

# ETHICAL ISSUES CONCERNING THE EMPLOYMENT OF THE DIAGNOSIS RELATED GROUPS IN HOSPITAL MANAGEMENT

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**Abstract:** The employment of sophisticated Electronic Health Records (EHR), combined with the adoption of the Diagnosis Related Groups (DRGs), as well as, the state of the art capabilities of information processing necessary for the evaluation of data, affect the establishment of criteria for the allocation and distribution of resources in hospitals, and raise important ethical issues: First, whether some patient groups would receive inferior medical care, second, whether the surrounding economic climate would press hospital management to enforce limitations on therapeutic procedures that do not have a strong evidence base, and, finally, whether the extent of the patients' access to medical, technological and pharmaceutical innovation would be reduced. Therefore, equity and parity in access, responsible cost-control, and effective quality assurance require, first, the adherence to the codes of conduct of the medical profession, and, second, the engagement of ethical criteria and rules in managed-care decision-making.

## Introduction

The specific social milieu of any hospital abounds in ethical problems and conflicts that do not involve, nor are caused directly by, the hospital management. Nevertheless, within the hospital settings, managers have a moral responsibility concerning the various activities that occur there. Although specific decisions of the management may not benefit or harm directly individual patients, they are a constituent part of the moral environment of the day to day operations.

The hospital management is morally accountable first, to the patients in the hospital, second, to the personnel of the hospital, and, third, to the community which supports financially the operations of the hospital. However, it should be kept in mind that there is a peculiarity in some managerial decisions, namely that it is often the case that the addressees of the ensuing actions are distant both in time and place. Therefore, the moral assessment of this kind of actions necessitates a different analysis than that concerning acts which have a

directly perceivable addressee. The issues which management addresses reflect the various conflicting interests which exist within hospitals.

Health care institutions have an increased moral responsibility to their patients which derives from both the high value placed by society itself on health as well as the high cost that this value reflects. This responsibility goes beyond the basic moral requirements involved in health care such as the respect of the fundamental patient's personal rights, the informed consent for diagnosis and therapy, and the confidentiality regarding the patients' private data. This extended responsibility of the hospital management involves the obligation to ensure high level health care for all patients, the improvement of the quality of care and therapy, and the availability of treatment alternatives, when needed.

Concerning organizational and personnel issues, the hospital management has to promote policies which do not create conflicts, in the various professional groups, between their codes of ethics and their daily practice. Further, the scarcity of resources in health care often creates ethical conflicts which the Hospital management has to resolve. Furthermore, health care institutions should give priority to the medical needs and the problems of vulnerable groups by a fair and effective use of available health care delivery resources. Finally, there are always conflicts between the need to respect medical staff's autonomy in therapeutic decisions, and the need for efficient use of the funding provided by the broader community.

## The employment of the DRGs

In attempting to resolve the increasing cost of health care, hospital management had to adopt the DRG-system (Diagnosis Related Groups) as the basis for calculating hospital budgets, by changing the flat daily rate into a fee-for-case reimbursement system.

The Diagnosis Related Groups (DRGs) method has been developed in the USA in the early 1970's by Professor Fetter [1] of Yale University. He carried out a comparison of clinical outcomes between hospitals, by employing the International Classification of Diseases

(ICD 9). In order to make the comparison easier he reorganized the ICD 9, into about 700 main –and appropriately codified- categories, which he termed them Diagnosis Related Groups (DRGs). In 1982 [2],[3],[4], a partially prospective payment system (PPS) was introduced for the general hospitals, in New Jersey, USA, and was employed for one year, in respect to acute-care patients. In 1983, the U.S. Federal Government introduced national-wide a five year transition period to the currently valid DRGs.

The payment to the hospital is based on inpatient diagnoses, but factors such as classification, on whether the patient “utilizes” surgical procedures or not, length of stay, teaching hospital adjustments, and patient demographic data were also taken into consideration. The Medicare DRG payment system remained relatively the same from 1988 to 1997. Legislation reforms were instituted in the period 1997-99 that organized hospital funding under new formulas, based on prospective payment systems.

