staff per bed, etc. (1). Diagnosis Related Groups (DRGs), a new product measurement scheme, combined with their linkage to hospital payment via the government's Prospective Payment System (PPS), have dramatically changed the way hospitals are evaluated and operate.

### DRGs DEFINED

The DRG system is a classification scheme based on patient, rather than institutional, characteristics and treatment processes (2). Each DRG describes the type of patient being cared for in the hospital and the average level of resources utilized. DRGs were created by researchers at Yale University in the early 1970s (1). They were looking for a methodology that would categorize hospital patients into distinct groupings with similar length of stays. With the support of a federal

grant, this new system was developed for use by hospitals, government peer review organizations, and health insurance payors to conduct resource utilization review activities (1).

Each DRG had to be medically and statistically meaningful (3). To ensure this, three criteria were used to categorize patients: (a) cases had to be anatomically and physiopathologically consistent; (b) an adequate number of cases had to be statistically significant in each category; and (c) each category was to be mutually exclusive (1). Four additional patient-related variables also were considered: secondary diagnosis, age, primary, and secondary treatment procedure (1). Using hundreds of thousands of medical abstracts and the ICD8-8 (International Classifications of Diseases Codes) system, patient cases were reviewed, sorted, and ultimately organized into 83 major diagnostic categories (MDCs) subdivided into 383 DRGs (1). Further refinement reduced the number of MDCs to 23 and today, there are 475 officially recognized DRGs (4) (see Table 1 and Figure 1). Currently DRGs relate only to inpatient procedures.

**TABLE 1. Examples of Major Diagnostic Categories**

Major diagnostic category number	Major diagnostic category name
1.	Diseases and disorders of the nervous system
2.	Diseases and disorders of the eye
3.	Diseases and disorders of the ear, nose, and throat
4.	Diseases and disorders of the respiratory system
5.	Diseases and disorders of the circulatory system
21.	Injuries, poisonings, and toxic effects of drugs
22.	Burns
23.	Factors influencing health status and other contacts with health services

Adapted from Ref. 4.

For reprints contact: Mark R. Gavens, Northwestern Memorial Hospital, 303 E. Superior St., Chicago, IL 60611.

## LINKING DRGs TO THE PROSPECTIVE PAYMENT SYSTEM

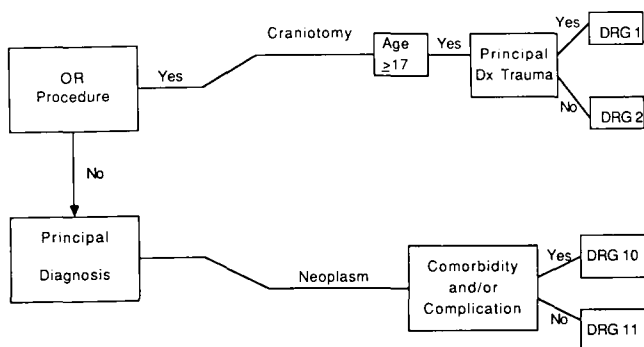
During the late 1970s and early 1980s, the federal government experienced significant growth in expenditures under the Medicare Program. Originally enacted in 1966 for the benefit of senior citizens, the cost of administering the program was becoming far too expensive; accordingly, new ideas for gaining control of the hospital payment portion received a great deal of attention in Washington (1).

Since its inception, Medicare has reimbursed hospitals for care on a cost basis (i.e., whatever the hospital's cost, the federal government would pay the bill). It became increasingly clear that a reimbursement system based on retrospective costs creates incentives for high utilization of hospital resources. While cost-reimbursement structure of the Medicare payment system was blamed for the rapid escalation in health care costs, it is generally believed that new treatment approaches, the installation of expensive new technology, and increased labor costs also contributed to the problem. Something had to be done.

The answer, at least from the federal government's perspective, was to pay hospitals on a prospective fixed fee rather than the retrospective cost basis, shifting the financial risk from the payor to the institution. Annual Medicare expenditures could now be controlled by the government through setting the rates for services rendered. It also was believed that shifting risk to the hospital could be accomplished without restricting coverage to Medicare beneficiaries.

