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Diagnosis Related Groups and the Price of Cost Containment

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DIAGNOSIS RELATED GROUPS AND THE PRICE OF COST CONTAINMENT

In 1965, the Medicare program was authorized to pay part of the costs of health care services for the elderly of this country. The program provided a basic health insurance protection from the costs of inpatient hospital care. Originally, Medicare utilized a per diem method of reimbursement where payments were based on usual, customary, and reasonable costs. Such cost-based, retrospective reimbursement systems placed virtually no limitation on the amount of costs to be reimbursed.

Physicians and hospitals were guaranteed recovery of most of the money spent, patients paid for only a small percentage of their total bills, and there was no thought that the Medicare program would ever exhaust its supply of money. Accordingly, there were no demands for hospitals to control medical costs. In fact, by recovering almost all money expended, hospitals had been encouraged to advance medical technology and expand the types of services offered. According to the United States Congress, Office of Technology Assessment, such advancements in new and existing technologies had been responsible for a substantial portion of the rise in hospital costs. The end result has been sky-rocketing health care costs that greatly surpassed general inflation.

Then in 1983, facing ever-rising medical costs that showed no indication

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4. Other third party payers, such as Blue Cross/Blue Shield, employed reimbursement methods similar to that of Medicare. OFFICE OF TECHNOLOGY ASSESSMENT, DIAGNOSIS RELATED GROUPS (DRGs) AND THE MEDICARE PROGRAM: IMPLICATIONS FOR MEDICAL TECHNOLOGY—A TECHNICAL MEMORANDUM 3 (July 1983) [hereinafter cited as OTA Report].
6. Id. at 388-389.
7. Medical technology refers to the "drugs, devices, and medical and surgical procedures used in medical care, and the organizational and supportive systems within which such care is provided. OTA Report, supra note 4, at ix.
8. Id. at 3.
9. Id.
10. Hospital costs have grown from $14 billion in 1965 to $118 billion in 1981. STAFF OF SENATE SPECIAL COMM. ON AGING, 98TH CONG., 1ST SESS., CURRENT DEVELOPMENTS IN PROSPECTIVE REIMBURSEMENT SYSTEMS FOR FINANCING HOSPITAL CARE 98-108 (Comm. Print 1983).
of reversal, predicted exhaustion of the Medicare Trust Fund, and an enormous federal deficit, Congress took drastic steps to decrease the outpouring of government funds for hospital care.\textsuperscript{11} To limit the extent to which Medicare would reimburse hospitals, Congress changed the focus of the method of payment.\textsuperscript{12} The new system is a prospective payment system where rates are previously determined and assigned by specific diagnoses or Diagnosis Related Groups (DRGs).\textsuperscript{13} DRGs is a classification system which groups patients according to principal diagnosis, presence of a surgical procedure, age, presence or absence of significant comorbidities or complications, and other relevant criteria.\textsuperscript{14}

This comment will explore the utility of the DRGs in light of the problems inherent in a prospective payment system based exclusively on diagnosis categories. To provide the necessary foundation for a meaningful discussion of DRGs, this comment first will explore the case mix and its role in prospective payment systems. To promote a clearer understanding of the DRG system, the history behind the DRGs will be briefly related before explaining the mechanics of the system. Next, focus will shift to the problems associated with the DRG system. Particular emphasis will be placed on the system's impact on the role of the physician, the future of medical technology, the quality of care that can be expected, and the hospital facility itself. Additionally, some available alternatives to the DRG approach will be examined. The final section will explore the future of health care and will suggest a more suitable means of containing health care costs while maintaining a level of adequate quality.

**DIAGNOSIS RELATED GROUPS: INCENTIVES FOR EFFICIENCY**

Attempting to curtail rising hospital costs and protect the solvency of the Medicare program, the United States Congress changed the focus of the reimbursement method to a prospective rate-setting system. By legislating this dramatic change, Congress forced hospitals to accept responsibility for any over-utilization of their services.\textsuperscript{15} Instead of covering the costs incurred and thus promoting the escalation of hospital costs,\textsuperscript{16} a prospective payment system encourages cost containment.\textsuperscript{17} Because hospitals receive incentive

\begin{itemize}
\item \textsuperscript{12} Social Security Amendments of 1983, Title VI, 42 U.S.C. § 1395ww.
\item \textsuperscript{13} Id.
\item \textsuperscript{14} OTA Report, supra note 4, at ix.
\item \textsuperscript{15} Davis, *A Bold Step Forward*, 24 INERNIST 8 (1983).
\item \textsuperscript{16} *Per diem* billing tends to encourage longer lengths of stay in hospitals. Shaffer, *supra* note 5, at 389.
\item \textsuperscript{17} Id. at 393.
\end{itemize}
payments when a patient’s length of stay is shorter than average, they benefit from a prospective rate-setting system.\textsuperscript{18} Conversely, hospitals must absorb the loss when costs exceed the standard.\textsuperscript{19} Thus, a prospective payment system provides incentives for efficiency and disincentives for waste.\textsuperscript{20}

A prospective rate-setting system\textsuperscript{21} requires accurate instruments to measure the level of productivity and effectiveness in the hospital setting.\textsuperscript{22} When measuring reasonable hospital efficiency, the “case mix” lies at the heart of determining hospital costs.\textsuperscript{23} A hospital’s case mix is the “relative frequency of admissions of various types of patients, reflecting different needs for hospital resources.”\textsuperscript{24} “Differences or lack of differences in hospital costs . . . can be the result of different case mix compositions and may not reflect differences in hospital productivity.”\textsuperscript{25}

