

# Utilization management as a cost-containment strategy

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*Utilization management (UM) is now an integral part of most public and private health plans. Hospital review, until recently the primary focus of UM, is associated with a reduction in bed days and rate of hospital cost increases. These reductions appear to have had limited impact on aggregate health care costs because of increases in unmanaged services. In the future, with*

*electronic connectivity between payers and providers and the use of clinical guidelines and computer-based decision-support systems, the need for prospective case-level reviews will be reduced. With these changes, UM programs are likely to become more acceptable to providers and patients.*

## Introduction

The great majority of Americans are now enrolled in privately or publicly funded health plans that use utilization management (UM) programs as a primary cost-containment strategy. This includes 90 percent of privately insured employees and all Medicare and Medicaid participants (Sullivan and Rice, 1991). Considering that few employees were enrolled in these programs until the middle 1980s, the growth of UM has been phenomenal.

Now that UM programs are established, it is an appropriate time to assess their impact and to reflect on their future role in the health care delivery system. There is an extensive descriptive literature on UM (mainly for inpatient care), and a small but growing body of scientifically rigorous analytic work evaluating its impact on utilization, costs, and quality. This literature is briefly summarized here.

The primary concern of this article is the future of UM. The two critical questions of concern are: Will externally run public and private UM programs continue? If so, what changes are expected in UM operations over the next 5 to 10 years? This article focuses on the UM program sponsored publicly for Medicare, or peer review organizations (PROs), and those operated by UM companies that do not have a contractual relationship with physicians and hospitals. UM programs used in health maintenance organizations (HMOs), preferred provider organizations (PPOs), and other network-based managed care plans are excluded because their effects are confounded by the other intrinsic cost-containment features.

## Utilization management programs

UM as used in this article is: "... a set of techniques used by or on behalf of purchasers of health benefits to manage health care costs by influencing patient care decision-making through case-by-case assessments of the appropriateness of care ..." (Institute of Medicine Committee on Utilization Management by Third Parties, 1989).

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The rationale for UM rests on three underlying assumptions:

- In a predominantly fee-for-service payment system there is considerable unnecessary and inefficient care provided to patients.
- Unnecessary care can be controlled, saving substantial amounts of money and improving the quality of care.
- The cost of operating UM systems is small compared with the savings.

Extensive literature suggests that perhaps 10 to 30 percent of diagnostic tests, procedures, and hospital admissions are unnecessary (Chassin et al., 1987; Greenspan et al., 1988; Siu et al., 1986; Winslow et al., 1988a; Winslow et al., 1988b). Whether or not UM can control unnecessary care and do it efficiently is addressed in this article.

Two general aspects of effectiveness are considered: Medical care utilization and costs at the program and system levels and the quality of care. (A brief description of the major UM programs and the history of UM can be found in the Technical note.)

## Individual program utilization and costs

### Inpatient medical and surgical review

The impact of PROs on hospital utilization is unknown, but it may be limited because only 2 to 3 percent of admissions are denied (Vibbert 1991b). On the other hand, the 1983 diagnosis-related-group (DRG) payment system gives hospitals the incentive to admit Medicare patients more frequently. Nonetheless, Medicare admissions have declined during the past 7 years. Some investigators have posited that this decline can be attributed, in part, to the PRO program (Christensen, 1991; Sloan, Morrisey, and Valvona, 1988).

Two studies have examined the effectiveness of private sector, phone-based hospital admissions and length-of-stay certification programs using multivariate statistics and before-and-after control group design. One study reported reductions in medical, surgical, and psychiatric bed days per 1,000 employees of 8 percent and in total health care costs of 6 to 8 percent (Feldstein, Wickizer, and Wheeler, 1988; Wickizer, Wheeler, and Feldstein, 1989; Wickizer, 1990; Wickizer, 1991). Another study of medical and surgical admissions showed a reduction in bed days of 34 per 1,000 employees per quarter, or 13 percent. Inpatient expenses were lowered by

8 percent, and total health care costs by 4.5 percent (Khandker and Manning, 1992).

Compared with telephone-based hospital review, reductions of another 6 percent in bed days per 1,000 employees and 9 percent in net costs are reported when the need for hospital admissions and continued stay is reviewed onsite (in the hospital) by nurses (Smith and Gotowka, 1991).

### **Psychiatric and substance abuse**

Because Medicare has limited mental health coverage, PROs have little involvement in managing psychiatric and substance abuse utilization. For private sector, telephone-based UM programs, the one published multivariate study found reductions in length of stay of 20 percent, in admission rates of 13 percent, and in net inpatient costs of 16.6 percent (Gotowka and Smith, 1991).

