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Quality and health improvement programs are tailored to the diversity in preference and willingness to pay across customer segments.

by James C. Robinson and Jill M. Yegian

ABSTRACT: Health insurers are under conflicting pressures to improve the quality and moderate the costs of health care yet to refrain from interfering with decision making by physicians and patients. This paper examines the contemporary evolution of medical management, drawing on examples from UnitedHealth Group, WellPoint Health Networks, and Active Health Management. It highlights the role of claims data, predictive modeling, notification requirements, and online enrollee self-assessments; the choice between focusing on behavior change among patients or among physicians; and the manner in which medical management is packaged and priced to accommodate the diversity in willingness to pay for quality initiatives in health care.

MEDICAL MANAGEMENT, the population-based effort to monitor and improve clinical effectiveness, risks being a principal casualty of the backlash against managed care. During the 1980s and 1990s, health plans struggled to transform themselves from passive third-party payers into organizations engaged in integrating provider networks, channeling enrollees to participating physicians, and influencing those physicians' clinical decisions through utilization review.[1] The subsequent resistance to limits on consumers' choice of providers and on providers' choice of procedures eviscerated the core components of insurers' medical management programs, including narrow networks, primary care gatekeeping, and prior authorization for admissions and procedures.[2] As the industry abandons the mantle and mission of managed care in the era of health care consumerism, it would seem that population-based medical management would fade away in favor of a new definition of *appropriate care* as whatever the informed patient is willing to pay for.[3]

Militating against the unraveling of clinical programs in the health insurance industry is the accumulating evidence of serious and remediable deficiencies in quality of care, coupled with a resurgence of cost inflation. Research studies, authoritative entities such as the Institute of Medicine (IOM), and the insurers' own

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claims data reveal widespread overuse, underuse, and misuse of services, compared with evidence-based norms and clinical guidelines.[4] After a decade of relatively stable medical costs, insurers face rising prices and utilization rates for hospital, ambulatory surgery, and pharmaceutical services as excess capacity has declined, provider consolidation has increased, and consumer resistance to limits has intensified.[5] Some of the insurers' customers—especially large firms and public employee programs—demand that insurers mount disease management and quality improvement initiatives as a condition for contracting. State regulatory agencies and private accreditation bodies mandate medical management programs for those insurance products under their purview. Advances in information technology (IT) and analytic capabilities offer the tantalizing possibility of being able to predict which enrollees are at greatest future risk of adverse events, thereby permitting a focus of medical management resources on those most likely to benefit. Everyone hopes that early intervention and coordination of care can reduce subsequent spending on the sickest patients, as a complement to cost-sharing requirements that target spending by the healthy majority.

This paper provides a snapshot of medical management as the health insurance industry seeks to balance the competing pressures to moderate costs and improve quality, on the one hand, and not to intervene in health care decision making by physicians and patients, on the other. It is based on case studies of the disease management and related programs at the two largest U.S. health plans, UnitedHealth Group (UHG) and WellPoint Health Networks, and a freestanding quality monitoring and improvement organization, Active Health Management, which provides analytic services to numerous insurance plans. Emphasis is placed not on the programs' clinical efficacy but on the business strategy of which they are a part: the manner in which candidate patients are identified and intervention programs are structured in the context of wide variation in purchasers' willingness to pay for medical management as part of health insurance benefits.

Identification And Intervention

■ **Identification.** The epidemiological driver of insurers' medical management initiatives, source of both the opportunity and the challenge, is the concentration of spending in a small subset of the enrollee population. The sickest 10 percent of enrollees account for 70 percent of spending in any one year, with the vast majority using only modest amounts of preventive and primary care services.[6] Because of the prevalence of chronic conditions, enrollees incurring the highest costs in one year also incur a disproportionate share in the subsequent year, although the correlation is not perfect. For example, one health plan finds that the sickest 5 percent of enrollees account for 45 percent of costs in one year but only 18 percent in the next.[7] The concentration of spending enables medical management programs to minimize their costs and maximize their benefits to the extent that they target current and prospective high users. Health plans are severely limited, however, in the informa-

tion at their disposal for identifying candidates for intervention, with claims data and notification requirements providing only partial insights into what was done to the patient and even less insight into the patient's underlying clinical condition and future need for care. The diversity in health status and care-seeking behavior implies that intervention programs should be tailored to the distinct needs of patients with catastrophic conditions, those suffering from chronic illnesses, those with acute but temporary needs for services, and those who need to be reminded to take advantage of preventive and primary care services.