The case mix measure is a valuable tool in analyzing hospital costs. Specifically, these measures can separate hospital expenditures attributable to changes in the type of patients treated from those expenses incurred as a result of changes in practice patterns for an unchanged mix of patients.\textsuperscript{26} Case mix measures also can be used to justify or evaluate capital expenditure programs in terms of patient treatment patterns and resulting operating costs.\textsuperscript{27} Moreover, third party payers find case mix measures useful in adjusting limits on payments to reflect differences between a hospital and the group with which it is being compared.\textsuperscript{28}

In the search for the most useful case mix measure, several methods were considered both individually and in conjunction with other methods.\textsuperscript{29} One popular method of case mix measurement is the grouping of individual patients into illness or diagnostic categories.\textsuperscript{30} Another method differentiates between the uncomplicated and the more severe cases.\textsuperscript{31} A third method

\textsuperscript{18} Id.
\textsuperscript{19} Id.
\textsuperscript{20} Id. at 396.
\textsuperscript{21} A prospective rate-setting system is a “hospital payment program where rates are set prior to the period during which they apply and where the hospital incurs at least some financial risk.” OTA Report, supra note 4, at x.
\textsuperscript{22} Shaffer, supra note 5 (citing Fetter, Shin, Freeman, Averill & Thompson, \textit{Case Mix Definition by Diagnosis Related Groups}, 18 \textit{Medical Care} 1 (1980)).
\textsuperscript{23} Id.
\textsuperscript{24} OTA Report, supra note 4, at x.
\textsuperscript{25} Shaffer, supra note 5, at 390.
\textsuperscript{26} Bentley & Butler, \textit{Measurement of Case Mix}, 8 Topics Healthcare Fin. 1 (1982).
\textsuperscript{27} Id.
\textsuperscript{28} Id.
\textsuperscript{29} Id.
\textsuperscript{30} Id. at 2.
\textsuperscript{31} Id. at 2-3.
classifies individual patients' personal characteristics that may affect treatment patterns. A measure utilizing all the available data probably would be far too numerous to be functional. Consequently, a method was sought that was not only useful and helpful but also administrable for its intended application. DRGs emerged as one method capable of providing a useful measurement of case mix that is also manageable in numbers.

History of the DRG

The Yale University Center for Health Studies and the Yale-New Haven Hospital initially developed DRGs during the mid-1970s. The researchers concentrated on defining expected lengths of patient stays for quality of care studies and utilization review activities. In constructing the DRGs, the focus was on defining case types, each of which was expected to require similar amounts of hospital services. Hospital services were measured in terms of the length of the hospital stay. The Yale study reflected the dramatic changes that were occurring in New Jersey hospital rate-setting at that time.

In 1971, the Health Facilities Planning Act provided the Commissioner of Health with broad discretion to protect consumers from unreasonable hospital accounting practices. A 1974 consumer report cited that the per diem method of hospital reimbursement encouraged hospitals to extend the lengths of inpatient stays beyond that which was medically required. The report went on to suggest that hospital reimbursement by the case would tend to discourage the over-utilization of hospital services. Utilizing the Yale study, developers based the DRGs on the length of hospital stays, fully realizing that length of stay "may not be as accurate an indicator of the level of output as actual costs." Researchers justified the use of the DRG system by reason of its availability. The original system of 383 categories was

32. Characteristics such as age, sex, or even income arrangements are thought to be legitimate influences on medical care patterns. Id. at 3.
33. Id.
34. Id.
35. Id.
37. Id. at 552.
39. Id.
40. Id.; see also Shaffer, supra note 5, at 391.
41. Shaffer, supra note 5, at 389.
42. Id.
43. Id. at 390.
44. Id. at 391.
45. Id.
later expanded to include 467 categories. The expansion was justified because there were excessive numbers of "outliers" or patients who did not fit within any of the categories.

The DRG system was chosen over alternative methods because it "confronted the practical necessity of employing length of stay as the indicator of cost for the statistical creation of the diagnostic categories." The DRG method of payment was attractive for several reasons. DRGs attempt to define hospital services as products and patients as consumers. The DRG classification is based upon data usually included in the discharge abstract that is compiled for each patient. The system is manageable in numbers with only 467 groups. Also appealing was that DRGs are organized in a hierarchical manner. If fewer categories are required, terminal diagnosis groups can be combined into fewer categories that are still useful. DRGs are clinically coherent in that a physician could identify a treatment pattern by the patient's DRG.