### **Medical and surgical procedures**

Until recently, PROs prospectively reviewed up to 10 surgical procedures using explicit criteria. There is little information available on the impact of these reviews, but because they have been discontinued, it is apparent that they were not considered to be effective.

Many studies in the private sector have assessed the effects of second surgery opinion systems, and the results are mixed (Leape, 1989). The weight of the evidence suggests that these programs are only marginally effective in controlling costs.

The use of clinical protocols to prospectively assess the need for selected tests and surgical procedures is just getting started. Denial rates appear to be substantial for some services, e.g., hysterectomies, 21.5 percent, tonsillectomies, 27.1 percent, and minimal for others, e.g., cardiac bypass surgery (Vibbert, 1991a). The denial rate across all inpatient and outpatient services averaged 11 percent. No data are available on net program savings.

### **Case management**

The one study of case management programs reported negligible short-term net savings (Henderson, Souder, and Bergman, 1988). Because of the paucity of studies and the complexities of evaluating case management programs, any conclusions would be premature.

### **System level trends**

At the delivery system level, hospital precertification systems are considered to be an important factor in the dramatic reduction (18.6 percent) in the use of community hospital bed days from 1981 to 1988. This reduction in bed utilization is associated with a substantial reduction in the rate of hospital cost increases (Schwartz and Mendelson, 1991). However, these hospital UM programs appear to have had only a modest impact on total health care cost increases (Schwartz and Mendelson, 1991; Chulis, 1991). Apparently, providers responded to lower bed occupancy rates by increasing utilization of outpatient tests and procedures and inpatient and outpatient fees.

## **Quality**

The effect of UM on the quality of care has generated a great deal of speculation but little serious study. A definitive series of investigations has been done on the impact of Medicare's prospective payment system (PPS) on mortality and morbidity. The specific effects of PROs on quality were not examined separately. Most other work in this area concerns provider, patient, and employer satisfaction with UM systems.

PPS and PROs started about the same time. An examination of their combined impact on quality provides some insights on the effect of UM programs. Focusing on five conditions (acute myocardial infarction, pneumonia, congestive heart failure, cerebrovascular accidents, and hip fracture), a comparison of mortality and morbidity rates before and after the introduction of the (PPS 1981-82 and 1985-86 respectively) showed that PPS was associated with: an improvement in the process of care (Rubenstein et al., 1990); an increase in the percent of patients discharged in an unstable condition (Kosecoff et al., 1990); and no differences in 30-day and 180-day post-admission mortality rates (Kahn et al., 1990). These data suggest that PPS and PROs have not led to a reduction in the quality of care. Little is known about the impact of private sector UM programs on quality.

Another dimension of quality is provider, patient, and employer satisfaction with UM. There is considerable provider dissatisfaction with UM programs. Most concern is with the "hassle factor" associated with previously autonomous physicians having to justify admissions, length of stay, and procedures to UM companies over the phone, dealing with review staff who have varying levels of training and expertise and do not know the patient, and trying to comply with multiple sets of proprietary clinical rules (Grumet, 1989; Stevens, 1990). These problems are exacerbated by the additional operating expenses associated with UM (Holthaus, 1989; Mayo Clinic, 1988).

On the other hand, it is clear that most physicians and hospitals have acquiesced to UM and do comply with UM processes. The key provider concern now appears to be the need to standardize and improve UM systems and operations (Institute of Medicine Committee on Utilization Management by Third Parties, 1989).

### **Patients and employers**

Information on patient satisfaction with UM programs is very limited. Reports by UM companies suggest that patients are generally satisfied (Institute of Medicine Committee on Utilization Management by Third Parties, 1989).

In general, employers' response to UM have been positive, with 73 percent supporting the reviewing of doctors' treatment decisions as a cost control strategy (Health Insurance Association of America, 1991). However, a recent survey by A. Foster Higgins (1990) suggests that employers have some skepticism about the effect of UM: A large percentage report that they don't know if UM programs are effective in controlling costs.

## Future of utilization management

From this review of the literature and from the authors' personal experience operating UM and managed care systems, two questions are addressed: Will payer operated UM continue? If so, what changes are likely to occur in UM programs over the next 5 to 10 years?

There are two reasons to believe that publicly and privately operated UM programs will continue. UM can make a significant contribution both to managing health care costs and to assessing the value of health services in improving health.