In 1982, the Tax Equity and Fiscal Responsibility Act (TEFRA) passed by Congress initiated a series of reforms leading to the development of a Prospective Payment System (PPS) for Medicare (1). DRGs were subsequently chosen by the government as the vehicle for payment. The final rates of payment per DRG were to be based on the average cost for treating the patient and the relative complexity of the case (1). In 1983 the PPS System, utilizing DRGs as both the measure of case mix and basis for payment, was implemented in the nation's general acute care hospitals.

The complexity associated with implementing PPS and the significant effect it would have on a hospital's finances resulted in the development of a four-year phase-in plan (2). This plan was designed to ease the transition for hospitals by



**FIG. 1.** An example of DRGs illustrated by the major diagnostic Category One diseases and disorders of the nervous system. (Adapted from Ref. 4).

providing a decreasing proportion of the payments based on the old cost system and an increasing proportion based on DRGs. The new regulations also provide payments for an unusually long length of stay or high cost cases (outliers) and recognized geographic variations in labor costs (urban versus rural) (1).

## THE EFFECT OF PPS ON HOSPITALS

The changes in incentives brought about by the PPS have affected the way hospitals are organized and operate. The most significantly affected areas include case mix, finance, medical staff relations, technology, and quality.

### Case Mix

The typical hospital inpatient in 1988 is sicker than in pre-PPS days and requires more hospital resources per day of care (5). Hospitals are steadily becoming giant "intensive care units," caring for only the most acutely ill segment of our population.

This change in case mix is related to a significant shift of the location of care to the outpatient setting and a sharp reduction in the average inpatient's length of stay. Approximately 40% of all surgeries are now performed in hospital outpatient departments, or freestanding ambulatory care centers (5). The decrease in length of stay is due to a reduction in the number of post-procedure recovery days and elimination of pre-procedure days previously used as a time for diagnostic workups. There is less time available for patients to have their workup performed during their stay, placing increased pressure on professional departments such as nuclear medicine to accommodate both inpatient and outpatient procedures. Many hospitals have established "pre-admitting testing centers" where these procedures, formerly done as an inpatient, can now be performed in a more relaxed outpatient atmosphere prior to being formally admitted for surgery. The patient's length of stay is reduced and the hospital saves money by using less inpatient resources per DRG. While changes in practice pattern partially explain these phenomena, PPS incentives clearly have played a major role.

Although other health care payors, such as Blue Cross and commercial insurers, are still paying hospitals on a retrospective cost or charge basis, the changes in case mix initiated by PPS are having an effect on their patients as well. Physician practice patterns do not tend to vary by payor class of the patient. For example, when a system is established to perform procedures on a pre-admission basis, it is likely that all patients will migrate toward using this mechanism. It is generally believed that this "halo effect" is attributed to PPS and is an important factor in accelerating the changes in hospital case mix.

### Financial Management

The financial risks of these decisions (i.e., whether to invest in new programs, satellite others, or to acquire expensive new technology) to hospitals are much greater than in the past. With payments fixed under a PPS system, the hospital's financial security is directly related to its ability to understand and manage its costs.

As a result, hospitals have invested in more sophisticated cost-accounting systems that are able to describe the variable and fixed components of performing a procedure. Management engineers and accountants are often sent to diagnostic areas to "microcost" all aspects of the production process. This information, when compiled on a hospital-wide basis and sorted by patient, is an invaluable tool to management on the cost, revenue, and profitability of DRGs. It helps to determine which DRGs are financial winners and which losers, feeding the strategic-planning processes and ultimately determining which services will be maintained; which will need supplementary financial support, which need to be eliminated, and which will be added.

Departments that once considered themselves profit centers (e.g., Radiology and Nuclear Medicine) are now being called "cost centers." Their managers are being reoriented toward producing the product (or procedure) at less cost rather than maximizing the revenue. Performance measures now include cost per procedure, or cost per relative value unit of care, rather than simply gross charges. Managing the cost side of the equation within the department is now the top priority.

