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# Commentary

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## DRGs, Incentives, Hospitals, And Physicians

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by S. E. Berki

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Changing the method of payment for hospital care from reimbursement for individual services to prospectively set prices per case alters two of the major dynamics of the health care system: incentives facing hospitals and the behavior of physicians. Current discussion of the prospective payment system (PPS) is focused on diagnosis-related groups (DRGs). If DRGs are seen as a step toward a more precise and homogeneous system of classification—one that more accurately reflects the severity and complexity of diseases—arguments about the current DRGs miss the fundamental issue: the radical change in incentives that PPS represents. The effects of PPS, regardless of how DRGs will be modified, will be drastic and pervasive, changing the health care industry and the roles and practice styles of physicians.

The vital center of medicine is the hospital. As medicine has become more and more dependent on technology, and as that technology has become more and more complex and expensive, the physician is no longer able to act as a self-sufficient, independent provider, relying on his own capital. The physician became dependent on the hospital. The hospital, on the other hand, became dependent on the physician for its patients, resulting in a symbiotic relationship. Changing the method of reimbursement to paying for the treatment of a case at a prospectively established price fundamentally changes these relationships by changing revenue centers into cost centers. Before PPS, additional days of stay and more services were sources of incremental revenue; under PPS, they are incremental costs. If before PPS the hospital's role was to provide the facilities to produce the maximum combination of services physicians wished to order, now hospitals will want to reduce the cost of services by reducing their amounts and by producing them more efficiently.

We do not as yet have the data to measure the magnitude of PPS effects, but economic theory and an understanding of how hospitals work enable us to pinpoint the major functional and organizational changes that are most likely to occur. I will discuss two changes that are likely to

occur within the hospital, changes related to case-mix and to the cost per case, as well as some changes that are likely to come about in the structure of the hospital industry itself.

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### Case-Mix

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Evidence suggests a fairly strong relationship, at least for surgical cases, between the volume of case type and the cost of treating it: higher volumes are generally associated with lower costs per case. Further, and this depends entirely on the relative prices assigned to each case type, certain types of cases are more profitable than others. This implies that hospitals will wish to specialize in DRGs that are the most profitable. Management will be motivated to structure its case-mix to develop "product lines" that will maximize its net revenues. To do that, management will have to try to influence admission decisions directly, encouraging admission of potentially profitable case types. As long as case definitions and payments based on them, such as current DRGs, do not accurately reflect severity and complexity, there will be an attempt to discourage the admission of the more severely ill, the more complex case, within each DRG.

Management will also have to influence admissions indirectly. There are at least two methods that may be used: selective granting of staff privileges to physicians more likely to admit the desired case types, and deemphasis of special technology and support services for the management of less profitable, or unprofitable, case types, such as problem newborns. This implies that as hospitals strive to specialize in case-mixes with the best net revenue potential, physicians will tend to lose much of their current dominance of hospital operations.

The magnitude of the case-mix effect will be determined by the relative prices that are established. The current set of DRG prices represent the mean of all hospitals treating Medicare patients, and thus are an average of poor and excellent quality, the efficient and inefficient, and all the cross-subsidization that permeates the hospital industry, not to mention current technology. In essence, DRG prices say that the Health Care Financing Administration will pay at about the average rate, adjusted for local wage conditions and the hospital's teaching load. But other pricing schemes are certainly feasible.

Prices are incentives and rationing mechanisms; they may be set to discourage the provision of certain types of care and to encourage the provision of others. The greatest potential effect of PPS is its ability to be a rationing device. It is easy to set a payment level for, say, kidney transplantation, age sixty-five or over, with a complicating diagnosis of diabetes or congestive heart failure, at a rate such that no hospital will willingly perform the procedure. This is just an example, of course, but it suggests that the power to set relative prices is the power to alter case-

mix. PPS provides the mechanism for rationing medical care, and to do so surreptitiously. Whether it will do so may depend on the effects of PPS on per case costs.

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### Cost Per Case

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Within any reasonably homogeneous diagnoses/procedures category, the cost per case is determined by four factors: the length-of-stay (LOS), service intensity, cost of producing the services, and chance. With the price per treated case set in advance, regardless of the number of days of stay (within outlier trim points), or the amount of services the patient receives, net revenues can be maximized only by reducing the length-of-stay, or service intensity, or both. Hospital managers will have powerful incentives to try to reduce the length-of-stay and the amounts of ancillaries per case.

