APPLYING CASE-MIX METHODS TO AMBULATORY CARE

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Abstract

Case-mix based prospective reimbursement methods are being adopted for inpatient care. No similar methods exist for ambulatory care, due to the lack of an accepted outpatient case-mix methodology. Two approaches to ambulatory care case-mix are described. The first is based on classifying patients by their primary problem and their mix of problems treated during a patient-year. The second is based on classifying each visit by primary problem addressed. The adoption of case-mix methods will require the development of many new medical information systems. The use of such systems to describe and analyze ambulatory care over time is discussed. Inpatient and ambulatory care are functionally linked. The development of ambulatory care case-mix systems and their integration with inpatient case-mix systems will allow a major step towards the development of a capitation approach to describing total healthcare costs, by case, for a given population.

Case-Mix and Prospective Reimbursement

National healthcare costs continue to rise at a rate far greater than that of inflation. The desire to avoid budget and program deficits has resulted in increased pressure at the state and federal level to limit reimbursements to providers of healthcare. Insurance companies, rather than increase premiums, are investigating ways of limiting their reimbursements. At the inpatient level, this has led to two kinds of reimbursement limits:

1. the introduction of competitive bidding among hospitals for Medi-Aid contracts, as has occurred in California;
2. the proposed adoption of case-mix based prospective reimbursement systems, using diagnosis-related groups (DRG's)[1], beginning with Medi-Care.

For ambulatory care, Blue Cross has proposed the adoption of a Selected Provider Option (SPO), under which enrolled providers would be reimbursed at a set rate, while patients would have to pay a deductible in order to see non-enrolled providers. At present, no prospective reimbursement system has been proposed for ambulatory care, largely because an accepted case-type classification method has yet to be developed. Research efforts are underway in this area, however[2,3]. A large number of ambulatory care visits are made each year, substantial costs are associated with these visits, and there is a functional and structural interaction between inpatient and outpatient care. Because of this, and because case-mix based prospective reimbursement offers some hope of providing a system of incentives for cost-containment, it is likely that such systems will be expanded to include ambulatory care.

The development of case-mix systems for ambulatory care will be a major step towards determining resource use by case for the healthcare system as a whole, for a given patient population. Such a capitation approach will allow planners, reimbursers, and providers to describe the case-mix of a given population and to estimate total annual healthcare costs for that population. This approach will require not only the development of case-mix methods for ambulatory care, but the development of large case-oriented databases and the combining of in- and out-patient methods into an integrated case-mix method capable of tracking resource use by case as patients move among different modes of healthcare[4].

The Role of Medical Information Systems

The development of inpatient case-type classification systems and their use in prospective reimbursement has been made possible by the availability of databases describing large numbers of hospital admissions in terms of diagnosis, length of stay, age and sex of patient, procedures performed, and so on. This data has been analyzed using interactive statistical grouping programs to find groups of patients related both in terms of diagnosis and consumption of resources.

In order to develop case-mix methods for ambulatory care, new databases are needed which describe outpatients in terms of diagnoses and resource use. This will require new medical information systems for the capture and analysis of such data. In addition, the development of case-mix based prospective reimbursement systems places large new demands for timely information concerning their practices on physicians and administrators. Hospitals need to be able to determine their cost of care for Medi-Aid and Blue Cross patients in order to prepare bids for
contracts that will generate adequate revenues. In order to maintain budgetary control, administrators need to be able to determine, in a detailed way, their cost and revenue performance by case, in order to respond in a timely way to cases where costs exceed revenue. This will require the development and installation of a large number of new medical information systems which are capable of combining aspects of both clinical record systems and billing systems.

Goals of Ambulatory Care Case-Mix Systems

There are two basic goals for case-mix systems:

1. To enable prospective reimbursement by case, thus creating a system of incentives for containing costs;

2. To enable case-mix based cost-accounting so that physicians and administrators will have a more informed basis for the effective allocation of health resources by case.