Finally, a greater level of financial analysis of all new program ideas, new equipment, or requests to add additional staff are now being routinely performed. Although it usually slows the decision-making process, hospitals must venture carefully into these areas as they may have significant effects on their ability to control or reduce cost structure.

### **Medical Staff Relations**

PPS has forced hospitals to begin examining the way patients are managed. Care and treatment are directed by the attending physician. Given that reimbursement is fixed and that the physician controls the use of hospital resources, the potential for conflict between hospital management and physicians is high. This problem is exacerbated by the fact that while hospitals are being paid for care under PPS, physicians are still being reimbursed by Medicare under the old fee-for-service system.

To address this issue, hospitals are emphasizing a much greater level of communication with their medical staffs. Hospitals are beginning to track physician practice patterns and resource utilization, providing the physician with reports that describe how he/she compares with peers within the hospital and the community. Many Grand Rounds now include segments examining the economic effects on alternative treatment regimens. Education is critical if physicians are to understand the effects of their practice patterns and decisions on the hospital.

Integration of the physician into the formal management structure of the hospital also is important in that it provides for a greater response to the clinician's needs in the decision-making processes. It is my opinion that more and more physicians will go back to school to get their MBAs and are joining hospital management staffs as Vice Presidents of Medical Affairs.

Other effects on medical staff relations include the monitoring by nonphysicians of the treatment process and inten-

sified demands on documenting care in the medical record. Increasingly, physicians are having to explain and defend what they do for patients, not just on a quality basis but also an economic one. Internal hospital utilization review departments and federally-funded peer review organizations (PROs) are examining practice patterns and will deny payment when care has not been provided in an appropriate and cost-effective manner. The medical record serves as the main source for this analysis and is also critical to DRG assignment. Because this information is used for many important and diverse purposes, it is critical that it be as comprehensive, accurate, and reliable as possible. It is likely that efforts to improve documentation in the record will continue to be emphasized to medical staffs.

### **Technology**

PPS has added new questions to the decision to acquire technology in hospitals. Previously, such decisions were made primarily by physicians and based exclusively on quality considerations. Now, a multidisciplinary team of hospital managers and physicians often are involved in an attempt to analyze technology from an economic perspective as well. Questions being asked include:

- What effect will the new technology have on the cost of treating this particular patient or on a cost per DRG?
- Will the new technology result in new volume for the institution? How will this change affect the current cost per DRG?
- Will the new technology shift the location of care from inpatient to outpatient settings, and what effect will this have on hospital finances?

In the early years of PPS, there was concern that the development of new technology and its dispersion to community hospitals might be slowed. However, it is my opinion that this has not occurred. Equipment permitting a speedier diagnosis without resorting to invasive procedures (i.e., MRIs, CTs) has flourished because their use can be shown to be cost-effective in the DRG environment. On the other hand, insurance companies and Medicare have been less inclined to approve payment for new technology until the cost-benefit question has been answered to their satisfaction.

### **Quality**

In pre-PPS days, the quality of care rendered within hospitals was rarely questioned or challenged. The "more is better" incentives of the traditional financing system were believed to guarantee that providers would do everything possible to maintain high quality. The change in incentives has altered this belief. Although numerous studies have concluded that quality of care has not diminished under PPS (6), incentives to accelerate discharge and reduce length of stay have raised concerns by all providers.

To assure that patient quality does not suffer, all departments in hospitals are now expected by their boards and management to have detailed quality assurance programs in

place which can identify and quickly resolve quality of care issues. Hospital-wide quality assurance departments oversee these activities and often report directly to the hospital's board of directors.

The ability of the hospital to appropriately maintain the balance between cost and quality is dependent on its ability to accurately and reliably measure quality. Unfortunately, measuring quality is still as much an art as it is a science. There are a number of measurement systems that are now being developed but will not be instituted for several years. Hospitals will need to place greater emphasis on quality assurance and quality management information systems in order to insure that the monitoring and evaluation process is effective.