## Managing costs

Although the number of scientifically rigorous studies is limited, the available literature indicates that hospital admissions and length-of-stay precertification programs, both medical and surgical, and psychiatric and substance abuse, have led to significant reductions in bed days per 1,000 employees. The data from individual studies are supported by additional evidence from national trends in hospital admissions and length of stay. Clearly, UM systems are associated with major changes in practice behavior.

As to their effect on costs at the individual plan level, a few well-controlled studies of hospital review programs report net total health care savings of 4.5 to 8 percent (Feldstein et al., 1988; Gotowka and Smith, 1991; Khandker and Manning, to be published; Smith and Gotowka, 1991; Wickizer, et al., 1989). Likewise at the system level, UM programs are associated with a significant reduction in the rate of increase in hospital costs during the 1980s (Schwartz and Mendelson, 1991).

In terms of total health care costs, hospital utilization review has had less impact. This may be in part a timing effect, because it is only in the last few years that the majority of employers have had hospital precertification. Another and more important explanation may be the substantial increases in utilization for non-reviewed services, mainly outpatient.

To deal with this problem, utilization review is now being extended to the outpatient setting, and in time should lead to significant reductions in utilization rates. With all the major medical care services under management, it is far more likely that decreased utilization rates will be reflected in significant reductions in the growth of health care costs.

This does not mean that UM will be the primary method for bringing health care cost increases down to socially acceptable levels. Rather, it is an important component of a larger managed care strategy that includes contracting with or employing a select group of providers and having appropriate financial incentives to encourage them to practice high quality efficient medicine.

Further, even with effective managed care, the control of health care costs will also require public policies to deal with the "macro" level problems of unchecked growth of health care technology, facilities, and manpower. Increases in consumer cost sharing may also be a necessary component of an overall national cost-containment policy. Within this context, UM can play a significant role in improving the efficiency of the delivery system.

## Assessing value

Another reason that UM is likely to continue relates to the rising demand for accountability and value. With large and growing expenditures for health care, payers want to know how their money is spent and what it produces in terms of health care quality (process and outcomes).

This is in part the result of growing public awareness of how little is known about the effects of medical procedures and tests on health outcomes, and the significant and unexplained variation in practice patterns among geographic regions and individual physicians. There appears to be greater appreciation that the linkage between utilization of service and health outcomes is very complex, and that more services do not necessarily mean better health.

The point is that the need for UM goes beyond the issue of controlling costs. UM is a primary approach that public and private payers can use to determine if patients are receiving appropriate care and if the money spent on health care is providing value. With this information, payers are in a better position to make informed decisions about health plan and delivery system changes that will lead to greater value.

In summary, there are good reasons to believe that UM will continue. Indeed, UM systems of the general type used in the United States may eventually be adopted by other countries that have controlled health care costs through global budgeting but have little information on the value of the services purchased (Anderson, Sheps, and Cardiff, 1990; Hurst, 1991).

## Utilization management changes

What is likely to change in the next 5 to 10 years are the form and content of UM. Most of these changes will be driven by new UM technologies and organizational relationships. Effective UM is dependent on having access to detailed clinical information on the care proposed or delivered to patients, clinical guidelines that define appropriate care, and positive long-term relationships with providers.

UM programs are severely constrained by the lack of adequate data to support informed and timely decisions on the appropriateness of care delivered to individual patients and to cohorts of patients in a practice or region. Moreover, current approaches to collecting data over the telephone are complex, physician-time intensive, and expensive. This is certain to change in the next few years as providers and payers become linked electronically. This technology is now being installed in hospitals, retail pharmacies, medical laboratories, physician offices, and other delivery settings. Once connected, providers can check patient eligibility, transmit claims, and rapidly and efficiently do many UM tasks such as hospital precertification, thereby reducing much of the administrative cost and complexity.

With electronic data transmission, patient and provider data bases can be created that span multiple health care services (e.g., medical, laboratory, pharmacy) in order to obtain a more comprehensive understanding of the appropriateness of the care delivered to individuals and groups of patients over time. With adequate data, UM

systems will be able to identify those specific problem conditions and providers that need review and those that do not. By targeting reviews, it will be possible to focus on a relatively small subset of conditions and providers, thereby reducing the cost of UM.

A second development is the establishment of explicit clinical guidelines that define appropriate care. Currently, most UM companies use implicit rules (e.g., physician judgment) or simple indication lists to guide UM reviews. Brook (1991) suggests that decision-tree type guidelines are needed for about 200 common conditions that encompass most of medical practice. Support for this view is growing, and many professional groups and Federal research agencies are developing explicit clinical guidelines.