Health plans are at the center of the flow of reimbursement claims and can observe patterns of physician, hospital, laboratory, and pharmaceutical care better than anyone else in the fragmented delivery system. If successfully captured, cleaned, integrated, warehoused, analyzed, and interpreted, claims data constitute a powerful tool for the identification of patients with current and future needs, the comparison of existing patterns of care with clinical guidelines, the stratification of providers according to quality and efficiency, the underwriting and pricing of insurance products for particular purchasers, and myriad other uses. All of the major health plans have invested heavily in data and analytic systems in the effort to develop and exploit this asset. However, claims data as a means for identifying disease management candidates suffer from important limitations that are yielding only slowly to efforts at refinement. The data are incomplete, often lacking claims for services provided by carved-out pharmaceutical benefit managers (PBMs), carved-out managed behavioral health organizations (MBHOs), and capitated physician practices. Diagnostic coding is weak on physician claims, clinical values are missing for tests performed in small local laboratories, and the many tests and procedures done during a hospital stay may be rolled up into a terse account. Claims often come in through multiple transmission systems and reside on multiple computers that communicate with each other imperfectly, especially for health plans that have grown through mergers and acquisitions. Claims are entered into the data warehouse only when they are paid; complex and contested claims must wait for the resolution of disputes over coverage, coding, pricing, and medical necessity.

■ **Intervention.** The principles underlying intervention are the same as those underlying identification. The skewed distribution of spending, opposition from physicians, skepticism among patients, and diversity among purchasers drive health plan intervention programs to focus their attention on a small number of conditions, limit resources, measure impacts, and structure programs into a core set of services with buy-up options. The salient feature of most health plan initiatives is their emphasis on changing the behavior of patients, rather than that of physicians. Efforts to change physicians' behavior require expensive peer-to-peer contact by health plan medical directors, and they run the risk of further antagonizing the targeted practitioners. Patient-oriented programs are managed by nurses and nonclinical staff, target chronic conditions where self-care is important, and are consistent with the

philosophical shift in insurers' attention away from the supply side toward the demand side of the medical market.

UnitedHealth Group

UHG, the nation's largest health insurance, benefits administration, information, and services firm, is a holding company with distinct divisions focused on insurance products; management of self-insured corporate accounts; services for senior citizens; health data and analytic software; and a spectrum of specialized clinical services such as organ transplantation, dental care, vision care, and behavioral health care. Several years ago UHG extracted the medical management programs from the insurance products in which they had been embedded and collected them into a stand-alone Care Management business unit that designs and markets wellness, disease management, catastrophic case management, and related programs to UHG insurance and benefit administration subsidiaries and to outside customers. Care Management works in close collaboration with Ingenix, the UHG subsidiary that captures, warehouses, and analyzes claims data and that has developed predictive modeling techniques to prospectively rank health care risks. Claims-based risk rankings are supplemented by prior notification sources to identify candidates for intervention programs, each of which is targeted at a particular point in the process of care.

■ **Claims data as economic asset.** UHG has committed to transforming itself from an insurer to a diversified health data and services firm, and it interprets the claims flowing in for its eighteen million covered lives as a core asset to be exploited for multiple purposes and multiple distinct customers, including insured UnitedHealthcare products, self-insured Uniprise Solutions accounts, pharmaceutical manufacturers interested in practice patterns and clinical benchmarks, independent insurers and third-party administrators (TPAs) engaged in underwriting and actuarial pricing, and clinical initiatives of every description. The data are managed by Ingenix, allowing that firm to specialize in developing tools to integrate, analyze, and price information services, while the clinical programs are operated by Care Management, which purchases the data and analytics from Ingenix, develops programs for patients at risk, and sells these intervention programs.