### **PPS AND THE NUCLEAR MEDICINE DEPARTMENT**

All hospital departments are now under continual pressure to reduce the volume of services provided to inpatients while maintaining adequate levels of quality. Reduction in services correspond to reductions in cost per DRG as departments move to eliminate personnel positions, cut supply orders, and postpone the acquisition of new equipment. Demands for efficiency and effectiveness are being placed on the medical director, department manager, and all staff involved in the department operation.

At our hospital, the number of exams in the nuclear medicine department declined by 20% during the first four years of PPS. This volume has since returned, but in the outpatient rather than inpatient arena. The proportion of procedures performed on inpatients versus outpatients was 73% and 27%, respectively, in 1982. In 1987, however, the split was 50/50. These volume shifts were most pronounced in bone and thallium stress imaging because it became more medically acceptable to perform procedures on an outpatient basis.

In nuclear medicine, as in any other clinical department, productivity increases are necessary to sustain an acceptable level of operation in an environment where the payment for services is declining. Addressing the productivity question requires a thorough review of how departments are organized to provide care. Department managers need to reconsider how they can perform their procedures more efficiently and at lower cost. Hospital administrators are sharing data across institutions in order to determine where further efficiencies can be achieved. Department management also needs to ask how can services be better coordinated with other departments (i.e., Diagnostic Radiology and Cardiology) in order to improve the hospital-wide cost effectiveness of treatment? What are the true indicators for permitting utilization of the department's services and how are these indicators being monitored and enforced by the medical directors?

Many departments have responded by analyzing the type and qualifications of the people providing services in the department, including the mix of technologists and aides. Further, the number of managers and management levels has been examined and reduced, and the scope of responsibility

of all individuals has been expanded. Shift hours have been staggered to provide greater flexibility for meeting inpatient and outpatient demands in a more expeditious manner. And finally, the introduction of new technology (i.e., scanners that perform more procedures per operating day) and physical reorganization of services (consolidation of secretarial staff as support services across all professional departments) have contributed to improving staff productivity. All these activities are related in one form or another to the changing incentives brought about by perspective payment.

### **FUTURE TRENDS**

The PPS and DRG systems will be with us for a very long time. It is likely, however, that the programs will undergo further revision as the government and other payors try to extract more control over the health care cost spiral. Such developments will most likely include:

1. Incorporation of a severity adjustment measure into the DRG system that will more accurately reflect the resources utilized in the hospital to care for patients within that DRG (7).
2. Expansion of PPS to cover physician services. Although the number and diversity of physicians practicing in this country greatly complicates the government's ability to administer the system, political and economic factors will force this to occur. In addition, the PPS concept should be expanded to include all outpatients as well as other third party payors, including Blue Cross and major commercial insurers. As a result, hospitals will find it increasingly difficult to shift the cost of care to remaining fee-for-service-based patients. Moreover, continued growth in alternative delivery settings such as freestanding ambulatory care centers, home care agencies, and skilled nursing facilities will force these organizations to handle more than just custodial care patients as hospitals concentrate on treating only the sickest patients.
3. Hospitals will reevaluate the costs and benefits of managing services (their umbrella versus purchasing services) from outside agencies and companies who are able to achieve greater cost efficiencies. Examples of areas that will undergo review include the laboratory, pharmacy, diagnostic areas, physical therapy, and housekeeping.
4. The government will continue to "ratchet down" DRG payment rates to hospitals directly proportional to political pressure to manage the government deficit. Clearly, hospitals will be paid less and less for the treatment of governmental patients.
5. Increasing concern over the rationing of new technology by the government and insurance companies.

### **SUMMARY**

The DRG/PPS systems were developed in response to rapidly escalating health care costs and the federal government's concern over Medicare's increasing share of these costs. Paying hospitals on a prospective fixed-fee basis,

rather than through traditional cost-reimbursement, has changed the way hospitals, physicians, and other health care providers function and interrelate.

As society places increasing pressure on providers to be more cost-effective and accountable to those who finance health care, it is likely that systems such as DRG/PPS will thrive. However, it is important to remember that PPS is only a means to gain control over the health care cost spiral. It was sold to society on the premise that quality would not suffer. While this appears to have held true during the early years of PPs, the real challenge is to make sure it remains true in an economically uncertain future.