The DRG system is not without its disadvantages. DRGs rely on patient discharge abstracts which are all too susceptible of coding and classification errors. DRGs are not all-inclusive; some diagnoses and procedures are not considered. Moreover, DRGs reflect the state of medical technology and practice at the time of their development. This necessitates the reformulation of DRGs to reflect any advancements in diagnostic procedures and treatment modalities. Especially true with respect to the original 383 categories, but just as important now, is that the performance of a surgical procedure often categorizes a patient into a more complex DRG. The potential exists for surgical procedures to be encouraged because they result in higher reimbursement. DRGs are employed to categorize only inpatients. Because DRGs group patients into homogeneous categories based on length of stay, the system is neither a standard for medical procedures

46. Id. at 394-395.
47. Id. at 394.
48. Id. at 392.
49. Id.
50. Id. at 393.
51. See Lynch, supra note 36, at 552.
52. See Shaffer, supra note 5, at 393.
53. See Lynch, supra note 36, at 553.
54. See Shaffer, supra note 5, at 393.
55. Id.
56. Id.
57. Id.
58. Id.
59. Id.
60. Id.
nor a measure of quality of care.\textsuperscript{61}

The New Jersey plan formed the basis for the national model. The federal system incorporated those elements of the New Jersey system that were thought to be easily administrable on a national level.\textsuperscript{62} The cost data from past years were used to develop the fixed rate per DRG.\textsuperscript{63} Contrary to the New Jersey plan, the federal system does not apply to all third party payers, but only to Medicare.\textsuperscript{64} Another notable difference is that the national DRG system will be adjusted for rural and urban hospitals through the use of nine census regions.\textsuperscript{65}

Although the motivation behind the original development of the DRG was unrelated to its use in hospital payment systems, state and federal governments considered it to be ready for implementation at a time when all were concerned about uncontrollable hospital costs. This concern was so great that the DRG system was adopted even though it was never adequately evaluated as indicative of patient resource needs nor for possible impact on medical technology.\textsuperscript{66}

\textit{Assignment of a DRG}

Upon discharge from a hospital, a Medicare beneficiary is assigned one and only one DRG, regardless of the actual number of ailments.\textsuperscript{67} Where the patient was in the hospital for more than one illness, his or her medical record abstract, as prepared by the attending physician, must be run through a computer program (the Grouper).\textsuperscript{68} The Grouper then assigns the patient to a Major Diagnostic Category (MDC) based on the principal diagnosis, the rest of the diagnoses, the procedures, the discharge status, and the patient’s age.\textsuperscript{69} The Grouper verifies the accuracy and, if the MDC does not coincide with all the data, it assigns an error code and processing is terminated.\textsuperscript{70}

Once the MDC is assigned, its own decision tree is applied.\textsuperscript{71} Using the information on the discharge abstract, the Grouper follows a unique branch of the tree to determine the final DRG.\textsuperscript{72} The decision tree is a maze leading

\begin{itemize}
\item \textsuperscript{61} Id. at 394.
\item \textsuperscript{62} Id. at 395.
\item \textsuperscript{63} Id.
\item \textsuperscript{64} Id.
\item \textsuperscript{65} Id.
\item \textsuperscript{66} See OTA Report, supra note 4, at 57.
\item \textsuperscript{67} See Lynch, supra note 36, at 552.
\item \textsuperscript{68} Id. at 554.
\item \textsuperscript{69} Id.
\item \textsuperscript{70} Id. at 554-55.
\item \textsuperscript{71} Id. at 555.
\item \textsuperscript{72} Id.
\end{itemize}
from the MDC to specific DRGs and is founded on several principles. Other than the principal diagnosis, no significance is given to the ordering of other diagnoses and surgical information. Initial partitions of the medical or surgical patients are usually based on clinically coherent groups of procedures. To keep each DRG mutually exclusive, each operating room procedure category was ranked in a hierarchy of resource intensity. Partitions based on surgical procedure and principal diagnoses are usually completed before the use of other variables. Partitions are as homogeneous in terms of resource consumption as possible. Notably, system variables (such as discharge to a nursing home or payment source) are not direct patient attributes and as such are not used to define DRGs.

 Obviously, timely and accurate documentation and coding of the patient's medical chart are absolutely crucial to the DRG system. As a result, medical records personnel must learn the language of DRGs. Guidelines must be developed to address coding problems. Seminars are needed to educate physicians about the codes and their meanings for DRG assignment.

 Another problem involved in the assignment of DRGs is that of the outliers. Outliers are patients whose ailments cannot be categorized within one DRG. This group also accounts for those patients who, although assigned a DRG, have such complications as to require an excess length of stay, but not to the extent that a different DRG would apply. Under the New Jersey Plan, outliers accounted for over thirty percent of the total costs of twelve of the fifty-five hospitals. Although the original DRGs have been expanded to include more categories, outliers are still expected to account for a substantial percentage of total costs. It is important that outliers not be dismissed as just cases of extremely high or low consumption; hospital management should examine the documentation for possible missing or im-

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74. See Lynch, supra note 36, at 555-56.
75. Id. at 556.
76. Id.
77. Id.
78. Id.
79. Id.
80. GRIMALDI, supra note 73, at 215.
81. Id. at 216.
82. Id.
83. Id. at 216-17.
84. See Lynch, supra note 36, at 557.
85. Id.
86. GRIMALDI, supra note 73, at 217.
87. Id.
proper coding. \(^{88}\)

**Application and Implementation of the DRGs**

In October of 1983, the DRG prospective payment system began its three-year "phase-in" period. \(^{89}\) By the end of 1986, there will be a national rural and a national urban rate. \(^{90}\) Adjustments will be made for differences in hospital wage levels compared to the national average hospital wage. \(^{91}\)

The prospective payment will apply to all non-physician inpatient care and will be viewed as payment in full. \(^{92}\) Hospitals will not be permitted to bill Medicare patients any supplemental charges for covered services. \(^{93}\)