Ingenix obtains physician, hospital, pharmacy, and laboratory claims from UnitedHealthcare, Uniprise, and other health plans and benefit administrators and works to transform the raw data into clinically meaningful indicators of underlying disease and risks. Effort is devoted to the grouping of disparate claims into episodes of care, separation of relevant from miscellaneous diagnostic and procedure codes, and application of linear regression and artificial intelligence methods to predicting future risk from past use. The importance of data completeness underlies UHG's avoidance of capitation as a form of provider payment, since diagnostic and procedure coding is never as detailed on the encounter data received from prepaid group practices as on claims data from fee-for-service provid-

ers. For similar reasons, it discourages customers from carving out mental health, drug benefits, disease management, disability insurance, and ancillary services. The most important challenge to claims data is carved-out pharmacy services, given the central role of drug claims both in identifying candidates for intervention and in monitoring for gaps and overlaps in care processes. UHG outsources the administrative dimensions of pharmacy benefit management but retains the drug claims data in Ingenix and works to integrate drug claims from outside PBMs. Ingenix uses the drug and physician claims data to generate a risk ranking on each UHC and Uniprise enrollee and transfers the rankings and the underlying claims data to Care Management for the 5 percent of members with the highest rankings.

Care Management focuses one-third of its interventions on patients identified through the predictive model and two-thirds on patients identified through prior notification requirements and, to a much lesser extent, online self-administered risk assessments, physician referral, and patient self-referral. UHG led the health insurance industry in dropping prior authorization and precertification requirements in 1999, arguing that the cost of administering barrier methods to utilization management exceeded the financial benefits, but it retained the requirement that providers notify the health plan prior to hospital admission, major outpatient procedures, physical therapy, home health care, and use of high-cost durable medical equipment (DME). The principal function of these notifications is to identify patients for disease management and care coordination, but they also underlie some initiatives with a cost control focus. Care Management screens for non-covered services, such as cosmetic procedures, investigational drugs and devices, and custodial care, and a few large self-insured employers insist on (and are willing to pay for) review of services for medical necessity.

■ **Care coordination.** The various mechanisms for flagging high-risk patients, including predictive modeling, prior notification, and online patient self-assessments, all feed into the same core process at Care Management, which consists of a nurse's telephone assessment of the enrollee. These assessments supplement the claims and notification data with additional information on the patient's condition and seek to identify gaps or overlaps in care where subsequent intervention might prove beneficial. As with identification, the intervention initiatives at Care Management are structured as discrete services that can be monitored, evaluated, and marketed individually or in combination with other UHG services. Care Management packages several interventions into a core portfolio that is included with all insured UnitedHealthcare products and is available à la carte and with buy-up extensions to the self-insured Uniprise clients and external customers who do not contract with UnitedHealthcare or Uniprise.

Care Management tailors interventions to address key points along the continuum of care, including preventive services, ambulatory surgery, hospital admission and discharge, and maintenance for ongoing chronic conditions. Preventive

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service reminders are the cheapest interventions, as they derive from the claims data rather than personalized nurse assessments, and hence constitute the numerically greatest portion of activities, going out to more than 2.3 million enrollees per year. Enrollees scheduled for elective surgery or inpatient admission are contacted prior to the event with information on what to expect and what form of follow-up care to request. During a hospitalization, the focus of Care Management is on discharge planning, seeking to obviate delays in care that extend length-of-stay beyond clinical norms. These interventions usually are via telephone to the hospital discharge planning nurse and, on occasion, from a UHG medical director to the attending physician. They are consultative and advisory in nature, as UnitedHealthcare and Uniprise do not deny payment for extra days based on medical necessity. After discharge, high-risk patients are again contacted to help coordinate home health care, access to DME, and follow-up office visits with their physicians.

Patients with severe chronic conditions, independent of hospitalization or major procedures, are contacted with the intent of ensuring compliance with medications and other physician recommendations, encouraging appropriate diet and self-care, promoting better understanding by the patient of the illness and clinical options, and coordinating with family and community resources outside the scope of insured benefits. The chronic disease interventions are structured around the needs of patients with any of twenty prevalent conditions. For example, of the 5 percent of high-risk patients flagged for Care Management, 31 percent have hypertension, 19 percent diabetes, 18 percent hyperlipidimia, 13 percent coronary artery disease, and 12 percent depression; most have multiple chronic conditions.