Whether there should be one basic set or multiple sets of national guidelines remains an issue. There appears to be a consensus that guidelines, although based on general medical science, have to recognize limitations in local medical resources. Moreover, the clinical logic used in guidelines must be available to the providers being reviewed. Finally, guidelines must allow for rapid decisionmaking, so as not to delay needed care and to mitigate the hassle factor.

The requirement for timely UM decisions has limited the quality of the UM process to a greater extent than the availability of guidelines. Timely reviews require either that the guidelines be relatively simple or that they be in computer systems that can negotiate complex clinical algorithms in real-time. For many conditions, the UM process will not be very effective using simple rules, so the key is to build systems that can handle complex decision rules. With advancements in computer hardware and decision-support systems, more timely reviews are possible.

In this regard, the development of computerized medical record systems is especially promising. Electronic records will have the capacity to include clinical guidelines in the form of decision-support systems. This technology will allow timely clinical decisions and will change the focus of UM. The need for prospective case-level reviews will be reduced because provider decisions will be assisted internally. Overall provider performance can be assessed by retrospective review of selected subsets or abstracts of electronically stored clinical data that would be available to payers, reviewers, and others (Detmer, 1991).

It is imperative that managed care companies and providers establish congruency in their objectives. This is the only way that UM programs will be successful using the advanced information technology and clinical guidelines described. To date, many providers view UM as an effort to limit their professional autonomy and income. As a result, attempts to control utilization in one area of medical care are likely to be countered with increases in volume and prices in other non-regulated areas. There is evidence that this has been the case with hospital review systems (Schwartz and Mendelson, 1991).

With congruent objectives, UM can be expected to evolve from its current role as a "command and control" regulatory program to more of an educational and decision-support system for physicians. In this way, UM will be of greater value to practitioners and patients and, as a result, should gain broader support.

Congruent objectives can be developed in a number of ways including employment of physicians, as seen in staff and group model HMOs and hospitals, or in strong supplier-customer relationships. Employment of physicians is increasing, but the great majority of physicians remain self-employed. As such, the challenge facing the managed care industry and providers committed to PPOs and individual practice association (IPA)-model HMOs is to develop supplier-customer relationships that are long-term and stable.

More managed care companies appear to appreciate this perspective and are changing their relationship with network providers. This takes on different forms including: decentralizing managed care operations to local markets in order to foster personal relations with providers; selecting providers who practice high quality, efficient care which reduces the need for case-level reviews; using UM as an educational rather than as a punitive approach to improving performance; and finally, making sure that the relationship is profitable for both parties.

Further, as managed care patients become an increasing percentage of physicians' practices, providers will have a similar incentive to develop long-term relationships with those managed care companies with whom they have congruent objectives and values. If stable relationships cannot be developed between independent providers and managed care companies, it is unlikely that IPA-model HMOs will be able to compete successfully over the long run with staff and group-model HMOs.

## Summary

In less than a decade, UM has grown from a narrowly focused effort to reduce hospital utilization, affecting only a fraction of the population, to a large set of programs and services that now cover most of the publicly and privately insured population. With such rapid growth and billions spent in development and operations, questions have been raised about the impact of UM on health care costs and quality.

Although still in a formative stage, the evidence indicates that hospital review, until recently the primary focus of UM efforts, is associated with a significant reduction in bed days and the rate of cost increases at both the program and system levels. However, these reductions have, apparently, had limited impact on aggregate health care costs. As hospital bed days declined, the cost of unmanaged medical services increased. Now, UM is being extended beyond hospitals to include most major medical care services.

UM is likely to continue as an important component of the national effort to control health care costs and to improve quality. In part, this is because UM is an important means for assessing the value of health care services.

In the future, advances in electronic connectivity and the availability of clinical guidelines and computer-based decision-support systems will reduce the need for prospective case level reviews. Also, many managed care companies are trying to develop long-term stable relationships with providers. With these changes, UM programs are likely to become more cost-effective and acceptable to providers, employers, and patients.

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## Technical note

Two major attributes that differentiate UM programs are organizational sponsor and time of review relative to when care is delivered.

### Review organization sponsor

UM programs differ in purpose and method depending on whether they are publicly or privately run. Publicly directed UM systems are based on legislation and are not subject to the same legal constraints (e.g., tort liability, antitrust, malpractice) as privately directed systems.

Further, in all publicly run systems providers are responsible for initiating and complying with UM processes. Patients are usually held harmless for any penalties caused by failing to comply with UM or for any retrospective payment denials. In contrast, for private sector non-network based UM, patients are the responsible party.

Importantly, for both public and private sector programs, denial of certification only means the insurer will not pay for (all or part of) the services. Although this does not prevent the patient from receiving treatment, it may act as a significant deterrent for expensive services.