Most acute-care, short-term, non-federal hospitals that serve Medicare beneficiaries throughout the fifty states and the District of Columbia will be covered by the program. \(^{94}\) Those hospitals exempt from the system include psychiatric, long-term, children's and rehabilitation hospitals which will continue to be reimbursed on the basis of cost. \(^{95}\) Exceptions and adjustments may be made for hospitals that are sole community providers, public hospitals, teaching hospitals, some research hospitals, and others that serve a disproportionately large number of low-income or Medicare beneficiaries. \(^{96}\)

There is some indication that "imposition of a DRG-based reimbursement scheme requires additional administrative resources." \(^{97}\) The precise magnitude of the additional resources is not readily discernable from preliminary analysis. \(^{98}\) Cost increases will vary among hospitals as a result of different procedures. Proponents of the system hope that increased administrative burdens would be offset by the cost saving attributes of the prospective payment system. \(^{99}\)

However, findings indicate that the DRG variable did not perform substantially better than other variables. \(^{100}\) This raises a question regarding the cost-effectiveness of using DRGs to reflect a case mix. \(^{101}\) Moreover, results of the studies also suggest that no case mix variable helped to explain more

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88. See Lynch, supra note 36, at 557.
89. See Davis, supra note 15, at 8.
90. Id.
91. Id.
92. Id.
93. Id.
94. Id. at 9.
95. Id.
96. Id.
97. See OTA Report, supra note 4, at 53-54.
98. Id. at 54.
99. Id.
100. GRIMALDI, supra note 73, at 199.
101. Id.
than seventy percent of the variation in cost. Additionally, other classification schemes may be as effective as the original DRGs in grouping patients homogeneously. Therefore, utilization of any of the alternative methods available "would result in about the same payments to hospitals as in a prospective reimbursement scheme."

LIMITATIONS OF THE DRG SYSTEM

The Physician's Role

The DRG-based system of prospective payment will undoubtedly alter the role of the physician within the health care industry. Traditionally, physicians controlled the process of medicine and made the decisions regarding the provision of health care. Through the implementation of the DRG system, the physician will hold a prominent role in determining the profit or loss of the hospital. Conversely, the success of the physician depends on the success of his or her hospital. The ultimate success of the program appears to rest on the idealistic goal of symbiotic cooperation of physicians, nurses, financial officers, medical records staff, and billing personnel.

DRG reimbursement will require physicians to attend more to administrative detail and clerical tasks. Because reimbursement is contingent on diagnoses and surgical procedures, it is imperative that doctors complete their charts in a timely and accurate manner. Delayed charts and erroneous documentation can result in cash flow problems and improper reimbursement. To ensure proper recordkeeping, hospitals may give medical record coders the authority to change the principal diagnosis as reported by the physician. Hence, education programs are needed so the physician can become familiar with the required documentation and identify essential differences between these new requirements and customary clinical presentations. Payment rates may be used as a guideline in situations where the principal diagnosis is unclear and the patient has several diagnoses that

102. Id.
103. Id.
104. Id.
105. Bloom, Prospective Payment to Alter the Relationship Between MDs and Hospitals, 12 Hosp. Med. Staff 21, 22 (1983).
106. Id. at 21.
108. Id.; see also GRIMALDI, supra note 73.
109. GRIMALDI, supra note 73, at 146.
110. Id.
111. Id.
112. Id. at 147.
113. Id.
could have caused a hospital admission.\textsuperscript{114}

The inflation factor of the system contains a salary component.\textsuperscript{115} This provision sets a ceiling on the reimbursable wage increase that can be given to hospital employees.\textsuperscript{116} The inflation factor does not apply to fees that physicians charge for services rendered to specific patients.\textsuperscript{117} The limit does apply to all physicians whose services are a cost to the hospital, i.e., those who are paid a salary or fee by the hospital to provide patient care.\textsuperscript{118} When juxtaposed with the goal of minimizing interdepartmental cross-subsidization, the limits may reduce physician income below existing levels.\textsuperscript{119} This can be seen clearly where physicians are paid a percentage of gross departmental charges. In an attempt to avoid possible income controls, hospital-based physicians may wish to begin billing patients separately for services rendered.\textsuperscript{120} The administrator of the Health Care Financing Administration contends that physicians' fees will eventually join hospital rates under the DRG system.\textsuperscript{121}

Frequently, doctors have been accused of inducing escalating hospital costs because of their failure to practice cost-effective medicine.\textsuperscript{122} Although cost-effective medical techniques have rarely been explored and reported, DRG-based data may provide necessary information for meaningful efficiency research.\textsuperscript{123} DRG-based data may also provide information concerning which doctors are cost-efficient and which are not.\textsuperscript{124} Of course, many financial managers and medical directors already know which physicians are high-cost doctors.\textsuperscript{125} However, the DRG information may provide the documentation needed to discuss the problem constructively.\textsuperscript{126}

DRG information can serve as the basis for reports that reflect the profits or losses generated by each physician.\textsuperscript{127} Because the rates were determined as the average cost, it is unreasonable to expect doctors to generate a profit for each patient.\textsuperscript{128} The importance of these reports lies in the profit-loss

\begin{thebibliography}{99}
\bibitem{114} Id.
\bibitem{115} Id.
\bibitem{116} Id.
\bibitem{117} Id.
\bibitem{118} Id.
\bibitem{119} Id.
\bibitem{120} Id. at 148.
\bibitem{121} Davis, supra note 15, at 8.
\bibitem{122} GRIMALDI, supra note 73, at 148.
\bibitem{123} Id.
\bibitem{124} Id. at 150.
\bibitem{125} Id.
\bibitem{126} Id.
\bibitem{127} Id. at 152.
\bibitem{128} Id.
\end{thebibliography}
balance. If losses are repeatedly confined to certain DRGs, the hospital may be forced to curtail those services.