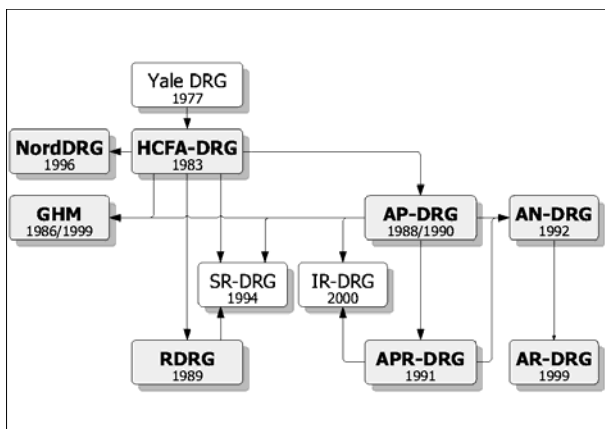


Figure 1: A schematic representation of the evolution of the DRGs from 1977-1999.

Various countries, besides the U.S. employed the DRGs [5], [6]. Australia was one of the first countries that introduced the system and adapted it to its own health system. It comprised of 667 categories. Norway, Sweden, Finland & Denmark, introduced the Nordic DRGs (NordDRGs) based on a refined DRG system, from Healthcare Financing Administration (HFA-DRGs). The Italian tariff system is based on DRGs to constrain budgets. In 2003, in Germany, a payment system for hospitals was introduced which was based on the refined Australian AR-DRGs. French DRGs were initially developed in 1986, and the fourth version came out on 1997.

The DRGs classification is used now as a method for classifying hospital patients both in terms of medical condition and of resources use. The information gathered from the DRG system, could be used in a variety of fields such as hospital management, health

policy, health funding, hospital benchmarking, quality management and patient clinical management.

The assignment of a discharged patient to a specific DRG category is done with the assistance of a decision tree algorithm. The decision tree utilizes the Major Diagnostic Categories (MDCs), which are broad collections of similar DRGs that involve the same organ or similar diseases and ICD 9 coding.

The DRG classification provides categories that demonstrate similar resources usage. The DRGs are classified in one of the 506 available classifiers, either as Surgical, covering approximately 40% of all DRGs classifications, or as Medical that account for the greatest volume.

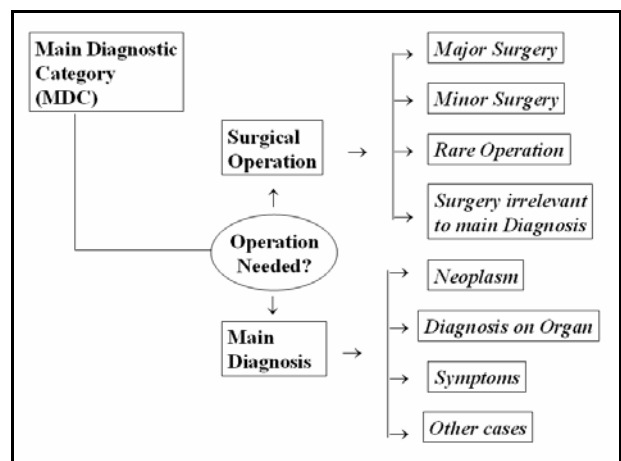


Figure 2: A schematic representation of a typical decision tree algorithm employed to assign a discharged patient to a specific DRG category.

The reimbursement of the hospitals is done by using either a prospective, or a retrospective annual payment system. Every year, an annual average cost of all DRGs is estimated. Since all similar DRGs are statistically expected to have the same resources consumption, a reimbursement payment is assigned for each DRG category. The estimated “cost” of each DRG is given by the relative weight of each DRG against the average national cost. The DRGs relative weights range covers two orders of magnitude and it is calculated annually, by considering the past average costs of each DRG and adjusting charges to reflect current costs.

The anticipated impact from applying DRGs to relate cost to activity was the reduction of the average length of stay (ALOS) and the cost per case. Although ALOS was reduced, this cannot be attributed solely to the implementation of DRGs. The impact of the new technologies, as for example the employment of endoscopic surgery, and the partial substitution of inpatient health services with home care programs, has also contributed to this reduction. Inpatient cost has fallen rapidly. However, the cost has been shifted to other areas of health care. For example, in Table 1 the

percentage of patients discharged to home-care by top DRGs is shown and in Table 2 a comparison of the activity cost between Hospitals and Nursing Facilities charges per day, and Homecare charges per visit, is presented.

Table 1: Percentage of Medicare Beneficiaries Discharged to Home Health Care by Top Diagnosis Related Groups (DRGs) 1997-2001. Source: U.S. Department of Health and Human Services, (OEI-02-01-00180, July 2001).