### Time of review

#### Prospective

Prospective UM addresses care while it is still being planned and, consequently, has the capacity to change or avert planned treatments. Current systems focus primarily on the inappropriate use of inpatient facilities and expensive diagnostic tests and procedures.

Before an elective hospital admission, either patients or attending physicians call to inform the review organization that is often represented by a registered nurse. For non-elective admissions, patients and providers are asked to certify within 48 hours of the admission. In a discussion with attending physicians or their staff, the review organization makes an assessment if the condition is severe enough to warrant hospital level care, and if the expected length of time the patient will be hospitalized represents efficient medical practice. Explicit condition-specific criteria are often used to assist in making these judgments.

As with most certification programs, if agreement is not reached, the case is referred to a review physician who can deny certification for the admission. The attending physician and patient have the right to appeal the denial. Failure to certify or to comply with the review decision is usually associated with a financial penalty.

There are two forms of procedure certification. Second opinion surgery programs require or make available to patients a second opinion from another physician for 10 to 20 elective surgical procedures before they undergo treatment. In most programs, patients have the option of proceeding with surgery even if the second physician does not agree with the first.

Another approach to procedure certification operates in a similar manner to hospital admissions review. Focusing on the necessity of expensive inpatient and outpatient tests and surgical treatments, clinical protocols (also called guidelines, algorithms, or parameters) are used to assist review staff in making decisions.

#### Concurrent

Concurrent review programs focus on the ongoing care of patients, and thus can intervene to change planned treatments. For hospitalized patients, review organizations monitor by telephone or by onsite nurses whether patients need hospital-level care. Likewise, for patients with catastrophic (e.g., acquired immunodeficiency syndrome) or chronic (e.g., diabetes) illnesses UM staff work with patients, families, and attending physicians to assist in coordinating care. Reviewers can obtain payment for non-covered benefits (e.g., home health care) if they are likely to result in more effective or efficient care.

#### Retrospective

These programs assess care after the fact from records and claims and have little potential to directly affect care provided to patients. Retrospective review can influence patient care indirectly by changing the practice patterns of providers faced with retrospective denials. Record reviews are employed both as a primary review method and as a response to post-treatment appeals from prospective or concurrent reviews. Before being paid, submitted claims are monitored to identify and correct claim coding abuses such as unbundling and code creep.

### History of utilization management

Professional standards review organizations (PSROs) were established in 1972 by the Federal government to provide UM services to Medicare patients but were terminated in 1982 because of lack of effectiveness (Health Care Financing Administration, 1980). In 1983, PSROs were replaced by PROs. Federally financed and regulated but regionally operated by local contractors (approximately one per State), PROs are responsible for assuring the quality of services and eliminating unnecessary care.

PROs focus on reviewing high-volume elective procedures, hospital admissions, transfers and readmissions, and DRG "outlier" hospital days. PROs emphasize retrospective review of records but also do some prospective review of selected procedures. The Omnibus Budget Reconciliation Act of 1986 expanded PRO activities to a variety of non-hospital settings, including ambulatory surgeries, nursing homes, home health care agencies, and HMOs (Ermann, 1988).

The first privately sponsored UM programs began in the middle 1960s and focused on hospital utilization.

They covered very few employees until the middle to late 1980s (Ermann, 1988), but now include about 90 percent of the 180 million people with private medical insurance (Sullivan and Rice, 1991). The review of psychiatric and substance abuse and dental services is also widespread. UM for other medical services (e.g., laboratory medicine, pharmacy) and settings of care (e.g., physician offices) are just beginning.

A new industry has developed in the last 10 years to provide employers UM services. In addition to the large national insurers (e.g., Metlife, Aetna, and The Travelers) and HMO companies (e.g., Humana Health Plan, Inc., U.S. Health Care, Inc.) that provide a full spectrum of managed care services, there are about 200 companies that only offer UM services (Medical Utilization Review Directory, 1991). Some of these companies are national in scope (e.g., INTRACORP, HealthCare Compare), but most are regional or local. These companies usually specialize in one area of UM (e.g., medical and surgical or psychiatric and substance abuse) so that it is not unusual for an employer to have contracts with several UM companies.

There is considerable variation among UM companies in the types, qualifications, numbers, and location of review staff employed, criteria used to assess clinical appropriateness, level of staff supervision, and ability to assess and report on program effectiveness (Institute of Medicine Committee on Utilization Management by Third Parties, 1989). This variation is likely to be associated with substantial differences in UM company effectiveness.

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