The constant struggle to maintain high quality patient care without operating at a loss is almost guaranteed to spark head-on confrontations between physicians and hospital administrators. Hospitals will be scrutinizing physicians' practices more closely than ever. More and more, doctors will be pressured to vary or modify practices to guard against a loss. This could tempt some doctors to change a diagnosis in order to obtain greater reimbursement. It is likely that pressure will be exerted for a physician to curtail services that have little bearing on patient outcome, but are merely used for the sake of completeness or under the rubric of defensive medicine. Physicians will also be urged to do more preadmission testing and take fewer tests during a hospital stay. In an effort to raise revenues, hospitals are likely to pressure physicians to admit those "low-cost" people who could be treated as outpatients. These "marginal admissions" are patients who do not require long stays or lots of tests and will hold down costs to the hospital without changing the DRG reimbursement.

Similarly, doctors may feel pressured to utilize "DRG creep" and "patient ping-pong." DRG creep is the term given to the practice of assigning the DRG category with the highest possible reimbursement; this is especially true with Medicare patients who often have multiple ailments. Patient ping-pong refers to the discharge and immediate readmission of patients who have multiple diagnoses or need more than one surgical procedure. Patient ping-pong can also occur by moving the patient to a service of the hospital not covered by the DRG system (such as the psychiatric ward) and then back to the DRG regulated room.

Doctors may be pressured to discharge patients sooner than normally recommended or medically sound. Senator Durenberger warns that physicians who continually lose money for the hospital may find themselves

129. Id.
130. Id.
131. Bloom, supra note 105, at 23.
132. Id.
134. Id. at 266.
135. Id.
136. Id.
137. Id.
138. Id.
139. Id.
140. Bloom, supra note 105, at 22.
denied staff privileges. Moreover, hospitals may attempt to reduce their professional staffs by replacing high-cost physicians with low-cost professionals.

**Medical Technology**

The role of the physician will not be the only area of health care to suffer under the DRG prospective payment system. Existing technologies, technological modifications and improvements, and future technologies will be affected adversely. Congress originated a Prospective Payment Assessment Commission in October of 1983, in a feeble attempt to safeguard medical technology. The purpose of the Commission is to examine the current state of modern medical technology. But according to its deputy director, the Commission has been unable to keep abreast of the new technologies.

Because the DRG system encourages the disuse of services not absolutely necessary, many hospitals may find themselves forced to relinquish certain services and equipment. Because different hospitals have varying case mixes, the technologies each can utilize under the DRG system will be limited to those that are cost-saving and used with at least some degree of frequency. Unable to pay for expensive equipment used by only a few patients, hospitals will be forced to discontinue the service. Expenditures on new technologies are not automatically reimbursed under the DRG system; therefore, technology will be competing with alternative uses for funds (including employee wages). Patients in need of certain technological services will be forced to travel to a hospital with a patient population large enough to allow indulgences of existing medical technologies. Gone are the days of a CAT scan in every hospital.

The DRG system also discourages technological modifications and advancements. In fact, today there exists medical technology that, although practiced regularly, has no DRG category. For example, intraocular lens implantation is an operation that replaces the lens of the eye in cataract...
The operation is being performed with increasing frequency although it is quite expensive. The problem lies in its DRG placement. The DRG reflects the diagnosis, cataracts, and not the treatment. The DRG assigned for cataracts is based on the procedures employed in 1981 which may be somewhat outdated. The same problem arises with pacemaker implantations. Although reaching proportions of almost routine practice, in 1981 such an operation was practically nonexistent.

Similarly, the DRG for leukemia which was established in 1981 assumes that it is a fatal disease. However, a new technique involving bone marrow transplantation makes it possible to save some leukemia patients. Although the cost of this procedure varies regionally, it is guaranteed to soar into the tens of thousands of dollars in the future.

Existing techniques are not the only procedures to be hampered by the DRG system. The Commission has expressed concern that the DRGs may inhibit the use of the litho-tripter. The litho-tripter is a new device that crushes kidney stones without the use of surgery. Without the potential for use of new devices that prove successful, any incentive to invent more devices is gone.

The deputy director of the Commission has stated that the DRGs will always be struggling to attain the level of medical technology. Even though the first updating of the DRGs to include new technologies is expected early next year, it is very likely to be outdated even before its completion. Yet, too frequent creation of new technologically-specific DRGs could undermine the very incentives of per case payment.

Quality of Care

The DRG system's primary goal is cost control. Consequently, quality will become an increasingly critical issue. Using an arbitrary category for the average case produces a tendency for physicians and their facilities to

151. \textit{Id.}
152. \textit{Id.}
153. \textit{Id.}
154. \textit{Id.}
155. \textit{Id.}
156. \textit{Id.}
157. \textit{Id.}
158. See OTA Report, \textit{supra} note 4, at 41.
160. \textit{Id.}
161. \textit{Id.}
162. \textit{Id.}
163. OTA Report, \textit{supra} note 4, at 58.
reduce unnecessary services. But the distinction between necessary and unnecessary is seldom clearly defined. Moreover, with so many subjective factors involved in the quality of care, it is natural that payers, providers, and consumers will perceive quality differently.