## REFERENCES

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# DRGs AND PPS—THEIR EFFECT ON HOSPITALS

For each of the following questions, select the best answers. Then circle the number on the reader service card that corresponds to the answer you have selected. Keep a record of your responses so that you can compare them with the correct answers, which will be published in the next issue of the *Journal*.

**A.** *The DRG classification system is based on:*

- 101. institutional trends.
  - 102. national trends.
  - 103. patient characteristics.
- 

**B.** *DRG stands for:*

- 104. disease related groups.
  - 105. diagnosis reimbursement groups.
  - 106. diagnosis related groups.
- 

**C.** *DRGs describe:*

- 107. types of patients.
  - 108. types of hospitals.
  - 109. types of payment plans.
- 

**D.** *In recent years, the PPS system replaced the retrospective cost basis payment system with a prospective fixed fee.*

- 110. True
  - 111. False
- 

**E.** *Ambulatory care centers and hospital outpatient departments now perform \_\_\_\_\_ % of all surgeries.*

- 112. 5
  - 113. 10
  - 114. 40
  - 115. 75
- 

**F.** *"Pre-admitting testing centers" \_\_\_\_\_ procedures done on an inpatient basis.*

- 116. increase
- 117. decrease

**G.** *Hospital management's goal is to reduce cost per procedure.*

- 118. True
  - 119. False
- 

**H.** *Utilization review departments and PROs may deny payment when care has not been:*

- 120. completed within the DRG deadline.
  - 121. provided in a cost-effective manner.
- 

**I.** *DRGs are based on the \_\_\_\_\_ cost for treating patients having the same characteristics.*

- 122. maximum
  - 123. minimum
  - 124. average
- 

**J.** *DRG categories were created by researchers in the:*

- 125. 1980s.
  - 126. 1970s.
  - 127. 1960s.
  - 128. 1950s.
- 

**K.** *Length of stay \_\_\_\_\_ affect DRG repayment classification.*

- 129. does
- 130. does not

**L.** There are approximately \_\_\_\_\_ recognized DRG categories today.

- 131. 25
- 132. 100
- 133. 500
- 134. 1,000

**M.** Increased productivity at reduced cost (staffing, supplies, etc.) is a management goal under the DRG system.

- 135. True
- 136. False

**N.** Future trends will be towards:

- 137. noninvasive procedures.
- 138. invasive procedures.
- 139. rapid diagnosis.
- 140. 137 and 139.
- 141. all of the above.

**O.** Utilization and governmental reviews will try to insure that there is no degradation of patient care under the fixed payment system.

- 142. True
- 143. False

Your answers to the above questions should be returned on a reader service card (found in the back of the *Journal*) no later than June 1, 1989. Remember to supply your name and address in the space provided on the card; also, write your VOICE number after your name. Your VOICE number appears on the upper left hand corner of your *Journal* mailing label. No credit can be recorded without it. A 70% correct response rate is required to receive 0.1 CEU credit for this article. Members participating in this continuing education activity will receive documentation on their VOICE transcript, which is issued in March of each year. Nonmembers may request verification of their participation but do not receive transcripts.

#### Answers to CE Article Tests, December 1988

The Continuing Education article in the December 1988 issue, "Care and Management of the Aids Patient," by Geraldine Grandberry was accompanied by a CE article test. The correct answers are:

- |        |        |        |        |        |
|--------|--------|--------|--------|--------|
| A. 103 | D. 111 | G. 125 | J. 139 | M. 147 |
| B. 107 | E. 119 | H. 132 | K. 144 | N. 149 |
| C. 110 | F. 122 | I. 133 | L. 146 |        |

The answers to the CE article test on "Collimator Technology and Advancements" by Robert J. Wilson are:

- |        |        |        |        |        |
|--------|--------|--------|--------|--------|
| A. 157 | D. 169 | G. 183 | J. 189 | M. 198 |
| B. 161 | E. 174 | H. 185 | K. 192 | N. 205 |
| C. 167 | F. 178 | I. 187 | L. 197 | O. 207 |