One major way to affect LOS and ancillary care is scheduling. Integrated scheduling systems, encompassing admissions, operating room (OR) scheduling, and discharge planning, will increasingly be used and enforced. Scheduling must be integrated, since revenue maximization or cost minimization must recognize that the hospital is an interdependent system of production centers. If the objective is to minimize costs, it is not possible to schedule surgical admissions without simultaneously scheduling the ORs; nor is it possible to schedule the ORs without considering the staffing needs of anesthesiology, the labs, radiology, the recovery rooms, and intensive care units. Thus, the luxury of scheduling approaches designed to fit the practice needs of the senior surgeons will be called increasingly into question. This may seem to be a minor point, but it does indicate that the physician's ability to structure the schedule of the hospital to suit individual preferences will be diminished. To say that we shall see the development of a production line mentality may be an exaggeration; to suggest that we shall see the increasing dominance of institutional needs for efficient production scheduling is not.

Attempts to minimize LOS and service intensity are likely to result in the limitation or demise of standing orders, since under per case reimbursement, each additional test represents an addition to incremental costs. Management, therefore, will have powerful incentives to alter the practice patterns of physicians, and to select physicians for staff privileges who tend to be more conservative, less inclined to aggressive intervention.

Organization theory tells us that organized systems have a variety of mechanisms at their disposal to influence behavior, ranging from indirect controls such as positive and negative incentives to more direct controls, such as bureaucratic rule making. Bureaucracy connotes red tape, but its essence is a system characterized by specialization of functions, adherence to fixed rules, and hierarchy of authority.

Specialization of functions exists already. The use of protocols is an attempt to make clinicians adhere to fixed rules. The requirement that medical student orders be countersigned, that certain standing orders must periodically be approved by the chief resident, are bureaucratic rules, as are rounds, in a less direct, more informal manner. These are rules, however, introduced and enforced by the medical bureaucracy itself.

The import of incentives inherent in PPS is that the rules now established exclusively by physicians will increasingly come under scrutiny by management. Management will have powerful incentives to bureaucratize the practice of medicine, and to do so in ways that reflect the supremacy of the management imperative to minimize costs. It can be taken for granted that this will create conflict between the clinical and management sides of the house, and that it will constrain the current freedom of decision making by physicians.

In the past, managerial attention to economic efficiency focused on services for which the payment system did not provide directly chargeable reimbursement: laundry, dietary services, housekeeping, and engineering. Under PPS, laboratories, radiology, pharmacy, nursing, all become cost centers for which there is no direct reimbursement. Management, therefore, will have to attempt to reduce the cost of producing these services as well. A principal method of reducing costs is by increasing productivity, concomitant with reduced staffing. American Hospital Association (AHA) data show that after having increased at an annual rate of 4.1 percent between 1975 and 1983, full-time hospital personnel declined by 1.5 percent in 1984, and by 4 percent in the first quarter of 1985, while admissions in the same quarter decreased by 6 percent.

Efficiency-induced reductions in staffing, the substitution of personnel with lower qualifications for those with higher ones, and substitution of mechanized technologies for labor intensive processes, all imply that physicians will have fewer support personnel, and will have to accommodate their practice styles to these changes. On the other hand, reduced laboratory turnaround times, reduced error rates, improved coordination between departments, and better information systems can be expected to have positive effects on the quality of care.

Development of more comprehensive, accurate, and detailed information systems is already proceeding. It is clear that the level and type of information needed by management is determined by its desired scope of control. In the traditional bilateral system, where clinical decisions which generate the use of resources are seen to be beyond the scope of management, there is little need for detailed information on patterns and costs. As revenue centers change into cost centers, management's desired scope of control must increase. Systems of information are systems of control. It goes without saying, therefore, that information systems that integrate clinical and financial information (known as financial and pro-

duction information in other industries), are an absolute requirement. The major difficulties are not technical, nor problems of accuracy, but problems of control.

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### Changes In Industrial Structure

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The new payment system will bring about drastic changes in the structure and behavior of the hospital industry. To see the effects of these changes, one must consider other factors as well: the increasing supply of physicians, the aging of the population and the types of medical care needs this portends, the increasing unwillingness of society to foot the medical bill, and the continuing advance of medical technology which permits more intensive intervention for more severe cases for more patients. This commentary discusses one factor only, changes in the hospital industry.