Traditionally, hospitals, intermediaries, and Professional Standards Review Organizations (PSROs) shared responsibility for quality assurance and utilization review.¹⁶⁴ Congress established the PSRO program in 1972 with the dual objectives of quality assurance and cost containment.¹⁶⁵ In 1982, Congress replaced the PSROs with Utilization and Quality Control Peer Review Organizations (PROs).¹⁶⁶ Under the DRG system, hospitals will have to make arrangements with PROs for review of the quality of care and the appropriateness of admissions and readmissions.¹⁶⁷ Historically, the balance between quality of care and cost containment was never really reached; the emphasis always went toward cost containment.¹⁶⁸ At this time, it is unknown whether the PROs can strike an appropriate balance where the PSROs failed.¹⁶⁹

However, this is not to suggest that the quality of care under the DRG system must go unchecked. There are several techniques designed to assess the quality of health care within the hospital. Admission certification is a method of review whereby a patient is determined to have been properly admitted as an inpatient.¹⁷⁰ The certification is performed within the first twenty-four hours of admission.¹⁷¹ Throughout a hospital stay, a patient's health is reevaluated, focusing on the severity of the illness and discharge ability.¹⁷²

Because documentation is so vital to the DRG system and because studies show that from twenty-five to forty percent of the documented information is in error, there is a need for random review of records as well as guidelines to assist in recording the data.¹⁷³ Ancillary review would evaluate whether hospital services were provided in a cost-effective manner.¹⁷⁴ Hospitals might also provide discharge planning procedures to facilitate the discharge

¹⁶⁴. Id. at 34.
¹⁶⁷. See OTA Report, supra note 4, at 34.
¹⁶⁸. Id.
¹⁶⁹. Id.
¹⁷⁰. Thompson, Diagnosis Related Groups and Quality Assurance, 8 Topics Healthcare Fin. 43, 45 (1982).
¹⁷¹. Id.
¹⁷². Id.
¹⁷³. Id. at 46.
¹⁷⁴. Id.
of patients in the most efficient manner. Through data collected by the PROs, profiles of individual physicians or institutional performance by DRG can be monitored and sanctions can be placed on those providing inadequate care.

It must be remembered that the DRG system is a system of cost control. It is the responsibility of the administrator and the physician to educate and persuade the government as to the minimum acceptable quality of care.

**Hospital Facility**

The impact of the DRG system on the hospital facility will be dramatic and possibly long-lasting. One positive influence the DRGs will have on hospitals is that hospital recordkeeping procedures and performances must necessarily improve if a hospital expects to curb losses. In an attempt to keep costs down, hospitals may try to keep many people out or shorten their stays. Some hospitals will be establishing ambulatory care centers that will promote the use of less invasive technology. In fact, Blue Cross and Blue Shield of Michigan now offers monetary incentives to surgeons who do certain minor operations on an outpatient, same-day basis. The Personal Care Residence of Presbyterian Medical Center in Philadelphia is an innovative concept that offers hospital care in a hotel setting at approximately one-fifth the price. The purpose of such places is to give patients who are not quite ready to go home a supervised place to stay, without having to pay for services they do not really need. In determining how far to go, the hospitals' obligation to all present and potential patients must be weighed against their obligation to provide "charitable care" in a particular instance.

Rather than evolving with the hospitals, some physicians have decided to compete with the institutions. Emergency care centers are being established with greater frequency. Such centers are usually found in easily accessible and highly visible locations. The centers provide treatments normally associated with a hospital dispensary.

175. Id. at 46-47.
176. Id. at 47; Medicare DRGs: Challenges for Quality Care: Hearing Before the Senate Special Committee on Aging, 99th Cong., 1st Sess. (Sept. 26, 1985) (unpublished hearing).
177. See OTA Report, supra note 4, at 51.
179. Bloom, supra note 105, at 22.
180. Prevention, supra note 178, at 127.
181. Id.
182. Id.
184. Id.
Also popular are the Health Maintenance Organizations (HMOs). HMOs consist of several physicians who provide health care at rates lower than hospitals. Typically, HMOs offer a full range of medical services to anyone who pays a flat fee. Therefore, if hospitals do not address the problems of prospective payment plans and cooperate to lower health costs, the facilities may find themselves in financial ruin. Hospitals must work with their medical staffs if they expect to survive the competition.

**Alternatives to the DRGs: Changing the Focus of Medical Payments**

The DRG prospective payment system can be viewed as merely the first step toward high-quality and low-cost hospital care. In authorizing the DRG classification scheme, Congress allowed for the use of alternative methods. Individual states are not precluded from designing their own systems provided the methods control hospital costs at least as well as the Medicare system. Hence, it is important to examine the available alternative approaches to case mix measurement.

**ICD-9CM List A**

The ICD-9CM List A contains 398 diagnosis groups that are subdivided into case types or cells. Each cell is based on five age variables, dichotomies for operated or not operated, and single diagnosis or multiple diagnoses. The end result is 7,960 case types or cells. The most obvious limitation of List A is that the number of case types is too large. Consequently, many cells contain an insignificant number of patients.