Hospital DRG	1997 %	1998 %	1999 %	2000 %	2001 %
106 – Coronary bypass with PTCA	2.5	2.3	0.1	0.1	0.1
079 – Respiratory infections and inflammations	1.7	1.3	1.2	1.1	1.0
014 – Specific cerebrovascular disorders	3.3	2.9	2.8	2.7	2.7
148 - Major small and large bowel procedures	2.1	2	1.8	1.8	1.8
088 – Chronic obstructive pulmonary disease	4.2	4.9	5.1	4.6	4.1
121 – Circulatory disorders w. AMI & complications	1.8	1.7	1.8	1.7	1.7
089 – Simple pneumonia and pleurisy	4.9	6.1	6.5	6.2	4.9
127 - Heart failure and shock	6.7	6.9	6.8	6.7	6.8
296 - Nutritional and misc. metabolic disorders	1.5	1.5	1.6	1.7	1.6
107 – Coronary bypass with cardiac catheterization	1.6	1.5	2.1	2.1	2.1
209 - Major joint and limb reattachment procedures of lower extremity	4.5	4.5	4.4	4.4	5.2
116 – Other permanent cardiac pacemaker implant or PTCA with coronary artery stend implant*	0.8	1.6	1.6	1.7	1.7
462 – Rehabilitation	7.1	6.9	7.8	8.5	9.1

The DRGs may relate treatment activity to cost, and the data recorded for the DRG system are important for

the health system management. They provide information to health professionals in order to allow them to identify performance indicators and, thus, measure the efficiency of the hospital.

If the DRGs are implemented nation- or region-wide, then a direct comparison (benchmarking) between hospitals becomes in principle possible. Performance measurements reinforce the hospital management to optimal planning of resources and reasonable budget allocation.

Table 2: Home care is a cost-effective service, not only for individuals recuperating from a hospital stay but also for those who, because of a functional or cognitive disability, are unable to take care of themselves. (Source: Annual Statistical Supplement, 2000, to the Social Security Bulletin, Social Security Administration, October 2001, and HCFA, Office of Information Services.

Activity cost (\$)	1998	1999	2000
Hospital charges per day	2 370	2 533	2 753
Nursing facility charges per day (Hospitium)	498	425	421
Homecare charges per visit	93	93	100

### Medical Records and the DRGs

An indispensable parameter in determining DRG's is that of the information in patients' medical records. Medical records [10],[11] usually include, first, clinical information obtained by the case history, and by inspection, palpation, percussion, auscultation etc., second, signals related to bodily functions which are collected from in vivo diagnostic procedures (ECG, EEG, EMG etc.), third, data acquired through in vitro diagnostic tests, fourth, images related to the morphology and the functions obtained from medical imaging procedures, fifth, information related to various therapeutic interventions and, lastly, data which are of administrative and of financial importance such as insurance, costs of medical treatment, cost of hospitalization etc.

Medical records are used in a variety of ways and they serve a multiplicity of purposes. Beyond the explicit involvement of records in the therapeutic process, there are several other discernible uses, such as in research, in teaching, in the allocation of resources, and in the construction of the patient's personal history. These functions as well as the variant purposes served by records, raise a number of important ethical issues.

The social role of patient records is evident from the use made of information -related to their contents- by non-medical institutions and agencies. Insurance

companies, various employers, state agencies, the pharmaceutical industry, and others, use data extracted or derived from these records in order to formulate policies and chart courses of action, which affect the whole population. These courses of action include both directives concerning the provision of health care such as, for example, drugs to be prescribed or guidelines to be followed in diagnostic and treatment procedures, and more general practices such as the selection criteria of hiring and firing of employees.

A major problem of contemporary health services is the scarcity of resources. Patients' records provide information concerning the expenses incurred and the resources allocated for the treatment of the individual patient within the health care system. The above described DRG-system constitutes the cardinal case of interrelation between medical records and the resources consumed, for each individual medical history.

The Patients' records information is value laden since they express a society's preoccupation with costs - private or public- of services provided to its members. However, it is on the basis of these preoccupations that the available data is evaluated and processed. As a result, strategic decisions are made which concern the distribution of resources, first, in terms of regional planning, second, among the components of the health sector and, third, among individuals. Consequently, the structure, the contents and the use of medical records, especially the electronic ones, as well as the state of the art capabilities of information processing necessary for the evaluation of data, affect the establishment of criteria for the allocation and distribution of resources. The decision for the construction of, for example, a specialized health care unit is based, among other factors, on the epidemiological data derived from the medical archives of a given region.