The focus on the patient rather than the physician is evident in the distribution of interventions by the Care Management system, whose nurses contact more than 600,000 patients each year, compared to 22,000 medical director interventions with practicing physicians. In 2002, 45 percent of the interventions centered on medication compliance and use of incompatible drugs; 22 percent on opportunities to promote self-care such as monitoring blood sugar; 11 percent on mental health and behavioral problems that interfered with the patient's ability to manage his or her own care; 21 percent on a variety of educational, socioeconomic, and care coordination needs; and 1 percent on efforts to change clinical practices that were inconsistent with evidence-based guidelines.

When Care Management sells its services to self-insured employers and non-UHG health plans, the core set of interventions can be extended through buy-up, in several dimensions. The predictive modeling can reach further into a particular employer's workforce by applying the analytics on a single firm's population only, rather than as pooled with the entire UHG enrolled population, and by raising

trigger points for intervention from 5 percent to 7 percent or higher, for all conditions or for conditions specified by the purchaser. Criteria for patient preadmission counseling can be extended from cardiac conditions and orthopedic procedures to a wider set specified by the purchaser, while criteria for postdischarge coordination can be extended from pneumonia, cardiac conditions, diabetes, and more than two unplanned admissions per year to a broader set of indicators. Large self-insured customers can support their own dedicated Care Management units, with higher levels of physician and nurse staffing and hence more intensive outreach and contact with employees. Of the 14.2 million UnitedHealthcare and Uniprise enrollees served by Care Management, all but a half-million obtain the basic portfolio of identification and intervention services, and the remainder are covered by buy-up options that cost two to three times the amount charged for the core. While some employers are willing to buy up to more intensive care management services, others want to buy down, minimizing the administrative expense of identifying and intervening in the process of care. Approximately one million enrollees served by UHG, mostly from labor union trusts and other programs using TPAs, contract for network access but do not purchase analytic services from Ingenix or intervention services from Care Management.

WellPoint Health Networks

WellPoint evolved out of Blue Cross of California, an indemnity insurer whose enrollment was concentrated in the price-sensitive individual and small-group market segments; a decade of rapid expansion has made the firm a major player in the midsize- and large-group sectors, in Medicaid managed care programs, and in the Midwest and Southeast through the acquisition of Blue Cross Blue Shield plans in Georgia, Missouri, and Wisconsin. It has announced its intention to be acquired by Anthem, which would create the nation's largest health plan, with twenty-six million enrollees, $36 billion in annual revenues, and Blue Cross Blue Shield licenses in thirteen states.[8]

The heterogeneity in customer demand, practice patterns, and corporate cultures brought to WellPoint a commensurate but confusing heterogeneity in medical management. Four years ago the firm extracted medical management activities from its geographic regions and market segment units and consolidated them in a single management structure, seeking to develop a unified mission and method.[9] An important secondary purpose was to raise the visibility of medical management and quality improvement within the larger corporation. WellPoint seeks to distance itself from the imagery of gatekeeping and position itself as an entity that supports rather than frustrates consumer choice. It is intrigued, however, by the potential value residing in its claims data concerning the needs and preferences of millions of customers in an industry that is shifting from wholesale to retail purchasing. The balance point between desires to disassociate from managed care, on the one hand, and intervene to moderate costs and quality deficiencies, on the

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other, lies in disease management initiatives with strict patient targeting and attention to minimizing administrative costs, combined with ongoing efforts to evaluate the information that can be derived from the data.

WellPoint has largely eliminated capitation for hospital services, retaining the claims-paying authority that accompanies fee-for-service payment, and has pushed for more complete encounter data for capitated physician services. It has chosen to retain prior authorization for some products and market segments, given their modest cost-reducing effect and their ancillary benefits for identifying disease management and case management candidates. However, the health plan abandoned prior authorization in the California individual market; the levels of consumer cost sharing are now so high in the individual market (more than half the plan's members are enrolled in products with deductibles of $2,500 or more) that patients limit their use of any service that would be flagged by utilization management. The plan finds that employers in the small- and, especially, the large-group markets continue to expect utilization management, and interest has been rekindled in the most recent period of cost inflation and publicized instances of unnecessary surgery.