Other limitations that are not quite so glaring, although more important, include the equal treatment given to secondary diagnoses and the omission

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186. See OTA Report, supra note 4 at 59.
187. E.g., In 1981, Arizona embellished its prospective payment system with such concepts as price competition for contracts to serve the system beneficiaries, case management to authorize access to additional services, and an expanded system to cover state employees. STAFF OF SENATE SPECIAL COMM. ON AGING, 98TH CONG., 1ST SESS., CURRENT DEVELOPMENTS IN PROSPECTIVE REIMBURSEMENT SYSTEMS FOR FINANCING HOSPITAL CARE 98-108 (Comm. Print 1983).
188. States that have been successful in reducing the growth rate of hospital costs between 1976 and 1980 include Connecticut, Maryland, Massachusetts, New Jersey, New York, Washington and Wisconsin. Id. at 1.
190. Id.
191. Id.
192. Id.
of specific surgical procedures. Clinically, not all secondary diagnoses will have the same effect on a patient's level of illness, but List A gives all secondary diagnoses equal weight. List A segregates patients on the basis of operated or not operated; however, whether the surgical procedure is major or minor may affect a patient's use of hospital resources. While the number of case types in ICD-9CM List A is awkward, it addresses some of the criticisms of the DRG system involving the different approaches toward the refinement of variations within the same diagnostic category. In future versions of the case mix classifications, some of the 7,960 types set forth in ICD-9CM List A may be incorporated in them.

**Disease Staging**

In 1748, John Fothergill first staged diseases to develop homogeneous patient groups. The National Institutes of Health (NIH) then adopted the staging concept for use in cancer research. Explicit definitions of each stage of an illness formed the basis for the Disease Staging approach to case mix measurement.

Disease staging is the "specification of progressive levels of severity for disease in terms of the events and pathophysiological observations that characterize each stage." A given disease is categorized into five primary stages or levels of severity. Stage O involves conditions where no disease is present or the diagnosis is unknown. Stage I is for conditions without complications or problems of minimal severity. Stage II is for conditions with local complications or problems of moderate severity. Stage III involves conditions with systemic complications or problems of a serious nature. Stage IV is reserved for death. The stages are based on physicians' judgments of the progression of conditions through levels of severity.

Disease staging is a desirable method of case mix measurement because

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193. Id.
194. Id.
195. Id.
196. Id. at 441.
197. Id.
198. Id.
199. See OTA Report, supra note 4, at 16.
200. Id.
201. Id.
202. Id.
203. Id.
204. Id.
205. Id.
206. Id.
the criteria are easily understood and accepted by physicians based on their clinical meaningfulness. The staging also adds an explicit severity dimension to the classification scheme the lack of which has been a criticism of the DRG system. Another attractive feature of the disease staging system is that the information required is usually available on the discharge abstract.

Yet, disease staging is not without its disadvantages. Certain diseases cannot be staged. No actual statistical measures of resource consumption are utilized in categorizing patients. Disease staging also ignores concurrent conditions and patient-related variables which affect resource consumption.

Disease staging may prove very useful in the refinement needed within the diagnostic groups of the DRG system. By blending the advantages of both systems, a new and possibly better case mix measure may be created.

**Patient Management Categories**

Blue Cross of Western Pennsylvania introduced a Patient Management Category (PMC) approach to case mix measurement which goes beyond the DRG system. Instead of measuring case mix by diagnosis at the time of discharge as done by DRGs, PMC also examines the reason for hospital admission. The underlying theory states that the reason for admission as well as the ultimate diagnosis will affect the length of stay, the resource consumption, and the total cost.

Comparing PMCs with other case mix measures, similarities and differences can be seen. As with other measures, PMCs were developed with initial physician involvement. Levels of severity are considered from a clinical perspective. Unlike other systems, however, PMCs focus on the patient's clinical characteristics. Rather than examining how the patient should be treated, PMCs look to the services, the procedures, and the ex-

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207. Plomann & Shaffer, supra note 189, at 441.
208. Id.
209. See OTA Report, supra note 4, at 17.
210. Id.; Plomann & Shaffer, supra note 189, at 441.
211. Id.; Plomann & Shaffer, supra note 189, at 441.
212. E.g., age, family support, overall health status; See OTA Report, supra note 4, at 17; Plomann & Shaffer, supra note 189, at 441.
213. See OTA Report, supra note 4, at 18; Plomann & Shaffer, supra note 189, at 441.
214. See sources cited in note 213.
215. See OTA Report, supra note 4, at 18.
216. Id.; Plomann & Shaffer, supra note 189, at 441.
217. See OTA Report, supra note 4, at 18.
218. Id.
pected length of stay the physician believes is required in treating the pa-
tient.219 Such "patient management paths" provide a foundation for
determining relative cost for each PMC.220

The PMC method is attractive because it considers both payment and pa-
tient management in the development process.221 The key to this system is
its "recognition that patient management should be the focus of any system
that seeks to encourage efficiency and the deliberate attempt on the part of
the developers to produce a system that would simultaneously be meaningful
to physicians and facilitate efficiency improvements in the management of
patient care."222

VA Multilevel Care Groups

The Veterans Administration Department of Medicine and Surgery Mul-
tilevel Care System (MLC) was developed in 1976.223 It was based on the
concept of progressive patient care that was utilized in the United States and
Europe twenty years earlier.224 This system determines the real cost of re-
sources consumed at a given level.225 The different levels of care are deter-
mined by the health resource needs of patients, grouping together those with
similar needs.226 The average resource consumption at each level is tabu-
lated to arrive at an actual resource cost.227