It should be kept in mind that the patient's profile, which emerges out of the records, lends itself to various uses and interpretations according to the purpose they are called to serve. An insurance company, for example, although it has no official access to the full patient's medical record, it can infer, by means of the indicators necessary for the estimation of the compensation for particular medical expenses incurred, an accurate health profile of the specific individual and it then could then use this profile, to enforce an insurance policy on the individual concerned. The insurance providers could further extrapolate, on the basis of a sufficient number of such profiles, and create a policy, which would apply to specific groups of people. An extreme case of the use of inferences made by employing data derived from medical records could be the adoption of employment policies based on the individuals' health state and their predisposition to certain diseases, an event which would violate the principle of equality.

Patient records, however, assume an additional dimension, which is related to the nature and function of technology. The development of patients' records

exhibits the state-of-the-art biomedical technology, the dominant -at the time- medical knowledge and practice and it reflects the existing value system of a given society. The assimilation of new technologies is a complex phenomenon that is affected by the wider socio-cultural, epistemic and axiological parameters at work, within the specific social context in question. In other words, the technologies employed presently in the construction of medical records were developed to satisfy concrete social needs. The availability of these technologies permitted new questions to be asked and new needs to arise. Out of these needs, a cardinal one is the documentation and the storage of comprehensive financial data, relevant to health-care, in easily accessible forms.

### **The emerging moral issues**

The DRGs lend themselves to be employed for quality of care and treatment estimations since the comparison of different treatment outcomes for a given DRG, combined with cost data, could be used for cost-effectiveness evaluation. For this purpose, the DRGs-system employs today highly sophisticated software [12], [13] in conjunction to advanced electronic health records. However, this new methods create new moral issues.

First, there is a risk of budget reductions in hospitals, providing costly medical services or for those that have research facilities. Since the remuneration of hospitals for the provided services is dictated by the national or regional mean performance, academic hospitals or medical research facilities offering in innovative and costly medical services, although in the DRGs there is a different weight for the University hospitals, they are often obliged to cover the resulting deficit, by reallocating resources, for example, from basic research or by demanding, officially or unofficially, additional fees, beyond the insurance coverage.

In order to avoid a negative impact on the level of such medical services, it becomes necessary to employ highly specialized and updated Hospital Information Systems for the optimal documentation of diagnoses and physicians' procedures. Further, to ensure high quality of services, with clearly defined economic parameters, it is unavoidable to employ state of the art biomedical technology which will result in the high efficiency and efficacy of resources utilization. The question that arises is whether the necessary funds would be adequately available from the reimbursement incomes, or alternative resources should be found from other institutions, such as the insurances, the pharmaceutical industry etc., that might influence the overall Hospital policy.

Nevertheless, the application of managerial methods, despite the fact that hospitals seek to survive economically, does not lead to effective and ethically acceptable means to increase quality and efficiency in

hospital care. General medical guidelines [7], [8], [9] are not sufficient to increase the efficiency of a hospital department. Rather, they must be supported by more specific clinical protocols, and kept-up, by a networked hospital environment and the appropriate software. Evidence based clinical practice guidelines will most likely be used by policy makers, insurance providers, and by hospitals, for keeping the cost of care constant and relatively low.

A critical ethical issue, in this context, is whether the development of Disease Management Programs, as a consequence of the adoption of the Diagnosis Related Groups, will be compatible with the physicians' freedom, guaranteed in professional codes. Second, there is the question whether there will be patient groups that will obtain inferior medical care. Third, could it be that economic pressure will lead hospital managers to enforce limitations to therapeutic procedures that do not have a strong evidence base, regardless of the patient needs and preferences. Finally, there is the problem that concerns the extent of patients' access to costly medical-technical and pharmaceutical innovation. Until now, the answers to these questions are not given but depend strongly on social, political, moral and macro-economic conditions and can derive from both theoretical considerations and empirical data.

### Concluding remarks

Major ethical issues result from the intertwining of the indicators necessary for the estimation of the compensation with technological, economic, political, epistemic and axiological elements. The inevitability of the interplay of the above factors and that of technological developments, which facilitate the increased accessibility to personal data, should lead to a constructive compromise between the interests of the parties involved, i.e. the various social and political groups, the industries, and the individuals themselves. This could provide a basic guarantee that equity and parity in access, responsible cost-control, and effective quality assurance, will not eliminate the obligation to abide by the codes of ethics of the medical profession and the adoption of ethical rules in managed-care decision-making.

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