The disease management initiatives at WellPoint emphasize changes in patients' behavior rather than physicians' behavior; they target asthma, diabetes, congestive heart failure, and perinatal complications through information, reminders, and counseling. Programs for cardiovascular disease, orthopedic conditions, and oncology support have been developed but will not be rolled out until the effectiveness of the core programs has been evaluated. The disease management programs are uniform across states and market segments, in contrast to the utilization management and notification systems. The disease management programs center on helping patients with chronic conditions understand their disease; comply with their physician's recommendations (especially with prescribed medications); and make needed changes in diet, exercise, and other lifestyle factors. Case management programs target patients with complex and nonroutine needs, with a focus on coordination of services, discharge planning, and managing benefits. Candidates for case management are typically identified as part of an acute hospitalization, with the exception of patients needing organ transplantation or oncology services, where diagnosis is sufficient.

Until convincing evidence of effectiveness and cost-effectiveness becomes available, WellPoint's disease and case management programs accommodate modest expectations with modest expenditure of resources. The firm sees greater potential impact from channeling enrollees to physicians with efficient practice patterns than from efforts to change practice patterns. WellPoint is rolling out a

national preferred provider organization (PPO) product with a prior authorization structure targeted at patients rather than providers, with the lowest coinsurance required if patients obtain authorization from the health plan for specialty referrals and procedures, an intermediate level of coinsurance if services are obtained from network providers but without prior authorization, and the highest coinsurance required if services are obtained out of network. The health plan hence replaces the primary care physician as the gatekeeper from which the patient seeks a referral to specialty services. WellPoint is extending centers-of-excellence principles from organ transplantation to coronary artery bypass and to bariatric surgery, the former based on state-sponsored data on risk-adjusted outcomes by hospital and the latter because of the surge in the procedure among enrollees who have not attempted less radical weight-loss methods.

Active Health Management

Patients' understanding and management of their own conditions clearly is an important component of any therapeutic process, but many of the most important decisions are in the hands of physicians, not of patients themselves. Some health plans therefore are seeking to use their claims data systems to identify divergence between the care actually being delivered to individual enrollees and the care that should be delivered, based on the scientific literature and guidelines developed by authoritative sources. Improved patient compliance with a therapeutic regimen does not improve outcomes if the regimen itself is inappropriate. Efforts to influence physicians' behavior are expensive, need continual verification that identified divergences are not due merely to incomplete data, and must be handled delicately to avoid further inflaming physicians' antipathy toward third-party monitoring.

WellChoice, the parent company for Empire Blue Cross Blue Shield in New York, incubated and then spun off Active Health Management (AHM) with the mission of combining claims data with algorithms that search for patterns of over- and underuse of services and then reaching out directly to practicing physicians. AHM now serves four million enrollees in eleven health plans, ranging from Aetna through various Blue Cross Blue Shield plans, Medicaid health maintenance organizations (HMOs), and consumer-oriented start-ups such as Definity Health, each for a different combination of products and customers. From the insurers' and employers' perspectives, AHM's services are a buy-up, as they typically are layered on top of in-house disease management programs and cost an additional $0.60 per member per month for commercial enrollees and $1.00 for Medicare enrollees. (By comparison, the fees insurers charge self-insured corporate accounts, covering network access, claims processing, patient-oriented disease management, and related administrative services, range typically between $15 and $20 per employee per month.)