The MLC system measures case mix not by the length of stay but rather
by the relative intensity of the resources required.228 Because the MLC sys-
tem employs only four categories, it necessarily follows that patients within a
category are not medically homogeneous.229 The system measures the inten-
sity or amount of resources used within each level and is not dependent on
the diagnosis per se.230

The accuracy of a system that measures resource use could surpass that of
systems based on length of stay for any given diagnosis.231 For instance, the
MLC system considers nursing care as a resource and permits cost alloca-

219. Id.
220. Id.
221. Id.
222. Id.
223. Plomann & Shaffer, supra note 189, at 441.
224. Id.
225. Id.
226. Id.
227. Id.
228. Id. at 442.
229. Id.
230. Id.
231. Id.
tion.\textsuperscript{232} DRGs, on the other hand, include all nursing care as part of hospital overhead.\textsuperscript{233}

\textit{Severity of Illness Index}

The Severity of Illness Index was based on the AS-SCORE classification system.\textsuperscript{234} The AS-SCORE method classified patients into four levels of severity based on clinical data documented in the patient’s medical record at the time of discharge.\textsuperscript{235} The AS-SCORE method was then modified to include a severity index.\textsuperscript{236} \textsuperscript{237}

The severity index reflects the seriousness of the patient’s overall illness and not merely the patient’s attributes that are deemed to be indicative of overall illness severity.\textsuperscript{238} Data obtained from a patient’s medical record is manually abstracted to arrive at an overall severity rating.\textsuperscript{239}

A large disadvantage of this system is its reliance on an individual “rater” to manually abstract data from a medical record and then to determine the rate to be applied.\textsuperscript{240} Relying on this method of accounting would be expensive and its subjective nature tends to discredit its reliability.\textsuperscript{241}

\textit{MD-DADO}

Resulting from an exploration of research methods of case mix groupings, the Physician Discharge Abstract Data Optimal (MD-DADO) system attempts to refine the 383 original diagnosis groups.\textsuperscript{242} The refinement consists of using the charge per case as the dependent variable as well as utilizing systematic physician input.\textsuperscript{243}

The MD-DADO system analyzes hospital admissions rather than providing a fixed, universal classification.\textsuperscript{244} MD-DADO allows for adjustment of the groups to reflect factors peculiar to a given hospital, such as a physician’s

\textsuperscript{232} Id.
\textsuperscript{233} Id.
\textsuperscript{234} Id.
\textsuperscript{235} Id.
\textsuperscript{236} Id.
\textsuperscript{237} See OTA Report, \textit{supra} note 4, at 17.
\textsuperscript{238} The criteria include: (1) the stage of the principal diagnosis; (2) its complications; (3) additional conditions that affect hospital treatment; (4) required use of hospital staff; (5) extent of nonoperating room procedures; (6) rate of recovery or response to therapy; and (7) level of impairment remaining after therapy. \textit{Id.}
\textsuperscript{239} Id.; Plomann & Shaffer, \textit{supra} note 189, at 442.
\textsuperscript{240} See OTA Report, \textit{supra} note 4, at 17.
\textsuperscript{241} Id.
\textsuperscript{242} Plomann & Shaffer, \textit{supra} note 189, at 442.
\textsuperscript{243} Id.
\textsuperscript{244} Id.
preferences and types of disease characteristics of a specific patient population.

**MD-DADO** has refined many of the problems associated with the present DRG system. Recognizing the objections that the users of the current system have raised concerning the DRG applications among varying health care management approaches, the MD-DADO system utilizes systematic physician input.

**Generic Algorithms**

Generic algorithms were developed at the Rockburn Institute in 1979-1980. The creators attempted to design a classification system that groups patients into categories that are not only medically meaningful, but also homogeneous with respect to charges. Bertram and Schumacher searched for medically logical algorithms to group patients in order to analyze resource consumption. They wanted the system to be practical and functional, utilizing available discharge abstract information to its maximum potential.

The generic algorithm approach has several factors in its favor. First, the data utilized is taken from available information found within the discharge abstract. Next, it includes all diagnostic and procedural codes that could appear on a discharge abstract. Generic algorithms are flexible in that patient groups are formed by variables reflecting patient population. However, the algorithms do not account for interplay between diagnosis and procedure. Secondary diagnoses are weighed equally regardless of their actual effect.

**Conclusion**

The goal of containing sky-rocketing health care costs is admirable. Few would disagree that the cost of medical care has been far too high for far too long with no foreseeable end. The development of a prospective DRG payment system for Medicare patients was a noble attempt to begin solving the

245. Id.
246. Id.
247. Id. at 443.
248. Id.
249. Id.
250. Id.
251. Id.
252. Id.
253. Id.
254. Id.
255. Id.
problems associated with the financing of hospital care. At the time of their adoption, DRGs were the best case mix indicators that were sufficiently stable for immediate use. As such, Congress adopted them with little thought to their adverse effects.

The DRG system was a fine beginning in moving toward low-cost, high-quality medical care. If nothing else, DRGs forced physicians and hospitals to realize that a problem exists. However, alternative methods exist today that show equal or greater promise. The potential useful approaches to prospective payment and per case payment are numerous. Fortunately, individual states are not discouraged from establishing an alternative payment system. In using alternative methods, states can experiment with different payment system configurations, including the use of other case mix measures not yet available.

A payment environment must be created that uniformly and consistently rewards hospitals for good business practices, yet does not inhibit technical growth or compromise the quality of care received. Unless such a payment environment is created, the intended long-term solutions may be impossible to achieve.

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