In extending case-mix to ambulatory care, the goal is not only to contain the costs directly associated with ambulatory care, but to also assist in hospital cost containment. Ideally, this could be done by providing improved outpatient care, including home care, in order to:

1. Decrease the length-of-stay (LOS) of admissions;

2. Decrease the frequency of admissions for chronic illness.

Case-Mix Methods in Ambulatory Care

There are several possible approaches to the development of a case-type classification method for ambulatory care. To be meaningful for purposes of reimbursement, such methods must classify patients into groups which consume relatively homogeneous bundles of treatment, in terms of physician time, medications, lab tests, and so on. The less homogeneous such groups are in terms of their resource consumption, the less suitable they are for purposes of reimbursement.

Unlike inpatient care, where each admission can usually be ascribed to a single diagnosis, outpatient often present with multiple problems at varying stages of development, and are followed for these over fairly long periods of time. The problem of ascribing resource use to each specific diagnosis becomes one of disentangling threads of diagnosis-specific resource use from a complex fabric of care. After developing a system to capture such diagnosis-specific resource use data at a primary-care clinic, I was able to create a database describing five years of patient visits. Based on the analysis of this data, I have proposed a classification method based on the patients' primary problem over the course of a year, and the mix of secondary problems addressed during this time[2]. For example, all patients whose primary problem is hypertension and who have no other major problems, form one group, while hypertensives with any major secondary problem form another. This approach, based on resource use over a patient year, lends itself to the study of the process and cost of care of similar groups of patients over time. Its drawback is that it requires information on all outpatient visits by each patient during the year, requiring a large clinic or HMO setting.

Another approach is the visit-oriented method proposed by Fetter[3] which characterizes ambulatory care in terms of individual visits and their associated primary diagnosis. This method is attractive in that it would allow ambulatory care to be reimbursed in much the same way that hospital care is reimbursed, by the visit. Its weakness may be that individual visits, occurring as they do at various stages of illness (acute, resolving, follow-up), may not consume similar bundles of resources, even for the same disease. It also does not control for the number of visits made by patients over a given time period, which makes it less attractive as a basis for reimbursement.

Uses of Case-Mix in Ambulatory Care

The development of a case-mix method for ambulatory care is particularly suited to large clinics and HMO's, since it would give them the ability to perform case-mix cost-accounting, hopefully enabling them to target inefficiencies and contain costs. By following groups of patients with the same primary problem and problem mix, the frequency and type of inputs to the care process, such as frequency and type of visits, the frequency and type of laboratory tests, X-rays, and diagnostic procedures, and the amounts and types of medications, could be tabulated. The presence of certain inputs, such as patient education, home care, psychological counseling for disease processes with a psychogenic component, and so on, could be noted. These inputs could then be compared with outcome measures such as blood pressure, spirometry tests, and changes in symptoms, and with rates and lengths of stays of hospitalization. This would allow the wealth of data accumulated in clinical practice to be used systematically in determining the effect of specific inputs and combinations of inputs on outcome and hospitalization rates.

From the point of view of reimbursers, it is the ability to establish systems for prospective reimbursement containing built-in incentives for cost control and the ability to compare providers that makes such a method attractive. The chief benefit though, may be to patients with chronic illness and their physicians. The ability to analyze patterns of care over time, with associated charges and hospitalization rates, may lead to improved methods of management of such diseases.

Management by Diagnosis

As the US population ages, the incidence of chronic illness may be expected to rise. The severity of chronic illnesses typically fluctuates over time, requiring hospitalization only when it rises over a certain disease- and patient-specific
threshold. With each hospitalization, the cost of care of the illness rises dramatically. The better the control obtained in ambulatory care of chronic illness, the better the control of hospitalization, and the better the control of cost. Chronic illnesses with relatively high prevalence, such as hypertension, diabetes, congestive heart failure, COPD and asthma, are already the subject of attention from the point of view of long-term management[5]. Case-mix systems in ambulatory care would bring to such "management by diagnosis" studies the added capability of describing patterns of care by case over time, with associated outpatient charges, hospitalization rates, and LOS's. This would allow groups of physicians to focus their attention on specific chronic illnesses, directing their analysis and discussion towards reaching a consensus concerning practical guidelines for the cost-effective outpatient care of patients with such illnesses.

References