■ **Claims data and clinical algorithms.** The AHM system combines a data

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warehouse, which integrates physician, pharmaceutical, laboratory, and hospital claims, with thousands of decision rules on appropriate and inappropriate diagnoses and therapies. The AHM medical directors develop the decision rules based on the literature, with each decision tree exhibiting numerous branches to account for comorbidities, previous tests and interventions, and factors that could justify the deviation of a particular intervention from the standard course of treatment. The clinical algorithms are combined into approximately 650 "care considerations," indications of a deviation between actual and optimal care, with new indications continually under development. One-quarter of the care considerations center on monitoring and procedures, one-quarter on preventive service reminders, 37 percent on recommendations to add a drug to the treatment regimen, and 13 percent to drop a drug from the regimen (because of potential interactions with other drugs or because laboratory findings contraindicate its use). Level 1 considerations are potentially severe and urgent, generate a telephone call from an AHM medical director to the practicing physician, and constitute 3 percent of the total. Level 2 considerations are potentially severe but are less urgent and are handled via telephone or letter; these make up 40 percent of the total. The remaining (Level 3) considerations consist largely of reminders for missing preventive services and are handled by nurses phoning or writing to the physicians' offices.

After contacting the physician or physician's office, AHM waits several months to see if evidence of an alteration in the practice pattern can be observed in the claims data flow, as in the prescription of a recommended drug; if not, AHM recontacts the physician's office. AHM customers can specify the number of times they expect the firm to recontact physicians if there is no evidence of behavior change, with individual customers placing differing weights on the cost of outreach and the potential for annoying the physicians. Customers also can specify that algorithms be "turned off" for their enrollees, because of considerations of cost (for example, do not want recommendations of expensive medications) or privacy (for example, decision rules related to HIV status). The category of decision rules most frequently turned off by customers are the preventive services reminders (Level 3), as these are least likely to produce a physician behavior change. AHM reports that 50–70 percent of the Level 1 recommendations result in physician behavior change, while Level 2 recommendations change behavior in 20–40 percent of instances and Level 3 recommendations in less than 20 percent.

The limits of physician-oriented medical management have stimulated AHM to invest in patient-oriented and nurse-administered interventions, based on clinical algorithms. Nurses contact patients whose care considerations suggest a potentially important role for patient behavior change, first ascertaining whether a

problem truly exists and then educating the patient on ways to promote his or her health and course of treatment. AHM always seeks to notify the practicing physician before contacting a patient. In some cases, the physician is supportive of having the firm reach out to the patient, because compliance has been a problem, but in others the physician is nonresponsive. Lack of physician response or cooperation, after appropriate notification, is not grounds for AHM to desist from efforts to contact the patient.

Conclusions

Evolving initiatives in medical management are guided by a core set of principles. First, all programs are designed to minimize abrasion with patients and physicians, since no improvement in cost or quality would be worth reigniting the backlash generated by earlier efforts. The contemporary programs are voluntary for the patients, rely on education and incentives rather than barriers and requirements, and are kept as separate as possible from adjudications of benefit coverage and medical necessity. The main target of the insurer programs is behavior change among patients, through better prevention and self-management for chronic conditions, with only cautious and information-oriented outreach to physicians. This shift in focus from the physician to the patient is emblematic of the larger shift in emphasis from providers to consumers in all of the industry's activities.

Second, medical management programs are targeted narrowly at those conditions and candidates where the expected benefits of intervention clearly exceed the expected costs. Different initiatives are aimed at each subgroup within the enrollee population, and each is subjected to continual monitoring for effectiveness and cost-effectiveness. Quality and health improvement initiatives are tailored to the diversity in preference and willingness to pay across customer segments.

Third, the health plans' medical management programs are designed, packaged, and priced with modest expectations for what they can deliver. All programs assert that they generate a positive return on investment, with the benefits in lower medical costs exceeding the administrative costs of identification and intervention. The positive return on investment is predicated on the modest level of investment, however, and a major ramping up of medical management programs would not generate commensurately higher returns and slay the dragon of cost inflation and quality deficiency.

HEALTH PLANS PERFORM MANY FUNCTIONS across many products, customer segments, and geographic markets. Medical management ranges alongside benefit design, network contracting, provider rate negotiations, claims processing, consumer information, insurance risk spreading, and the combination of health with nonhealth services into product portfolios to be packaged, priced, and sold. No novice observer, innocent of the tortuous history of insurers'

attempts to influence the health care delivery system, would latch onto the modestly financed analysis of administrative claims data and outreach to narrowly targeted conditions as the defining feature of what the industry is and does. Health plans might be described as insurers or benefit adjudicators or network contractors or consumer service providers, but no one today would invent the term "managed care organization."

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