PPS is the flag of the army of cost containers. Increased patient cost sharing, increased restrictions on Medicare and Medicaid, private sector initiatives, the increasing market shares of health maintenance organizations (HMOs), all coincide with the increased corporatization and privatization of the hospital industry. These developments must be seen in light of widely held predictions that perhaps 30 percent of current hospital capacity will be eliminated within the next ten years. The hospital industry as a whole, however, is not likely to shrink, but to grow and change. It will be increasingly integrated horizontally into chains and vertically into prehospital, posthospital, and ambulatory care.

The evolving pattern of horizontal integration is already clear. I would argue that if my scenario of intrainstitutional effects, such as case-mix and cost per case is valid, we will see them in spades in the chains, whether proprietary or voluntary. The corporatization and bureaucratization of medicine, with their emphasis on cost-effectiveness, control, and reduced risk taking, imply that physicians will be subjected to increasing pressures for conservative, consensus-based, cost-conscious, explicitly monitored practice styles.

Pressures to reduce the length-of-stay increasingly are moving hospitals into the markets for nursing homes and home care. The need to maintain referrals and admissions in markets increasingly saturated by independent specialists impel hospitals to establish their own "feeders:" ambulatory satellites, and dispersed clinics, preferred provider organizations (PPOs), HMOs, and networks,

Larger and larger segments of the medical care sector will increasingly come under the dominance of hospitals. If other service industries such as law and banking, which like medicine are for the most part also staffed by professionals, serve as examples, the medical care industry will eventually be dominated by a relatively few, huge, national conglomerates,

offering a broad scope of diversified medical services.

The trend of industry dominance by a concentration of conglomerates received its most recent boost by the entry of the Voluntary Hospitals of America (VHA) into the insurance market. Including some of the most prestigious teaching institutions and comprising 12 percent of all acute care beds, this joint venture by VHA and Aetna clearly indicates that the days of the hospital cottage industry are over. It also indicates that the distinctions between proprietary and voluntary systems are being increasingly eroded by their mutual need to compete for a share of the shrinking inpatient market.

But, paradoxically, the more effective these hospital-based health care systems become and the more comprehensive their services and their alternatives to acute inpatient care, the more complex and costly inpatient care will be. Preliminary AHA figures indicate that this may already be happening. After a dramatic decrease of 4.7 percent in 1984, the average length-of-stay in the first quarter of 1985 increased by 1.1 percent, and the cost per case by 11 percent (from an annual rate of 8.2 percent in the first quarter of 1984 to a rate of 9.1 percent in the first quarter of 1985), while admissions in the same period dropped by 6 percent.

This has not gone unnoticed by Wall Street. The recent downturn in the prices of shares in investor-owned hospital corporations reflects less optimistic profit projections. The softening of demand for inpatient care brought about by increased management monitoring of health insurance costs and utilization, the wider availability of ambulatory alternatives, and increased cost sharing by patients results in a more complex and more costly case-mix. Thus, hospitals' net revenue flows are reduced. This scissors effect of decreasing demand and increasing production costs in a more competitive market tends to reduce that attractiveness of inpatient business and to move the investor-owned chains and management corporations into the insurance markets. As more of these corporations begin to offer not only patient services but health insurance coverage as well, as Humana, Hospital Corporation of America, and others have begun to do, the traditional distinctions between carriers of risk and providers of health services—already eliminated in the HMO industry—tend to break down generally.

The major shifts in incentives introduced through PPS and DRGs coincided with other fundamental changes in the hospital industry, both in the nature of the institutions and in the economic environment in which they exist. The dominant trends of integration, diversification, and corporatization, evolving in an increasingly competitive and hostile environment, manifested themselves at about the same time that the federal government imposed PPS and DRGs. This altered both the reward structure and the means by which economic survival can be attained. The changes we are now observing may have coincided, but they are not

merely coincidental: they reflect the dominant organizational, economic, and social trends in economic society at large. The technology of medicine has outgrown its institutional cocoon, the profession of medicine has lost some of its cultural authority, the atomized cottage industry of hospital care has outlived its economic usefulness, and society has decided it is not willing to exempt medicine from the iron hands of fiscal constraints and from the visible hands of competition within regulation. All of these changes have forced the hospital industry to conform to the rest of industrial society. Whether we will welcome these changes will depend on the ability of institutional managers and physicians to safeguard the humane values of this most human of human service organizations within the new industrial structures.